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OPERATIONS DIVISION  
APR 11 1952

HANFORD WORKS MONTHLY REPORT

FOR  
FEBRUARY 1952

Hanford  
43771

REPOSITORY RUL

COLLECTION Atmospheric Releases

BOX No. NIA

FOLDER NIA

Classification reviewed for de-  
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by J.P.D.L. J.K.B.

Date 5-15-73

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By Authority of RLO:CK-K

March 21, 1952

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PM Eck 3-30-92

HANFORD WORKS

RICHLAND, WASHINGTON

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

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TABLE OF CONTENTS

General . . . . .	4
Staff . . . . .	5
Force Report . . . . .	6
Personnel Distribution . . . . .	7
<u>Manufacturing Department</u> . . . . .	15
Plant Statistics . . . . .	18
Metal Preparation Section . . . . .	22
Reactor Section . . . . .	27
Separations Section . . . . .	34
<u>Engineering Department</u> . . . . .	42
<u>Technical Section</u>	
Pile Technology Unit . . . . .	46
Separations Technology Unit . . . . .	88
Analytical Unit . . . . .	110
Technical Services Unit . . . . .	120
Design Section . . . . .	135
Project Section . . . . .	145
<u>Medical Department</u> . . . . .	164
<u>Radiological Sciences Department</u> . . . . .	177
<u>Financial Department</u> . . . . .	202
General Accounting Section . . . . .	204
Manufacturing Accounting Section . . . . .	228
Engineering Accounting Section . . . . .	230
Community Accounting Section . . . . .	233
<u>Utilities and General Services Department</u>	
Plant Security and Services Section . . . . .	234
Purchasing and Stores Section . . . . .	269
Transportation Section . . . . .	285
Electrical Distribution and Telephone Section . . . . .	289
Statistical and Computing Services Section	
Statistics Unit . . . . .	294
Computing Unit . . . . .	299
<u>Employee and Public Relations Department</u> . . . . .	305
<u>Community Real Estate and Services Department</u> . . . . .	332
Contract Section . . . . .	333
Community Services Section . . . . .	334
Public Works Unit . . . . .	335
Recreation and Civic Affairs Unit . . . . .	337
Richland Public Library . . . . .	341
Richland Police . . . . .	343
Richland Fire . . . . .	351
Engineering Unit . . . . .	353
Real Estate Section . . . . .	356
Housing and Real Estate Maintenance Unit . . . . .	357
Real Estate Engineering Unit . . . . .	368
Commercial Property Unit . . . . .	370
700, 1100, 3000 Area Services Section . . . . .	374
Project and Related Personnel . . . . .	379

HANFORD WORKS MONTHLY REPORTFEBRUARY 1952GENERAL SUMMARYProduction Operations

All production forecasts for the month were exceeded except those which were dependent upon Redox output for feed. Shake-down difficulties in the Redox plant curtailed its expected output, although 82% of forecasted material was started through the plant.

Several new records were established in the reactor plants. The number of failures of slug jackets decreased for the second consecutive month indicating that steps taken to improve the quality of the jackets many months ago are beginning to be effective. Although this downward trend is expected to continue, it may not take place owing to the continued successful efforts to increase power levels.

Engineering and Technology

A new record rate of production of tritium was attained during the month.

Development and engineering work directed toward the design of a new large reactor and an improved new separations plant were intensified.

Expansion and Construction

Definite plans are under way for a major expansion of plant which is currently described as "Program X" and which will be assembled into a Project Proposal.

Completion schedules of some construction jobs continue to be adversely affected by labor disputes and shortages of certain crafts.

The overall current construction program is more than 50% complete.

Personnel and Services

The plant roll decreased slightly to 9,055 as did the turnover rate, 1.51%.

Three employees were honored by Coffin Awards, General Electric's top distinction for outstanding performance.

Kadlec Hospital was approved by the Council on Medical Education and Hospitals of the American Medical Association for interne and residency training in general practice.

There were 680 applications for housing pending.

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**CONFIDENTIAL**

STAFF

General Manager . . . . . G. R. Prout  
Manager, Schenectady Office . . . . . B. R. Prentice  
Assistant General Manager . . . . . W. E. Johnson  
Assistant to the General Manager, General Administration . . G. G. Lail  
Assistant to the General Manager, Technical . . . . . W. I. Patnode  
Assistant to the General Manager, Salary Administration . . . J. R. Rue  
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  
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

**CONFIDENTIAL**

FORCE REPORT

FEBRUARY 1952

	EXEMPT		NON EXEMPT		TOTAL	
	1-31-52	2-29-52	1-31-52	2-29-52	1-31-52	2-29-52
<u>GENERAL</u>	26	27	36	40	62	67
<u>LAW</u>	2	2	6	4	8	6
<u>ENGR. DEPT.</u>						
General	2	2	1	1	3	3
<u>Design &amp; Const. Section</u>						
Construction	12	11	22	6	34	17
Design	216	211	415	384	631	595
No. Richland Realty	17	17	115	110	132	127
Proj. Engr.	77	78	14	12	91	90
<u>Technical Section</u>						
Administrative	6	6	4	8	10	14
Pile Technology	173	173	171	175	344	348
Separations Tech.	107	108	66	62	173	170
Technical Services	31	30	148	154	179	184
Analytical	87	87	139	139	226	226
<u>MANUFACTURING DEPT.</u>						
General	21	21	12	12	33	33
Reactor	193	190	925	944	1118	1134
Metal Prep. Section	76	76	383	388	459	464
Separations	268	268	1304	1282	1572	1550
<u>MEDICAL</u>	41	42	233	234	274	276
<u>RADIOLOGICAL SCIENCES</u>						
General	3	3	2	3	5	5
Records & Standards	24	24	145	144	169	168
Biophysics	4	46	68	64	113	110
Biology	35	38	46	44	81	82
<u>FINANCIAL DEPT.</u>						
Engr. Acctg.	15	15	77	68	92	83
Mfg. Acctg.	6	6	31	32	37	38
Gen. Acctg.	29	29	117	118	146	147
Gen. Acctg. Payroll	10	10	97	94	107	104
Comm. Acctg.	4	4	15	15	19	19
<u>EMPLOYEE &amp; PUBLIC RELATIONS</u>	38	39	74	74	112	113
<u>UTILITIES &amp; GENERAL SERVICES</u>						
General	17	18	13	13	30	31
Elect. Dist. & Telephone	30	31	148	146	178	177
Transportation	42	42	476	470	518	512
<u>Plant Sec. &amp; Services</u>						
Patrol & Security	56	56	599	601	655	657
Safety & Fire	42	42	108	107	150	149
Office Services	28	28	280	303	308	331
Purchasing & Stores	87	91	339	336	426	427
Statistical & Computing Services	12	16	42	46	54	62
<u>COMM. REAL ESTATE &amp; SERVICES</u>	185	185	360	351	545	536
<u>TOTAL</u>	2063*	2072*	7031	6983	9094	9055

1214479

PERSONNEL DISTRIBUTION - FEBRUARY 1952

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
<u>GENERAL</u>												
Exempt Pers.	-	-	-	-	-	-	-	-	-	-	27	27
Cler. & Other Non Ex.	-	-	-	-	-	-	-	-	-	-	40	40
Total	-	-	-	-	-	-	-	-	-	-	67	67
<u>LAW</u>												
Exempt Pers.	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	6	6
<u>ENGR. DEPT.</u>												
<u>GENERAL</u>												
Supv.	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	-	-	3	3
<u>DESIGN &amp; CONST.</u>												
<u>CONSTRUCTION</u>												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Inspec. & Analyst	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	-	-	-	17	17
<u>DESIGN</u>												
Supervisors	23	1	-	3	12	1	-	2	-	-	3A	80
Other Exempt	11	7	-	8	11	-	30	4	-	13	47	131
Draftsmen & Designers	-	-	-	-	-	-	3	-	-	13	104	120
Clerical	36	-	-	2	-	-	4	-	-	12	94	148
Others	24	-	-	2	15	1	13	6	-	6	48	116
Total	94	8	1	15	38	2	50	12	-	44	331	595
<u>NO. RICHLAND REALTY</u>												
Supervisors	-	-	-	-	-	-	-	-	-	17	-	17
Janitors	-	-	-	-	-	-	-	-	-	15	-	15
Clerical	-	-	-	-	-	-	-	-	-	39	-	39
Others	-	-	-	-	-	-	-	-	-	56	-	56
Total	-	-	-	-	-	-	-	-	-	127	-	127

PROJ. ENGR.

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-K Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
Supervisors	-	-	-	-	-	-	-	-	-	-	37	37
Engineers	-	-	-	-	-	-	-	-	-	-	41	41
Clerical	-	-	-	-	-	-	-	-	-	-	7	7
Others	-	-	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	-	-	90	90

TECHNICAL

GENERAL

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-K Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
Supervisors	-	-	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	-	-	14	14

PILE TECH.

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-K Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
Supervisors	1	6	-	5	18	-	3	5	-	-	1	6
Metallurgist & Eng.	16	4	-	5	8	-	3	34	-	-	1	83
Physicists	-	4	-	5	-	-	-	16	-	-	-	25
Engr. Assts.	17	4	2	6	12	-	2	22	-	-	-	59
Tech. Grads.	18	3	1	6	-	-	-	24	-	-	-	66
Technologists	16	1	1	4	-	-	-	2	-	-	-	24
Lab. Assts.	17	8	-	6	-	-	1	17	-	-	-	49
Clerical	6	2	-	3	3	-	-	16	-	-	-	30
Engr. Assts.	-	2	-	-	-	-	-	1	-	-	-	6
Total	91	33	4	35	41	-	6	137	-	-	1	348

SEPARATIONS TECH.

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-K Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
Supervisors	-	-	-	4	-	1	9	10	-	-	-	20
Chemists & Engr.	-	-	-	-	-	4	47	37	-	-	-	88
Tech. Grads.	-	-	-	-	-	-	6	18	-	-	-	24
Clerical	-	-	-	-	-	-	6	11	-	-	-	17
Lab. Assts. & Tech.	-	-	-	-	-	-	7	8	-	-	-	15
Other Non Exempt	-	-	-	-	-	2	1	3	-	-	-	6
Total	-	-	-	-	-	7	76	87	-	-	-	170

100-B Area 100-D Area 100-F Area 100-H Area 101 Area 200-E Area 300 Area Plant General Area 3000 700-1100 Area Total

Tech. Services

Supervisors	-	2	-	-	-	2	6	-	-	-	-	3	13
Other Exempt	-	6	-	-	-	2	5	-	-	-	3	1	17
Technologists, Tech. Grads.	-	8	-	-	-	3	-	-	-	-	-	-	11
Lab. Assts.	-	-	-	-	-	14	4	-	-	-	-	-	14
Clerical	-	4	1	-	-	4	36	-	-	1	48	-	94
Others	2	2	1	-	-	8	21	-	-	-	1	1	35
Total	2	22	2	-	-	30	71	-	-	4	53	-	163

Analytical Tech.

Supervisors	1	-	-	-	-	17	11	-	-	-	-	-	28
Chemists & Engrs.	3	1	-	-	-	16	38	-	-	-	-	-	58
Technol., Tech. Grads.	1	-	-	-	-	34	9	-	-	-	-	-	46
Lab. Assts.	6	-	-	-	-	56	21	-	-	-	-	-	84
Clerical	-	-	-	-	-	3	5	-	-	-	-	-	8
Total	11	1	-	-	-	126	84	-	-	-	-	-	226

Manufacturing Dept.

Supv.	-	-	-	-	-	-	-	-	-	-	-	13	13
Other Exempt	-	-	-	-	-	-	-	-	1	-	-	7	8
Clerical	-	-	-	-	-	-	-	-	-	-	11	11	21
Tech. Grads	-	-	1	-	-	-	-	-	-	-	1	1	1
Total	-	-	-	-	-	-	-	-	1	-	32	32	35

Reactor

Supervisors	26	44	35	34	-	-	-	-	-	-	-	-	139
Other Exempt	15	7	7	14	-	-	-	-	-	-	2	3	48
Supv. in Trn.	1	1	-	1	-	-	-	-	-	-	-	-	3
Operators	111	172	110	109	-	-	-	-	-	-	-	-	502
Craftsmen	63	113	85	54	-	-	-	-	-	-	-	-	315
Inspe. & Lab. Assts.	6	13	7	12	-	-	-	-	-	-	-	-	38
Clerical	5	12	9	16	-	-	-	-	-	2	1	1	45
Others	9	4	2	3	-	-	-	-	-	-	-	-	18
Tech. Grads.	7	9	1	7	-	-	-	-	-	-	-	-	24
Total	243	375	256	250	-	-	-	-	-	4	4	-	1137



	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	790-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total

RADIOLOGICAL SCI.

STAFF.

Supervisors  
Other Exempt  
Clerical  
Total

Supervisors	-	-	-	-	-	-	-	-	-	-	2	2
Other Exempt	-	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	5	5

RECORDS & STANDARDS

Supervisors  
Other Exempt  
Clerical  
Others  
Total

Supervisors	-	-	-	-	-	-	-	10	-	-	3	13
Other Exempt	1	-	1	-	-	-	2	2	-	-	5	11
Clerical	-	-	-	-	-	-	-	2	-	-	1	3
Others	14	4	7	3	-	17	27	52	5	-	12	141
Total	15	4	8	3	-	17	29	66	5	-	21	168

BIOPHYSICS

Supervisors  
Other Exempt  
Clerical  
Other Non Exempt  
Total

Supervisors	-	-	-	-	-	1	6	1	-	-	-	8
Other Exempt	-	-	-	-	-	4	19	14	-	1	-	38
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Other Non Exempt	-	-	-	-	-	18	38	3	-	-	-	59
Total	-	-	-	-	-	24	65	20	-	1	-	110

BIOLOGY

Supervisors  
Other Exempt  
Clerical  
Others  
Total

Supervisors	-	-	4	-	-	-	-	-	-	-	-	4
Other Exempt	-	-	34	-	-	-	-	-	-	-	-	34
Clerical	-	-	5	-	-	-	-	-	-	-	-	5
Others	-	-	39	-	-	-	-	-	-	-	-	39
Total	-	-	82	-	-	-	-	-	-	-	-	82

FINANCIAL DEPT.

Supervisors  
Clerical  
Total

Supervisors	-	-	-	1	-	-	1	1	-	17	44	64
Clerical	2	-	-	-	-	2	-	-	-	86	237	327
Total	2	-	-	1	-	2	1	1	-	103	281	391

EMPL. & PUBLIC REL. DEPT.

Supervisors  
Empl. Rel. Counselors  
Other Exempt  
Clerical  
Others  
Total

Supervisors	-	-	-	-	-	-	-	-	-	-	24	24
Empl. Rel. Counselors	-	-	-	-	-	-	-	-	-	-	2	2
Other Exempt	-	-	-	-	-	-	-	-	-	-	13	13
Clerical	-	-	-	-	-	-	-	-	-	-	60	60
Others	-	-	-	-	-	-	-	-	-	-	14	14
Total	-	-	-	-	-	-	-	-	-	-	113	113

12  
8  
5

UTILITIES & GEN. SERV.

<u>GENERAL</u>		100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-M Area	300- Area	Plant General	3000 Area	700-1100 Area	Total
Supv.	-	-	-	-	-	-	-	-	-	-	-	-	18
Clerical	-	-	-	-	-	-	-	-	-	-	-	-	13
Total	-	-	-	-	-	-	-	-	-	-	-	-	31

PLANT SEC. & SERVICES

<u>SECURITY &amp; PATROL</u>		100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-M Area	300- Area	Plant General	3000 Area	700-1100 Area	Total
Supervisors	6	6	6	5	-	4	9	7	5	4	-	4	52
Other Exempt	-	-	-	-	-	-	-	-	-	-	-	-	4
Patrolmen	93	48	61	47	-	72	152	72	2	2	-	26	573
Clerical	-	-	-	-	-	-	-	-	18	4	-	4	26
Seamstress	-	-	-	-	-	-	-	-	2	-	-	-	2
Tech. Grad.	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	99	54	67	52	-	76	161	79	31	4	4	34	657

SAFETY & FIRE

Supervisors	14	-	-	-	-	4	4	4	4	7	-	-	33
Engineers	-	2	1	-	-	3	-	2	-	-	-	1	9
Fireman	53	-	-	-	-	8	16	15	9	-	-	-	101
Clerical	-	1	1	-	-	1	-	1	-	-	-	2	6
Total	67	3	2	-	-	12	20	22	16	-	-	3	149

OFFICE SERVICES

Supervisors	-	-	1	-	-	-	1	3	1	1	1	18	26
Procedures Analysts	-	-	-	-	-	-	-	-	-	-	-	2	2
Ldry. Operators	-	-	-	-	-	-	2	-	-	-	-	1	3
Janitors & Servicemen	9	5	7	6	-	5	26	14	-	-	-	41	113
Clerical	-	-	-	-	-	-	1	-	-	-	1	46	48
Others	-	-	-	1	-	1	54	-	-	-	3	79	138
Tech. Grads	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	9	5	8	7	1	6	86	15	1	5	5	188	331

PURCHASING & STORES

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	1	-	-	-	-	-	-	-	-	4	30	35
Other Exempt	-	-	-	-	-	-	-	-	25	-	31	56
Clerical	11	-	-	-	-	-	-	-	-	29	141	181
Others	22	1	3	-	-	-	4	1	-	35	77	143
Robotanical Trainees	-	-	-	-	-	-	-	-	11	1	-	12
Total	34	1	3	-	-	-	4	1	36	69	279	427

ELECT. DIST. & TELEPHONE

Supervisors	-	-	-	-	-	9	-	-	3	-	11	23
Other Exempt	-	-	-	-	-	3	-	-	-	-	5	8
Craftsmen	-	-	-	-	-	28	-	-	11	-	50	89
Clerical	-	-	-	-	-	3	-	-	-	-	23	26
Operators	4	4	4	4	-	-	-	-	13	-	-	29
Others	-	-	-	-	-	2	-	-	-	-	-	2
Total	4	4	4	4	-	45	-	-	27	-	89	177

TRANSFORMATION

Supervisors	2	-	3	2	-	1	1	-	3	-	26	38
Other Exempt	-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers	-	-	-	-	-	-	-	-	-	-	168	168
Journeymen	4	1	1	8	-	-	6	-	6	-	61	87
Trainers	-	-	-	-	-	-	-	-	26	-	-	26
Serviceemen	7	-	2	-	-	-	-	-	1	-	27	37
Equip. Operators	7	-	11	-	-	1	-	-	-	-	28	47
Clerical	-	-	1	1	-	-	-	1	-	-	25	28
Others	8	-	9	13	-	10	3	1	1	-	32	77
Total	28	1	27	24	1	12	10	2	37	-	371	512

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STATISTICAL & COMP. SERV.	100-B	100-D	100-F	100-H	101	200-E	200-W	300-	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	-	-	-	-	-	-	-	1	-	-	8	9
Mathematicians	-	-	-	-	-	-	-	6	-	-	1	7
Clerical	-	-	-	-	-	-	-	4	-	-	28	32
Technologists	-	-	-	-	-	-	-	2	-	-	-	2
Bus. & Tech. Grads	-	-	-	-	-	-	-	2	-	-	10	12
Total	-	-	-	-	-	-	-	15	-	-	47	62

COMM. REAL ESTATE & SERV.	706	550	468	396	93	509	1906	1048	159	434	2786	9055
Supervisors	-	-	-	-	-	-	-	-	-	14	105	119
Other Exempt	-	-	-	-	-	-	-	-	-	10	10	10
Firemen	-	-	-	-	-	-	-	-	-	24	32	56
Patrolmen	-	-	-	-	-	-	-	-	-	17	22	39
Journeyman	-	-	-	-	-	-	-	-	-	-	142	142
Servicemen	-	-	-	-	-	-	-	-	-	-	17	17
Truck Drivers	-	-	-	-	-	-	-	-	-	-	23	23
Power Operators	-	-	-	-	-	-	-	-	-	-	33	33
Clerical	-	-	-	-	-	-	-	-	-	-	58	58
Others	-	-	-	-	-	-	-	-	-	39	39	39
Total	-	-	-	-	-	-	-	-	-	55	481	536
GRAND TOTAL	706	550	468	396	93	509	1906	1048	159	434	2786	9055

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HW-23698

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MANUFACTURING DEPARTMENT

FEBRUARY 1952

METAL PREPARATION SECTION

The total production for the month from Metal Preparation was 143 tons, exceeding the forecast by 3 percent. Of the total production, 37 tons were 8-inch material. The machining yield was 80.9 percent, representing an increase of 4.1 percent due to improved rod surfaces. This material was rolled in November, December, and January and reflects the vendor's efforts to improve rod quality.

The canning yield of 4-inch material was 79.1 percent and of 8-inch material was 66.7 percent. The improvement in the 4-inch canning yield was attributed to the reduction of marred surfaces and ALSi rejects as well as improved operator techniques.

The Melt Plant produced 49 tons of billets which is the highest production to date. The billet yield was 82.3 percent and the solid yield was 91.6 percent.

There were four autoclave failures of 4-inch material with a failure frequency of 0.07 per thousand, and one failure of 8-inch material with a failure frequency of 0.10 per thousand.

REACTOR SECTION

Total maximum operating levels for any 24-hour period were 115 MW over those previously established, primarily due to the redefinition of limitations of boiling considerations. A new record was established in daily production which was 55 MWD above the previous high. The reactor input production was 106.7 percent of forecast, establishing the highest per diem production to date with an increase of 18 units per day over November, 1951, the previous high period. Average daily pile levels while operating also reached a new high and exceeded the previous record, January, by 50 MW. The discharge production was 88.2 percent of forecast. This reduction is principally due to the DR reactor where process water leaks and slug failures have been predominant. The operating efficiency for this period was 86.6 percent.

There were 17 uranium slug jacket failures during February, of which 9 were Group 8, requiring 268 hours of outage time for removal operations. Seven of the failures were discharged within the scram recovery time avoiding approximately 175 hours of potential outage time.

SEPARATIONS SECTION

A total of 98 runs and 2 acid washes was started in the Canyon Buildings, representing 114 percent of forecast. Thirty-seven runs were started

**DECLASSIFIED**SEPARATIONS SECTION (Cont'd)

through Redox which was 82 percent of forecast. A total of 108 runs and 2 acid washes was processed in the Isolation Building which was 94.6 percent of forecast. The anticipated delivery of material from Redox was delayed due to start-up difficulties resulting in lower production from the Isolation Building.

The average cooling time was 47 days with a minimum of 40-day material being used. The average purity of the completed charges was 99.1 percent.

A total of 21.4 tons of uranium as  $UO_3$  was produced during February, with 13 tons being shipped. Production of  $UO_3$  is curtailed awaiting material from Redox.

The performance of the 200 East Area evaporator had not been satisfactory until the removal of a hard crystalline material on the sides of the coils and tanks. The removal of this material with a series of nitric and citric acid washes has resulted in satisfactory evaporation rates.

Initial efforts to remove metal waste sludge in tank 101-U were successful. The slurry was transferred to the slurry accumulator tank, UR-001, where it will be blended prior to TEP processing.

GENERALPersomnel

Total on Roll January 31, 1952	3202
* Accessions	41
* Separations	<u>51</u>
Total on Roll February 29, 1952	3192

\* Does not include intra-department transfers.

*C. N. Gross*  
C. N. GROSS, MANAGER  
MANUFACTURING DEPARTMENT

MANUFACTURING DEPARTMENT

PATENT REPORT SUMMARY  
FOR  
MONTH OF FEBRUARY, 1952

Richland, Washington  
 March 11, 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

N O N E



C. N. GROSS, MANAGER

MANUFACTURING DEPARTMENT

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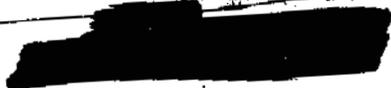
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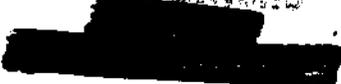
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MANUFACTURING DEPARTMENT  
METAL PREPARATION SECTION  
FEBRUARY 1952

I. RESPONSIBILITY

The Instrument Tube Shop facilities were moved from the 717-A Building to 3717-B Building early in the month. Instrument Engineers were transferred to 3707-C Building to make room for the Tube Shop. The 717-A Building was made available to the Utilities and General Services Department.

II. ACHIEVEMENT

A. Operating Experience

1. Statistics

	<u>January</u>	<u>February</u>	<u>Year To Date</u>
Bare pieces machined (Tons, 4")	109	102	211
Machining Yield (% , 4")	76.2	80.9	78.4
Bare Pieces Machined (Tons, 8")	33	51	84
Machining Yield (% , 8")	76.8	80.9	79.3
Acceptable Pieces Canned (Tons, 4")	128	106	234
Canning yield (% , 4")	76.4	79.1	77.6
Acceptable Pieces Canned (Tons, 8")	11	37	48
Canning Yield (% , 8")	58.8	66.7	64.8
Acceptable Pieces Canned (% forecast 4" & 8")	103	102.1	102.5

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	<u>January</u>	<u>February</u>	<u>Year To Date</u>
Autoclave Frequency (No./M)	.07	.07	.07
Briquettes Produced (Tons)	24	28	52
Chip Recovery Yield (%)	85.7	86.3	86.1
Billets Produced (Tons)	43	49	92
Melt Plant Billet Yield (%)	84.3	82.3	83.2
Melt Plant Solid Yield (%)	92.4	91.6	92.0
Oxide Burned (Weight Out Tons)	5	7	12
Poison Canned (Number pieces)	0	1081	1081
Chem. 68-56 Canned (No. pieces)	296	0	296
Chem. 10-66 Canned (No. pieces)	658	699	1357
Poison, Chem. 68-56, Chem. 10-66 Canning (Man-hours)	140	268	408
Special Requests (Man-hours)	190	195	385
305 Routine Tests (Man-hours)	133	53	186
305 Special Tests (Man-hours)	463	313	776
Maximum Steam Generated (M lb./hr.)	36	35	
Total Steam Generated (M lb.)	22,143	18,239	
Average Rate Generated (M lb./hr.)	29.8	26.2	
Total Coal Consumed (Tons)	1428	1226	
Sanitary Water from 3000 Area (Million Gal.)	24.3	23.5	
Well Water Pumped (Million Gal.)	0	6.6	
Total Water Average Rate (gpm)	544	722	
Chlorine Residual (ppm)	.48	.32	

2. Activities

All the uranium machined during the month was from virgin type material which was rolled during November, December and January. The increased yield resulted from improvement in surface quality of the December and January rolled rods and is approaching the yields previously obtained from rods considered to be acceptable good quality.

The increased over-all canning yield of four-inch and eight-inch slugs is attributable mainly to the reduction of marred surfaces and Al-Si rejects, and resulted generally from improved operator techniques and closer supervisory follow-up.

The increased production of briquettes and billets during the month resulted from the processing of a portion of the backlog of chips on hand at the beginning of the month. The decrease in the Melt Plant solid yield is attributable to this cause. The decrease in the billet yield resulted principally from equipment failures.

## 2. Activities (Cont'd)

None of the slugs tested for penetration during the month were found to be penetrated to within .010" of the outer surface of the can wall.

Of four autoclave failures of four-inch slugs which occurred during the month, two were believed attributable to operating techniques and two to defective cans. The one failure of an eight-inch slug was attributed to a defective can.

Examination of canned slugs immediately prior to shipment to the 100 Areas indicates that small pits, not evident prior to autoclaving, appear on the sidewalls of approximately 1% of the cans during storage. This condition has been noted on cans supplied by all vendors and on cans of different purity aluminum. Preliminary microscopic examination of a test group of slugs in storage indicates unprotected slugs are continuing to corrode while those covered with corrosion inhibiting material did not show any apparent evidence of corrosion. All shipments are being carefully inspected until corrective measures can be taken.

## 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).

Approximately 8500 additional pieces were canned in accordance with this test during February. At month end non-seating and frost test reject rates continue to be high, however, recent pieces frost tested appear to show some reduction in reject rates.

Production Test 313-105-3M - "Fabrication of Alpha Lead Dip Canning and Irradiation of Salt Bath Heat Treated Alpha-Rolled Uranium Slugs" (HW-22770).

Approximately 850 slugs heat treated in agitated salt bath showed that one slug in each 20 destructively tested appears to be satisfactorily transformed. The remaining slugs, however, that were lead dip canned are reported to have poor can to slug bond. This poor bond condition is not revealed by the frost test. Further work has been postponed pending additional analysis.

## 4. Schedule Variance

Canning and machining production was 2.1% and 5.5%, respectively, above forecasts, attributable mainly to the increased yields.

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## B. Equipment Experience

There were no element failures in the bronze furnaces during the month as compared to six failures in January. This improvement may be attributable to installation of ventilating ducts for removal of chloride fumes and to improved operating technique in avoiding crucible breakage.

## C. Improvements

### 1. Adoptions

A conductivity cell equipped with a warning light was installed at the methanol rinse tank to immediately indicate out of process amounts of water and acidity content. This installation will assure more effective use of the methanol and improve the wetting of cans and caps.

### 2. Inventions and Discoveries

Personnel in the Metal Preparation Section engaged in work which might be expected to result in inventions or discoveries have reported no inventions or discoveries were made during the period covered by this report.

## D. Plant Development and Expansion

### 1. Project Status

Project C-199 - 300 Area Sewage Disposal System - Excavation is complete for the septic tanks and sludge bed, and the excavation of the leaching trench is partially complete.

Project C-433 - Expansion of 300 Area Power House and Pumping Facilities - Design is approximately 80% complete. Preliminary preparations are being made for construction.

Project C-481 - Equipment for 8" Slug Manufacture - Fabrication of equipment is approximately 76% complete.

### 2. Manufacturing Engineering

Engineering studies were conducted on the following items:

- a. Investigation of a practical means of controlling and reducing tin consumption.
- b. Determination of the feasibility of using a bar cut-off saw for slug finishing.
- c. Evaluation of the recently increased feed rates on the roller-turner machining lathes, with respect to tool life and production.

**DECLASSIFIED**2. Manufacturing Engineering (Cont'd)

- d. Evaluate the feasibility of spinning rather than crimping aluminum cans in the canning operation.
- e. Work space layout in 3717-B Building.
- f. Operation of salt bath slug transformation and installation of production facilities.

E. Non-Routine Reports Issued

<u>Number</u>	<u>Title</u>	<u>Author</u>	<u>Date</u>
HW-23467	Results of Sample Exchange Program	E.W. O'Rourke	2-5-52

III. PERSONNELA. Organizational Changes

None.

B. Force Changes

	<u>Monthly</u>	<u>Weekly</u>	<u>Total</u>
Beginning of month	78	387	465
End of month	<u>75</u>	<u>394</u>	<u>469</u>
Net change	- 3	7	4

C. Safety Experience

There were no major or sub-major injuries during the month. One near-serious accident was formally investigated.

D. Radiation Exposure

A machining operator received exposures of 340 mrep and 360 mrep during the month as determined by his weekly badge film. As this individual has exceeded the operating limit of 300 mrep three times in three months, it was decided that his work habits at machining were responsible. Accordingly he was transferred to the canning operation.

MANUFACTURING DEPARTMENT  
REACTOR SECTION  
FEBRUARY 1952

I. RESPONSIBILITY

Assigned responsibilities of the Reactor Section were not changed during February.

Responsibility for investigation of Reactor Section major and sub-major injuries and near-serious accidents was formalized during the month. Major injuries investigations will be held by the Section Manager. A committee was established to investigate sub-major injuries and near-serious accidents. Membership on this committee will generally be of six months' duration.

II. ACHIEVEMENT

Operating Experience

The reactor input production was 106.7% of forecast but was 0.8% less than that for January due to the shorter work month. The per diem production was the highest yet achieved, exceeding that of November, 1951, by 18 units per day. The reactor output production was 88.2% of forecast. The deficiency was due principally to the reduced output from DR Reactor resulting from reduced input production in January and February because of a process tube water leak and high incidence of slug failures.

An increase of 80 MW over previously established maximum operating levels was achieved during the month, resulting principally from a redefinition of limitations due to boiling considerations, as outlined in document HW-23284, improved flattening, and continued annealing of the graphite.

There were 17 uranium slug jacket failures during February, seven of which were discharged within the scram recovery time limitation, permitting immediate resumption of operation. It is estimated that these "fast" discharges made it possible to avoid approximately 175 hours of potential

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Operating Experience (Cont'd)

outage time. Only one ruptured slug of six encountered at DR Reactor could be discharged within the scram recovery time. The six slugs required a total of 132.1 hours outage time for removal.

Production Summary:

	<u>B</u>	<u>D</u>	<u>DR</u>	<u>F</u>	<u>H</u>	<u>Total or Average</u>
Reactor Time Operated						
Efficiency (%)	92.1	92.1	78.1	78.8	91.7	86.6
Reactor Outage Time (Hrs.)						
Plutonium Production	52.0	54.8	152.2	147.3	52.5	458.8
Production Tests	3.0	-	-	-	5.0	8.0
Total	55.0	54.8	152.2	147.3	57.5	466.8
Reactor Unscheduled						
Outage Time (Hrs.)	28.5	25.2	152.2	147.3	25.5	378.7
Metal Discharged (Tons)	18.82	16.80	15.43	11.92	22.45	85.42
Water Pumped (MM gals.)						
Bldg. 190 to Reactor	1409	1479	1482	1400	1731	7501
Bldg. 181	1773	3609		1678	2323	9383
Steam Generated (MM lbs)	128.6	204.8		111.9	96.6	541.9
Coal Consumed (Tons)	8,582	14,054		7,798	6,497	36,931

The first instance of successful emergency utilization of a discharge area tool dolly occurred at DR Reactor during the outage of February 15. The dolly was used in backseating irradiated metal from the tip-off into the process tube and in cutting the pigtail during discharge of a stuck charge.

Beginning February 1, 1952, a change was effected in the irradiated metal storage procedure whereby the 200-N Area operation would be eliminated. Only nine well car shipments were made directly from the 100 Areas to either 200-E or 200-W Areas during the month since these areas continued to receive their metal supply from 200-N Area. Further information concerning this change is contained in the following references: "Product Inventory in 100 Area Storage Basins", C. N. Gross to A. E. G., October 18, 1951, and "Elimination of the 200-North Area Operation", J. E. Maider to C. N. Gross, January 25, 1952.

In 100-H Area, a high quality water production program was inaugurated on February 18, 1952. Coagulant feed has been increased from normal feed of 6 ppm to 16 ppm to achieve the desired quality of water. The purpose of the test is to produce filtered water with a low residual iron content and observe the effect on film formation in the reactor.

Equipment Experience

The general mechanical condition of the reactor components and equipment continued good throughout the month. A total of 2.5 hours of unscheduled reactor outage resulted from equipment failures.

Equipment Experience (Cont'd)

During February, No. 7 horizontal rod at F Reactor and No. 4 rod at B Reactor were returned to service following repair of a leaking thimble and replacement of the electric drive with the original hydraulic drive, respectively. At D Reactor, attempts were made to remove "B" rod because it was not functioning properly. The rod stuck with 63 inches remaining in the unit. At month end, work is in progress to contrive equipment to pull the rod.

A decrease in reactivity of the H Reactor on February 2 led to the detection of a rupture in tube 2180-H, along with a slug jacket failure in the same tube. The graphite moderator appeared to be dry at month end. During the month, 600 gallons of water were removed.

At F Reactor following discovery of a leak in tube 0285-F, all process tubes in the lower one-half of the unit were hydrostatically tested. Six water leaks were found making a total of nine for the month. Since the majority of the leaking process tubes were in the lower far corner of the reactor, 42 tubes in that vicinity were removed from service in an effort to curtail the leakage and to dry out the reactor. During the discharge operation, 21 of these charges were found to be stuck. At month end, investigation of the cause of sticking and removal of the charges are in progress.

The extent of failure of the D Reactor 60-inch effluent water line, reported in the January report, was investigated during the month. Excavations were made at a number of locations between the second junction box north of the 105-D Building and the 107-D Retention Basin. The concrete pipe was found to be cracked from four to ten places in each section. Preparation of a project proposal to cover replacement of 500 feet of the line with steel line is being expedited.

On February 2, process pump motor No. 8 at Building 190-H failed during start-up due to a coil insulation failure. Since an additional spare unit is available, this pump will remain out of service until rewinding of the stator is completed. A similar failure of process pump motor No. 7 at Building 190-F occurred on February 17. A spare stator was installed and the unit was returned to service.

The 12" drain valve on No. 3 clearwell tank at Building 190-DR was found broken and was replaced. The break was caused by settlement of the fill and subsequent settling of the steel sewer line. An expansion joint was installed in connection with the valve to eliminate piping strain in case of additional settling. The remaining three tank drain valves will be inspected in the near future.

Improvements

The inlet water pressure monitors at D, DR, F and H Reactors have been tied into the No. 1 safety circuit in such a manner that an alarm that persists for more than three seconds will initiate automatic shutdown of the reactor. The monitor at the B Reactor, previously in the No. 2 safety circuit, has

**DECLASSIFIED**Improvements (Cont'd)

been tied into the No. 1 safety circuit. This action is part of the plan to provide greater protection against the possibility of tube boiling.

A program was started during February to replace the four solid aluminum dummies in the downstream dummy charge of uranium filled process tubes at all reactors. All 0.285" zone tubes charged in the H Reactor during the month were charged with the revised pattern. It is anticipated that the resulting increase in boiling limits will eventually permit an increase of approximately 2% in power levels at those reactors where boiling considerations are limiting.

Installation of the revised differential thermohm system for power level measurement was completed at DR Reactor. This completes the work covered by Informal Request M-608 which provided for increasing the range of these instruments at all reactors in order to permit them to indicate the higher power levels.

There were no inventions or discoveries reported by Reactor Section personnel during February.

Plant Development and Expansion

Reactor Section projects of greatest significance are reported below. Further details will be found in the report, "Status of Reactor Section Projects, Informal Approval Requests and Budget Items", F. A. R. Stainken to E. P. Lee, dated February 18, 1952.

## C-431 (100-C Plant)

The design of 100-C Plant is approximately 98% complete. Water plant and reactor construction are both approximately 41% complete compared to a scheduled 42%.

## C-438 (Ball 3X Facilities for B, D, DR, F, and H Piles)

Removal of equipment from Building 105-B valve pit, preparatory to construction of the battery room at this location, was started on February 21. The ball fabrication contract with Industrial Tectonics Company was cancelled because of their inability to produce satisfactory balls. An order is being placed with the Universal Ball Company for part of the required boron-steel balls. The order for the remaining balls is being withheld pending results of the glass ball development program for C-431 facility.

## C-482 (Pile and Pile Water Plant Improvements)

Procurement of critical materials is being performed by the A. E. C. Final design awaits completion of the design committee's scope review.

## RDA-DC-3 (Improved Reactor Design)

Work continued on the development of system proposals for Working and Design Committee consideration.

Plant Development and Expansion (Cont'd)

## RDA-DC-6 (Improved Water Plant Design)

Accumulation of basic information for water plant design continued. Representatives of the Manufacturing and Engineering Departments visited the Chas. T. Main Co. offices in Boston to discuss the water plant design basis for the Coyote Rapids site study.

Development studies by Reactor Section personnel during February included work directed toward improved equipment and/or methods for controlling the reactors, reducing slug corrosion, removing ruptured and stuck slugs, decreasing discharge time, reducing slug and dummy handling labor, decreasing gas losses from the reactors, detecting and locating process tube water leaks, reducing outage time due to abnormal power conditions, decreasing the cost of dummies used in process tubes, increasing steam economy of power plant boilers and Building 190 pump turbines, and recovering heat from the reactor effluent water. Further details concerning these studies are contained in documents HW-23670 and HW-23681.

Special analytical work in progress during the month included: refinement of iodide and bromide analyses to the extent that these halides can now be analyzed to within 0.02 ppm; and refinements of lignin and tannin analyses in an effort to make this test a prognosis of ferric sulphate or alum addition in water treatment.

Production tests of major plant development significance are reported below:

## PT-105-313-2M (Irradiation of Eight-Inch Uranium Slugs)

An additional 133 process tubes in the H Reactor were charged with eight-inch slugs during the month, approximately four percent of the number scheduled to be charged under this test.

## PT-105-435-P (Graphite Temperature Increase of the F File)

The final phase of this test in which graphite temperatures up to 450°C are allowed was continued. The maximum graphite temperature attained during the month was 445° C.

## PT-105-503-E (Use of Activated Silica as a Coagulation Aid for Aluminum Sulfate)

Water treatment at 100-F Area as outlined in this test was continued during the month. An increase of river water turbidity from February 1 to February 4 resulted in a decrease in water quality produced at the filtration plant. The maximum 24-hour average filtered water analyses were: Fe - 0.05 ppm, Al - 0.4 ppm, and turbidity - 3 ppm.

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Reports Issued

Significant reports issued by the Reactor Section during February included:

January monthly reports for Operations Unit (HW-23449), Plant Engineering Services Unit (HW-23451), Process Unit (HW-23480) and Radiation Monitoring Unit Technical Report (HW-23568).

"The Evaluation of a Continuous Method for Preparing Acid Activated Silica", W. R. Conley to A. Frew, February 26, 1952.

"Design Change No. 78". Describes pressure monitoring system revision which incorporated automatic reactor shutdown feature.

"Process Pump Motors, 190 Building", C. B. Wagner to E. E. Weyerts, February 11, 1952. Contains a tabulation of stator winding failures of the subject motors.

"Electric Dryer-Motor Load Tests, 115-D Building", R. G. Benham to C. B. Wagner, February 5, 1952.

"Water Leak at 100-H Area Resulting from Ruptured Slug in Tube 2180-H" - HW-23594.

"Radiation Incident Investigation, Class I, Incident No. I-6" - HW-23614.

A description of slug failures experienced during February will be contained in document HW-23664 to be issued early in March.

III. PERSONNEL

Organization Changes

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

Force Changes

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Net Change</u>
Section General	3	3	0
Operations	238	242	4
Plant Engineering Services	18	20	2
Power & Maintenance	795	803	8
Process	20	19	- 1
Radiation Monitoring	54	57	3
Section Total	1128	1144	16

The changes during the month consisted of 7 terminations, 13 new hires, 2 deactivations, 2 reactivations, 19 transfers into and 9 transfers out of the Section.

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**DECLASSIFIED**Safety Experience

No major or sub-major injuries were sustained by Reactor Section personnel during February.

Radiation Exposure

Two Class I Radiation Incidents occurred at DR Reactor during ruptured slug removals. One incident involved the contamination of several employees caused by release of air-borne contamination following striking of the tube rib cutter against the ruptured piece. The other involved exposure of personnel to high dosage rates as irradiated metal washed into the rear nozzle of a tube as the crew was leaving the discharge area. No overexposures were received in either of these incidents. The incidents have been investigated.

A Class II Radiation Incident occurred at F Reactor when a Radiation Inspector received an exposure of 690 mrep as the result of a high concentration of air-borne contamination in the discharge area during removal of a ruptured slug.

Procedures covering radiation zone work were placed in effect at F Reactor on February 1, as substitutes for Special Work Permits. At month end, approximately 90% of radiation zone work was covered by procedures with no lessening of personnel exposure control and with a considerable reduction in the work required to process Special Work Permits.

Training

The program was continued for training qualified engineering and supervisory personnel to meet existing and future requirements of the Section. At month end, 27 employees are receiving on-the-job training, including 6 Technical Graduates on assignment under the Rotational Pool Program.

A series of informational meetings conducted by Operations Unit supervision was held during January and February in order to bring exempt and non-exempt Reactor Section service group personnel up-to-date on the current problems associated with reactor operation. Approximately 300 employees attended these meetings.

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HW-23698

MANUFACTURING DEPARTMENT  
SEPARATIONS SECTION  
FEBRUARY, 1952

I. RESPONSIBILITY

There were no significant changes in the responsibilities of the Separations Section during the month of February.

II. ACHIEVEMENT

A. Operating Experience

1. Production Statistics

a. Bismuth Phosphate Operations

	<u>B Plant</u>		<u>T Plant</u>		<u>Combined</u>	
	<u>Normal</u>	<u>Acid Wash</u>	<u>Normal</u>	<u>Acid Wash</u>	<u>Normal</u>	<u>Acid Wash</u>
Charges started in Canyon Bldgs.	57	1	41	1	98	2
Charges completed in Conc. Bldgs.	56	1	49	1	105	2
Special charges - Conc. Bldgs.		4		3		7
Charges completed-Isolation Bldg.	57	1	51	1	108	2
Average Waste Losses	2.5		2.5		2.5	
Average MWD/Ton	594		585			
Special charges-Isolation Bldg.						8
Average purity completed charges						99.1
Material balance thru Isolation						101.9
Yield through process						104.9 *
Average cooling time (days)						47
Minimum cooling time (days)						40

\*Adjustment made for understatement in January.

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**UNCLASSIFIED**b. Redox Operations

Charge equivalents shipped to Isolation	17.90
Tons Uranium delivered to storage	22.56
Maximum LA instantaneous feed rate, Tons/day	3.04

c. UO<sub>3</sub> Operations

	<u>January</u>	<u>February</u>	<u>To Date</u>
Uranium drummed, Tons	4.27	21.43	25.70
Uranium shipped, Tons	2.14	13.12	15.26

d. Power

	<u>January</u>	<u>February</u>
Raw water pumped, gpm	5,941	5,955
Filtered water pumped, gpm	1,193	1,166
Steam generated, M lbs/hr	211	182
Maximum steam generated, M lbs/hr	321	246
Total steam generated, M lbs	157,427	126,518
Coal consumed, tons (est.)	8,135	7,098

e. Waste Evaporation

	<u>February</u>	<u>To Date</u>
Gallons feed processed, 200-W	535,188	4,844,448
Percent volume reduction	73.3	73.2
Gallons feed processed, 200-E	283,799	994,299
Percent volume reduction	73.1	74.7

Operation of the 200 East Area evaporator since startup has not been entirely satisfactory due to low evaporation rates and an excessive buildup of sludge deposits. A visual inspection of the evaporator revealed that the coils and sides of the tank were heavily coated with hard crystalline material. A series of clean-outs, alternating dilute nitric acid and dilute citric acid as the reagents, was successful in removing the major part of the sludge and restoring the evaporative rate to a satisfactory level. The operating procedures have been reviewed and standardized and the coil steam pressure has been reduced from 120 psig to 70 psig as a means of preventing a repetition of the sludge buildup. Operation of the 200 West Evaporator was uneventful during this period.

f. Waste Storage

	<u>Batches</u>
Metal Waste reserve storage capacity - T Plant	281
1st Cycle reserve storage capacity - T Plant	1664
Metal Waste reserve storage capacity - B Plant	679
1st Cycle reserve storage capacity - B Plant	300
Redox Waste reserve storage capacity	3571

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f. Waste Storage (Cont'd)

Reserve storage capacity in T Plant will soon be supplemented as the result of the completion of the 241-TY Tank Farm. Redox storage reserve is based on 3U - 3Pu cycles.

g. Analytical Control

<u>Laboratory</u>	<u>Samples</u>	<u>Determinations</u>
200-E	2683	4606
200-W	2502	4361
Isolation	888	2455
Standards	1983	2046
Total	8056	13468

2. Activities

a. Redox Processing

Completion of the last 5% tracer run, S-6, was carried out without incident and the extraction batteries were shut down on 2-4-52 for a maintenance period prior to the start of full activity level operation.

Initial full Hanford level 1-A feed was introduced to the extraction batteries on 2-10-52 at a 2 Ton/day rate. Operation of the extraction batteries was normal and without major incident until 2-13-52 when a 3-A column interface dip tube plugged causing an interface rise and flow of ANN solution into the 3B column. The resulting salt contaminated product solution (several batches) was introduced to the 2A column at a 2.5 Ton/day rate while the first cycle extraction rate was cut back to 1 Ton/day. On 2-14-52, high plutonium content of the D-9 salt waste was also noted. Rework of off-standard D-9 waste was started through 1S column, but the high waste trend continued through succeeding batches in increasing quantities until it became necessary to shut down the 1A feed on 2-17-52 because of lack of rework space.

Because of the foregoing and the lack of adequate rework procedures, the amount and variety of substandard material in the system soon overtaxed the rework space and equipment. On approval, several batches of salt waste of relatively high plutonium content were discarded in order to provide room to operate.

At the end of February, the reworking of waste solutions was still in progress.

b. Redox Sampling

A great deal of difficulty was experienced in obtaining representative samples without overexposure of personnel.

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b. Redox Sampling (Cont'd)

Additional steps were taken during the month to improve sampler performance, sampling techniques and personnel exposure conditions. Sampling is at present carried out under assault mask restrictions until corrective action can be taken to eliminate the problem.

c. UO<sub>3</sub> Operating Temperatures

The data collected to date indicate that temperature control settings in the range of 625°-650° C. produce satisfactory UO<sub>3</sub> powder quality from the standpoint of handling as well as the purity and physical property standpoint. Charges calcined at these temperatures produced 90 to 95 percent powder yield and greater than a 98 percent conversion to UO<sub>3</sub> in some cases. Furnace cut-off temperatures to produce optimum cycles have not been fully established and await Oak Ridge UO<sub>3</sub> evaluation before a definite program for further study of time cycles can be put into effect.

3. Special Operations

a. Acid Washes - BiFO<sub>3</sub> Plants

Data are tabulated below which indicate the percentage of product recovered from the completed acid washes in terms of a standard charge:

Plant	Extraction	Section 12 and First Cycle	2nd Cycle	Total Canyon	Total thru Plant	F Cell Flush
T	3.0	10.3	19.2	32.5	31.9	28.1
B	3.8	11.4	18.5	33.7	34.4	27.2

b. Operation of Dissolver Off-Gas Filter

A test, which was started in August 1951, to determine whether the ammonia gases evolved during coating removal in the dissolvers would react to form ammonium nitrate and foul the off-gas filter was completed this month. No marked change in pressure drop across the 3-5R dissolver off-gas filter in B Plant was noted, and it is planned to discontinue by-passing of the filters on other dissolvers in the near future.

c. Metal Waste Sludge Removal

Initial efforts towards removal of sludge from the Metal Waste 101-U tank, while not trouble free, have been successful. The sluiced material has been successfully transferred to the slurry accumulator tank, UR-001, and the initial TEP feed batch preparation is in progress in the CO2-UR blend tank. Several maintenance jobs, involving high level radiation, were successfully completed without overexposure to personnel, or undue spread of contamination.

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d. Production Test 231-14 - Isolation Building

The filter boat station in Cell 4 was activated during the month and seven T Plant runs were filtered as a Pu IV oxalate. The boats were transferred to the 234-5 Building in sealed plastic bags encased in an outer metal container.

4. Schedule Variance

Actual production of regular material through the Isolation Building was 94.6% of the forecasted amount due to lower than anticipated Redox production. Material actually started in the BiPO<sub>4</sub> plants was 114% of the amount forecasted since some of the production was directed from Redox to these plants.

B. Equipment Experience

1. Operating Continuity

With the exception of the Redox Plant, Separations Section facilities were placed in standby status on the holiday, February 22.

2. Inspection, Maintenance and Replacement

a. Failure of 8-2 Centrifuge - T Plant

The 8-2 centrifuge failed during the month and was replaced with a new machine. The cause of the failure is unknown at this time and probably cannot be determined because of high radiation levels.

b. Rupture of Raw Water Line - 200 East Area

The main raw water line serving B Plant ruptured on 2-22-52 causing a thirty-four hour suspension of all production work. The cause of the failure of the line has not been determined. The raw water line serving 292-B Building also ruptured as a result of the ground settling following the release of large amounts of water from the main line break. Both lines were restored to service.

c. 234-5 Ventilation Fans

On February 6, 1952, at 9:02 A.M. a partial electrical outage occurred in 291-Z, 200 West Area, when a tie breaker tripped out while repair work was in progress on the #6 transformer. This failure caused loss of two electrical exhaust fans and the instrument air compressor, but because the overspeed tripout had not been reset properly, the emergency turbine exhaust fans failed to operate automatically. Fortunately the operator in the 234-5 Building fan control room noted the pressure build-up in the building and correctly surmised that the emergency turbines were not operating even though the signal light on the panel board indicated otherwise. He immediately shut off the building supply fans thereby averting serious building contamination. The ventilation system was quickly restored to service and steps were taken to prevent a recurrence.

**DECLASSIFIED**d. Metal Waste Removal - Agitators

The 241-UR-002 10 hp agitator in the 002 blend tank stalled during normal operation due to the shaft freezing to the torque tube flange. An investigation of this unit and similar units throughout the waste metal transfer system revealed that there were not sufficient clearances (.005") between the shafts and the openings in the flanges. This condition was corrected in both of the units accepted by General Electric and construction was requested to increase the clearances to a minimum of one eighth of an inch in all of the remaining units not yet accepted.

e. Ventilation Enclosure - PR Cage

Air contamination conditions in the sample galleries have dictated the use of assault masks in PR Cage operation since the start of full level activity runs. To permit routine PR Cage operation without masks while air contamination problems exist, a transite wall enclosing the panel board face and the north face of the PR Cage is being erected. The enclosed area, provided with a CWS-6 filter and a blower for air supply, will constitute a "clean air" zone for routine operation without masks. Separate hoods will be installed at each sampler location to eliminate the routine use of masks in the sample galleries.

C. Improvements1. Adoptionsa. Lag Storage Facility

In preparation for the 200 North Area shutdown, shipments of metal to the 212 Building were discontinued on 2-7-52, and during the month direct shipments from the 100 Areas to the Separations Plants were started. The remaining metal will be transferred out of the 200 North Area as rapidly as schedules permit.

b. Analytical

A program to improve the work efficiency in the B and T Plant control laboratories with the objective of effecting a 15% - 25% reduction in manpower was successfully evaluated during February. Changes which made this possible are: (1) simplification of many of the analytical procedures by the Analytical Research Group, (2) return of the essential material and process reagent analyses from the 271 Building Laboratories to the 222-B and T Buildings; (3) revision of work-flow within the group to place the analyses on an assembly-line basis; (4) application of magnetic stirrers and dual titrator assemblies for increased speed and better radiation hazard control. Another change involving the testing of a newly constructed primary sampler designed to allow aliquoting, dilution and mounting of all of the samples at one work location will be evaluated in March.

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2. Inventions or Discoveries

There were no inventions or discoveries of a patentable nature reported during the month.

D. Plant Development and Expansion

1. Project Status

a. TBP - Project C-362

During the month of February the construction of the TBP facility progressed 5.9% as compared to a scheduled completion of 5.2%.

b. UO<sub>3</sub> - Project C-361

Revision V, a more detailed Project Proposal than Revision IV, was submitted to the A and B Committee. The completion date was changed from March 1 to April 1, 1952.

E. Pertinent Reports Issued

<u>Document</u>	<u>Title</u>	<u>Author</u>
HW-23478	Eight Month Operational Report, Evaporation Facilities for Waste Solutions, Project C-369	A. Bradway, Jr.
HW-23569	Installation of Additional Boiler 200 West Area - Project C-477	R. S. Bell
HW-23606	Separations Process Committee Minutes	W. N. Mobley

III PERSONNEL

A. Organization Changes

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

B. Force Changes

1. Number of employees on roll

	<u>Monthly Roll</u>	<u>Weekly Roll</u>	<u>Total</u>
Beginning of month	279	1298	1577
End of month	277	1269	1546
Net Change	- 2	- 29	- 31

2. Personnel Changes

	<u>Monthly Roll</u>	<u>Weekly Roll</u>	<u>Total</u>
Transfers in	- 2	9	7
Reduction of Force	0	0	0
Transfers out	0	- 30	- 30
Reactivates	0	3	3
New Hires	0	5	5
Terminations	- 1	- 14	- 15
Weekly to monthly	1	- 1	0
Removed from Payroll	0	- 1	- 1
Monthly to weekly	0	0	0
Net Change	- 2	- 29	- 31

C. Safety Experience

There were no sub-major or major injuries sustained by Separations personnel during February.

D. Radiation Exposure

1. I<sup>131</sup> Emission

Total stack emission of I<sup>131</sup> from the Separations Plants averaged 1.4 curies per day.

2. Investigations

There were no Class I or Class II radiation hazard investigations held by the Separations Section during the month.

3. Laboratory Air-Borne Contamination

The installation of new decontamination facilities in the 222-B and T Laboratories in July, 1951 was expected to eliminate the major source of air-borne particulate contamination (of less than ten micron size) found prevalent in the buildings. Unfortunately they did not prove adequate, nor apparently could it be assumed that the old sinks were the major source since subsequent air sample analysis data shows continued high particulate levels (10-12000/cu. meter air). Extensive clean-up and dust elimination has already given some evidence of improvement in the 222-T Building. Incomplete analysis of some of the particulate matter, with identification of the source as the ultimate goal, indicate beta particles of 0.18 Mev and 2.0 Mev energy associated with a small amount of gamma radiation. Half-lives appear to be greater than 50 days.

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HW-23698

ENGINEERING DEPARTMENT

FEBRUARY 1952

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TECHNICAL SECTION

New maximum operating limits for all piles resulted mainly from an upward revision of tube power generation limits. Leaks at DR, F, and H resulted in decreased pile operation and in some cases required a continuation of a distorted flattening pattern. A total of 17 slug ruptures occurred during the month.

New time-delay relays which will provide increased safety of operation and eliminate unnecessary shutdowns were installed in the Panellit system at the piles.

Data from the water studies indicate that a three-step treatment including chlorination, coagulation with alum and activated silica, and pH adjustment may be the most efficient method of obtaining satisfactory cooling water for the piles. These data, although preliminary, indicate that carefully controlled conditions may eliminate film formation.

Preliminary values for the buckling of the seven and one-half-inch lattice have been obtained with the use of boron fluoride counters. The graphite temperature coefficient of reactivity for the seven and one-half-inch lattice, as calculated by a new method, is shown to be about one-half that of the present lattice.

A study of uranium rolling at Lackawanna has shown that the randomness of structure of rods rolled at 640°C compares favorably with that of triple-dip canned uranium.

Development of methods for canning and testing of eight-inch slugs is proceeding satisfactorily.

A new record for processing tritium was achieved during the month; tritium was extracted from a total of 3,252 irradiated lithium-aluminum slugs.

Redox plant operation was started at full activity levels. Stable operation was achieved for a seven-day period during which time plutonium and uranium losses from the solvent extraction battery were each below 0.5 percent. Product materials met previously established final activity specifications. Plutonium product was satisfactorily processed through the 231 Building Isolation process and the uranium product shipped to 224-U for conversion to  $UO_2$ . Because of the inadvertent flow of head-end feed to intermediate points in the process via return rework lines, several waste and product batches were reworked through the system during the remainder of the month.

Studies were initiated in large-scale semiworks pulse columns to develop contactor specifications for Purex using a carbon tetrachloride diluent. Preliminary results indicate that column lengths will be shorter and diameters

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smaller than those when using the hydrocarbon diluent. The hydrolytic and radiation stability of carbon tetrachloride is being determined together with its corrosion tendency under various process conditions.

In the 222-8 Building Laboratory, difficulties in some Redox analytical methods have been corrected and others are under intensive study. Determination of plutonium in D-9 wastes has been improved by improved plant sampling and by shortening the analytical method and correcting defective stirring. In spite of excellent agreement obtained in a sample exchange with Manufacturing Department laboratories, the cause of poor plutonium balances between the H-1 and H-7 Tanks and between the PR cans and the P-1 Tank cannot yet be reliably ascribed to either analytical or plant error. The remote analytical sampling lines continue to cause trouble and methods for three of the  $UO_2$  determinations are believed to be in slight error and are receiving attention.

The mass spectrometer for isotopic analysis of uranium has been installed and has given excellent results on  $UO_2$  samples. This represents the first mass spectrometric isotopic analysis of heavy elements on this site.

Laboratory tests indicate that the gamma scintillation counter should be feasible for the continuous, in-line analysis of process streams. The instrument was found to be more than adequately sensitive for measurement of a synthetic sample of crib waste having the tolerance gamma value and contained in a two-inch steel pipe. Very preliminary results suggest that it may also be possible to apply the alpha scintillation counter to the continuous monitoring of plutonium in process streams.

#### DESIGN SECTION

With the creation of a Design Section in the Engineering Department on February 18, 1952, design research and development studies, formerly under the jurisdiction of the Design and Construction Management Section were transferred to the Design Section on this date. Design development was continued on reactors, water plants, separations plants, and plutonium fabricating equipment. Design scoping assigned to C. T. Main on the water plant, and to the Vitro Corporation on the separations plant is continuing.

The General Engineering Laboratory completed its study on the feasibility of a magnetic conveyor for the 3-X reactor control balls. The Laboratory was instructed to proceed with design, manufacture, erection, and test of a 20-ft. working model, and \$10,000 was authorized for the initial work.

Engineering activity on Program "X" was intensified during the month. The following work on Program "X" was carried out at the request of the Atomic Energy Commission.

1. A cost estimate was prepared for large reactors and their associated water plants at Coyote Rapids and the 100-H Area, for comparison with "C" plant costs.
2. Budget estimates were made for the over-all "X" program on reactors, water plant, separations plant, canning facilities, and miscellaneous

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services and utilities.

3. Work was begun on a preliminary project proposal covering the entire Program 'X' and including a statement of the reasons for proposed design changes.
4. Information was assembled for use in the determination of design contractors' fees.
5. Joint meetings were held with Commission representatives and with several potential contractors for design of the reactor building.

Based on completed drawings, detailed design of the new 1300-MW reactor was 4% complete and the 105 Building 18% complete at month's end. This work was performed with specially authorized funds. A preliminary project proposal for complete design of the 105 Building and the reactor was written and transmitted to the AEC.

The scope of Project C-482, Pile and Water Plant Modifications, is being revised to conform with revisions in basic conditions at the DR and H Reactors. In Project C-483, Replacement Downcomer, the general design of the downcomer and the materials of construction have been established, and detailing and material procurement are in progress. Thirteen drawings for use in the Recuplex installation project proposal were completed. Design work was started on the corrosion test laboratory, Building 108-B.

#### PROJECT SECTION

Major projects attained construction completion status as follows: C-349, Hot Semiworks, 74%; C-361, Metal Conversion Facilities, including Part "C," 94%; C-362, Waste Metal Recovery (TEP), 75.6%; C-413, Expansion of 234-5 Facilities, 84.1%; C-431-A, 100-C Waterworks Facility, 41.8%; C-431-B, New Production Facility, 41.5%.

There were numerous labor disputes which affected completion schedules. Lack of welders and pipefitters continued to delay major construction; however, transfer of craftsmen from 200-West to "C" Area helped alleviate the shortage. Work stoppage begun by boilermakers on January 18 was officially settled on February 27, with the dispute being moved to the Davis Panel for a hearing in New York on March 3. There was a sharp increase in voluntary terminations among manual employees. These plus 33 discharges left a net gain of only 25 men for the main CFFF contractor.

Nine new jobs totaling an estimated \$93,285 were authorized for Minor Construction management. Plans and estimates are being made for replacing the portion of the Automotive Shop destroyed in the January fire.

Seventy-two project items and 12 informal requests are active in Project Engineering. Two new project proposals, four revisions, and two informal requests were transmitted to the AEC. Design of the Ball Third Safety System, Project C-438, was completed and construction was started at 105-B.

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Although construction of the 100-C Water Works and Production Facility progressed, little progress was made during the month on the 107-C Retention Basin and the 187-C High Tanks because of the boilermaker work stoppage. Graphite fabrication was completed ahead of schedule, with 80 layers packaged and stored.

Several Minor Construction work orders and drilling of test wells by the AEC-USGS remain to be completed on Project C-187-D, Redox Production Facility. Construction on Project C-362, Waste Metal Recovery, was advanced 5.9%, compared to the 5.2% scheduled. A revised Project Proposal on Project C-413, Expansion of the 234-5 Facilities, was transmitted to the A & B Committee on February 27. The last full carload shipment of the RMB Line equipment was received during the month.

The regular quarterly forecast of selected materials for the next eight calendar quarters was prepared.

#### GENERAL

#### Organization & Personnel

Effective February 18, 1952, the Design and Construction Management Section of the Engineering Department was reorganized into two Sections, the Project Section and the Design Section. Design research and development studies were transferred to the Design Section on this date together with certain design personnel. R. H. Beaton was appointed Manager of the Design Section and J. S. McMahon Manager of the Project Section.

The Design and Project Sections were organized into three and five units respectively, as follows:

#### Design Section

Design Engineering	O. H. Pilkey - Manager
Design Planning	W. J. Dowls - Manager
Process Engineering	V. D. Nixon - Manager

#### Project Section

Project Engineering	J. W. Brands - Manager
Minor Construction Management	J. M. Heffner - Manager
Project Services	J. G. Carriere - Manager
Reactor Projects	J. R. Kelly - Manager
Separations Projects	G. C. Gabler - Manager

*R. J. Schir, Jr.*  
A. E. GRUNINGER, MANAGER  
ENGINEERING DEPARTMENT

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March 6, 1952

FILE TECHNOLOGY UNIT

FEBRUARY, 1952

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VISITORS AND BUSINESS TRIPS

<u>Visitor</u>	<u>Date</u>	<u>Address</u>	<u>Purpose</u>
T. J. E. Glasson	2-1-52	KAPL	Observe design of hot Laboratory
Perry M. Booth	2-1/2-52	NEC-San Francisco	Observe design of hot Laboratory
J. R. Lowe, Jr.	2-2-52	KAPL	Discuss materials irradiation program
R. G. Warren	2-11-52	IBM Company	Inspect IBM installations
C. E. Heber	2-12-52	KAPL	Consultations on special irradiations
J. C. Brown, Jr.	2-13-52	GEL	Consultations on measurement problems
R. W. Edwards C. W. George	2-13-52	GEL	Consultations on measurement problems
Lewi Tonks	2-15-52	KAPL	Inspecting GEL-100 experimental equipment
Dr. Goldrick Dr. Grabel	2-18/19-52	Battelle Memorial Institute	Consultations on welding
R. L. Carter	2-27/29-52	North American Aviation, Inc.	Discuss co-operative graphite program

<u>Name</u>	<u>Date</u>	<u>Place Visited</u>	<u>Purpose</u>
D. P. O'Keefe	2-1/29-52	WAPD	Technical advisor to metallurgical investigations
J. W. Goffard	2-1-52	KAPL & GEL	Follow-up on ultra-sonic wetting methods
G. E. Duvall	2-4/P-52	Kirtland Air Force Base	Personal Interview
J. B. Lambert	2-7/P-52	North American Aviation, Inc.	Inspect equipment for Special Request NAAM-106 and NAAM-107

<u>Name</u>	<u>Date</u>	<u>Place Visited</u>	<u>Purpose</u>
J. M. Wright R. E. Woodley	2-11/12-52	North American Aviation, Inc.	Technical discussions on graphite radiation damage
	2-13/14-52	University of California Radiation Lab.	Technical discussions on graphite radiation damage
F. B. Quinlan	2-11/13-52 2-14/15-52	ANL KAPL, Research Lab., Radiation Lab., & GEL	Conference on non- destructive testing equipment
R. B. Socky	2-12/13-52 2-14-52 2-15-52 2-16-52 2-19-52	ANL GEL Research Lab. KAPL Brush Development Corporation	Non-destructive testing program and consultations
R. Ward	2-14/15-52	Mallinckrodt Chem. Works	Meeting on assigning numbers to lots of uranium
	2-16-52 2-21-52	Bethlehem Steel Simonds Saw & Steel	Observe experimental rolling of Hanford slugs
	2-22/25-52	WAPD	Inspection of Hanford canning program
	2-26/27-52	ANL	Uranium process meeting
W. T. Kattner	2-7/8-52 2-14-52	AEC:NYCO	To plan special metal fabrication
	2-9/10-52	Allegheny-Ludlum	To observe special metal fabrication
	2-11/13-52	ANL	Meeting on non-destructive testing
	2-16/17-52	Bethlehem Steel	To observe special metal fabrication
	2-11/16-52	Mallinckrodt Chemical Works	Discuss establishing a lot system for uranium

File Technology Unit



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1952

<u>Name</u>	<u>Date</u>	<u>Place Visited</u>	<u>Purpose</u>
R. M. Fryar	2-18/20-52	Chas. T. Main	Consultations on Nuclear Plant
R. E. Hueschen	2-26/27-52	U.S. Bureau of Mines, Albany, Ore.	Metallurgical Consultations
P. F. Gast	2-27-52	AML	Reactor Handbook Editorial Board Meeting
R. S. Paul	2-1/4-52	Wash., D.C., & New York, NY	Scintillation Counter Symposium and Physical Society Meeting
R. S. Dalrymple	2-1-52	International Nickel Co.	Discuss corrosion problems
D. C. Pound J. A. Berberet	2-1/4-52 2-1/4-52	New York, N.Y.	American Physical Society Meeting
L. P. Bupp	2-4/8-52	Univ. of Oregon & Oregon State Col.	B.S. & M.S. Recruiting
M. Lewis E. C. Pitzer	2-4/8-52	Univ. of Calif., Los Angeles	Attend National Assoc. of Corrosion Engineers
P. H. Reinker	2-5/6-52	Univ. of Wash.	B.S. & M.S. Recruiting
J. F. Music	2-11/12-52 2-13/14-52 2-15/16-52	Texas A. & M. Univ. of Texas Rice Institute	B.A. & M.A. Recruiting
J. E. Faulkner	2-11-52 2-13-52 2-14-52	Univ. of Wyo. Utah State Col. Brigham Young Univ.	Tech. Grad. Recruiting
D. E. Stephens	2-25/29-52	Commercial Control Corporation	Fabrication and testing consultation

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**DECLASSIFIED**ORGANIZATION AND PERSONNEL

	<u>January</u>	<u>February</u>
Physics	45	43
Engineering	87	87
Metallurgy	61	67
File Applications	71	70
P-10	65	64
Administrative	10	12
	<u>343</u>	<u>344</u>

Physics: A physicist terminated and a technical graduate transferred to Reactor Section, Operations Unit.

Engineering: Two laboratory assistants and one stenotypist terminated. A laboratory assistant was hired and two technical graduates transferred in, one from Separations Technology Unit and one from Design and Development Unit.

Metallurgy: One technical graduate was hired and three transferred in from Separations Section, Operations Unit; Management-General; and Technical Services Unit. One laboratory assistant was hired, one transferred in from Stores Unit, and a field clerk transferred in from Public Works Unit. A laboratory assistant transferred in from P-10 Sub-Unit. Two technical graduates transferred to Separations Technology Unit.

File Applications: A chemical engineer terminated.

P-10: A laboratory assistant transferred to Metallurgy Sub-Unit.

Administrative: R. J. Schier, Administrative Assistant to Manager, Engineering Department, has completed his assignment in the File Technology Unit and has returned to Technical-General.

CRITICAL MASS

A preliminary value of 1000 barns has been computed for the absorption cross-section of  $Pu^{240}$  from critical mass data. The increase in critical mass required for the same reactor volume using fuels of different  $Pu^{240}$  content was noted, and the reactor critical mass was then calibrated against controlled additions of lithium, whose cross-section is well-known, to obtain the  $Pu^{240}$  cross-section.

Analysis of the observed data is continuing in an effort to relate experimental results with theory and to compare data obtained using plutonium as fuel with those obtained with  $U^{235}$  as fuel.

IMPROVED PILE STRUCTURE

Exponential Pile Experiments

A measurement has been made of the dead time of the horizontal Geiger tubes used in the exponential experiments by a study of the characteristics and distribution of pulses from a standard source. Three 5mvl acetate quenched tubes of Hanford manufacture were tested, and a dead time of about 130 micro-seconds obtained. This confirms the previous assumption that the coincidence loss with this type of Geiger tube is less than 0.5 percent for counting rates less than 2000 counts per minute. A preliminary check performed on a vertical Geiger tube showed a dead time of about 100 micro-seconds. A more careful determination will be made, since it appears that nearly all counting done with vertical tubes will require coincidence loss corrections.

Considerable instrument trouble has been encountered this month as the result of changing the location of the experiments and the addition of new equipment. It appears that the quality of data obtained from the fission counter is greatly affected by the stability of the electrical power supply. Its operation will probably be limited to periods of minimum electrical disturbance in the building and will require careful monitoring with an oscilloscope.

It was found that fast neutrons emitted by the neutron sources stored in standard lead casks near the experimental assemblies were getting into the exponential piles in great enough numbers to perturb the natural neutron background measurements. Water tank neutron shields have been built so that the neutron sources can be stored conveniently in the 189-D Building without affecting experiments.

Determination of the buckling of the seven and one-half-inch dry uranium lattice is underway. Measurements have been completed using  $\text{BF}_3$  counters as flux detectors, and values of 97.3 to 101.7 microbucks obtained. The measurements are being reported with fission counters and indium foils as detectors to determine to what degree the choice of detector affects the buckling value obtained. Preliminary fission counter results appear to be in agreement with the  $\text{BF}_3$  counter measurements.

General Lattice Design

Small quantities of  $\text{Xe}^{135}$  were successfully produced and isolated from other fission product gases this month, preliminary to the cross-section measurements to be made on this isotope. The special generator slug was exposed in the Test Pile for four periods ranging from three to five hours with the pile power at about six watts. Characteristics of the xenon isolation system were determined during these runs. Results of elution tests on krypton and xenon under controlled conditions indicate that complete separation of these elements is possible. From examination of these samples, it appears that a satisfactory  $\text{Xe}^{135}$ - $\text{Xe}^{133}$  ratio can also be obtained. A more

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sensitive flow meter has been installed in the separator to permit more accurate analysis and comparison of the elution curves. It is felt that optimum operating conditions are being approached and that operation at higher power levels to obtain a sample sufficiently radioactive for coincidence counting of the xenon activity is justified. When the counting technique has been perfected, the system will be altered to make completely remote operation possible. The equipment to be used in the preparation of the sample for the neutron spectrometer cross-section measurement at DR Pile will be an exact copy of this separator with adequate shielding and a protective hood added.

The absolute counting equipment to be used in the assay of the cross-section sample has been installed in the 305 Building for testing during the preliminary xenon production experiments. A resolution somewhat better than 12 per cent has been obtained by use of a specially prepared crystal with the scintillation spectrometer. The spectral purity of the xenon samples obtained thus far seems to make higher resolution unnecessary.

Modifications have been made to the detector shield of the crystal diffraction neutron spectrometer to permit tests on samples of the C Pile control rods.

Preliminary calculations on the characteristics of the criss-cross lattice have been completed. It was found that rotation of alternate tube layers through 90° produces no effect on the thermal utilization of the lattice. The calculations will be described in detail in a forthcoming report.

#### Large Scale Pile Structures

In order to make a valid comparison between exponential pile buckling measurements and those obtained during critical loading experiments on new production piles, it is necessary to determine to what degree the air in the graphite void space of a new pile is displaced by carbon dioxide at the time of the critical measurements. An investigation is being made of the possibility of a large scale experiment to determine this at the start-up of C Pile.

Calculation has been made of the temperature distribution in a single lattice cell running the length of a pile. It was found that leakage out the faces of the pile accounts for a considerable fraction of the heat loss near the fringes of the cell. The calculation applies to the problem of new pile coring.

#### SHIELDING STUDIES

As the result of recent consultation with shielding groups at other sites, the program for the study of radiation damage to shielding materials will receive more emphasis at Hanford than heretofore. Additional radiation destruction tests will include measurements of flexure and dynamic modulus of elasticity. The Y test facility at H Pile is being revised to improve its suitability for radiation damage work.

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Tests are underway to measure the loss of water as a function of temperature and time for Brookhaven concrete. This work will aid in the determination of the equilibrium water content of the X Pile biological shield and will be used to differentiate between temperature and radiation damage effects of test samples.

Difficulties have been encountered with the concrete samples to be used for the thermal diffusivity determinations due to variation in steel shot distribution. Reduction in the diameter of the shot used should eliminate this difficulty.

Preparations for the radiation and attenuation studies on magnetite concrete are underway. Samples have been poured and analyzed for chemical composition. A one-month curing period will be required before irradiation.

Initial measurement of the gamma-ray attenuation by Brookhaven concrete shielding has been completed using ionization chambers and photographic film as detectors. A relaxation length of 8.4 cm. was obtained.

Measurement of variation in the gamma-ray intensity at the front face of a pile resulting from changes in process tube dummy load shows that it is not feasible to use aluminum dummies against the upstream end of the metal charge, and that shielding equivalent to that provided by existing dummies will be required to maintain low radiation levels with dry tubes.

Calculations have been made of shielding requirements for the downcomer and effluent water lines proposed for X Pile. Radiation levels anticipated at the C Pile viewing room window have been estimated. The activity from the irradiation of boron steel balls having cobalt as an impurity has also been calculated.

## OPERATIONAL PILE PHYSICS

### File Startup Considerations - C Pile

Initial steps in evaluating the cold, clean reactivity expected at C Pile are now being taken. The first approach to the problem is based on a direct comparison of the significant nuclear constants associated with the C Pile with those associated with the H Pile. Assignment and zoning of the graphite have been completed. Test Pile data from functional testing of graphite during the graphite fabrication program are being used to calculate the inhour contribution expected from the graphite. The largest effects on the cold, clean reactivity, other than graphite and metal nuclear quality, are the increased water annulus (~200 inhours) and the elimination of thimbles (~45 inhours). The results of this study are necessary for the determination of a loading which will insure optimum utilization of the enriched fuel.

Enrichment Experiment - Single Channel

The single channel enrichment experiment in Tube 367A-H now has a total exposure of approximately 220 MWD/AT after a three-month exposure period with no unusual operating effects observed. This tube contains approximately 300 grams of U<sup>235</sup> in the form of aluminum-uranium alloy slugs composed of four and one-eighth per cent by weight of uranium enriched to 93 per cent isotopic purity. These alloy slugs are not bonded to the aluminum cans containing them.

Instrument Development

Diffusion Length Measurement - C Pile: Planning of the neutron diffusion length measurements in the C Pile graphite is proceeding as scheduled. These measurements will be made using four source positions. Measurements of local neutron density will be taken at points located on several discrete radii extending from each source. Each radius will yield a local diffusion length which will be individually analyzed as a test for gross contamination in the associated volume of graphite. The overall effective pile diffusion length will be determined through a statistical analysis of all these data.

The pattern of test points to be used has been chosen and mocked up to detect any significant volume of the pile which has been neglected. Detailed counter scheduling is in progress.

A sufficient number of amplifiers and scalars has been obtained for this test. Measurements have been made which indicate that signal attenuation in the cables will not preclude the use of conventional preamplifiers mounted outside the pile. The proportional neutron counters and the source handling equipment are being fabricated.

Measurement of Fluxes in the Hanford Piles: Preliminary measurements essential to this program have been planned. The program will be initially concentrated upon the relatively simple measurement of thermal neutron flux. The E test facility at F Pile and Y test facility at H Pile will be used as exposure facilities in this initial work. Nuclear reactions to be employed are the Cu<sup>63</sup> (n,  $\gamma$ ) Cu<sup>64</sup>, Au<sup>197</sup> (n,  $\gamma$ ) Au<sup>198</sup>, and Ag<sup>109</sup> (n,  $\gamma$ ) Ag<sup>110</sup>, all of which have been used successfully in the Hanford piles or the pile shields. Absolute measurements will be obtained from inter-calibration with the Hanford standard pile.

Test Pile Calibrations: An approximate solution of the diffusion equation for a pile loading geometry which approaches an elliptic cylinder configuration, as does the test pile, has been obtained. Efforts to obtain an exact solution gave functions which are difficult to evaluate.

The Selsyn receiver which indicates control rod position has been replaced. Some difficulty with data precision has been experienced since the replacement. Duplication of rod positioning must be accurate to within  $\pm .001$  inches if the desired precision in the proposed testing of single uranium billet eggs is to be achieved.

Scintillating Crystal Gamma Ray Spectrometers: Several model 5819 photomultiplier tubes have been procured and tested for relative photo cathode sensitivities. A sensitivity spread of a factor of ten was observed among the ten tubes tested.

Some improvement has been made in the spectrometer resolution. The best photomultiplier-crystal combination found thus far yields a resolution of 11 per cent as judged from the full width at half maximum for the 0.663 mev.  $Cs^{137}$  gamma radiation. This improved resolution was obtained by roughening the crystal surfaces and surrounding the crystal and light pipe with powdered magnesium oxide.

A triple coincidence crystal gamma-ray spectrometer has been designed and components are being assembled. This instrument will place the primary pair-production event into coincidence with either or both of the escaping annihilation quanta. A similar technique is also useful in the Compton energy region. This technique is required to make good resolutions and energy measurements possible in the case of a heterogenous gamma-ray energy spectrum.

Ruptured Slug Detection: Improved instrumentation is being prepared for a uranyl nitrate injection test. All aspects of the existing and projected systems are being analyzed. A report describing the significant technical considerations will be prepared.

Tube Temperature Recording Facilities: The IBM automatic tube temperature recording equipment has operated with a minimum of difficulty for the month. Dust covers are being installed to reduce the incidence of relay contact failure.

A potentiometer has been designed and calibrated to substitute for the inlet thermocouple. The relatively high impedance associated with the thermocouple retards the recorder response.

The Flexowriter project has progressed as expected. Fabrication of the relay cabinet has been completed as has the design for the digital coding switch. The delivery of the Flexowriter recorder is now expected late next month.

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GRAPHITE STUDIESFile Graphite - X-Ray Diffraction Studies

The crystal expansion of graphite samples removed from a process tube channel in the central region of the D File indicates some recovery in graphite damage over the last year and a half. The trends in the damage profile shown by these data are similar to those observed recently for the B and F Files. Principal recovery in the year and a half period since the last sampling has been in the fringe region, two to four feet in from the reflector graphite. Bore graphite in the center of the pile appears to be in a steady state of damage with very little recovery indicated. Continuing crystal expansion occurs in the tube blocks in the extreme fringe zone between the reflector and two feet in from the reflector.

Two process tube channels in a lower corner of the F File were mined; crystal expansion data from these fringe locations are somewhat similar to fringe graphite damage profiles observed at the H File. Tube bore graphite from a process tube channel two lattice units in from the edge of the active zone of the pile showed comparable crystal damage all along its length. The second channel, six lattice units in from the pile edge, showed less damage in the center of the channel in spite of considerably greater exposure. The fringe regions of this latter channel showed the greatest damage with the overall profile of the channel being symmetrical. This double hump in damage is characteristic of central process channel graphite conditions; however, usually the downstream damage is less than damage near the front face because of warmer temperatures in the rear of the pile. The reason for the symmetrical damage contour in this case is not known but may be caused by unsymmetrical flux in this region of the pile.

File Graphite - Stored Energy

The total stored energy of samples from a stringer of graphite removed from the C Test Hole at the B File shows a damage profile similar to the X-Ray crystal expansion and thermal conductivity data which were collected earlier. The maximum stored energy of these samples, which are representative of filler block conditions, was reported to be 138 cal/gm for a position about one foot into the active zone of the pile from the far side reflector. The total stored energy in the center of the pile was 100 cal/gm. After receiving a 1000° C. thermal anneal, a similar set of samples had less than 15 cal/gm total stored energy remaining. These data indicate that about 90 per cent of the damage along the stringer has a low activation energy of annealing. This would be expected for samples in the pile fringe where the exposures are low and the temperature is also low, but it is surprising to find such a large amount of low activation energy damage in the central region where exposures have been great and the temperature has been on the order of 350° C. These data were compiled for only four samples along the stringer length. More samples will be measured to confirm this information.

**DECLASSIFIED**Graphite Exposures

The capsules of special TS graphite scheduled for test hole irradiation have not as yet been charged because of adverse conditions at the DR File, D Test Hole. The loading is scheduled for early March and in the meantime the capsule and papose irradiations are continuing.

Controlled Temperature Exposure of Graphite

Graphite samples, exposed for about 500 MB CT equivalent cold test hole exposure at four temperature intervals between 100° C. and 250° C., have been discharged for property measurements. Simultaneous with the discharge of these series II samples, a similar facility containing series IV samples was charged and the controlling temperature set at 135° C. The other heaters reached initial equilibrium at 115° C., 90° C., and 85° C. Series III samples and heaters are in the instrument shop being modified so that it will be possible to control each temperature individually.

In-Pile Graphite Burnout Studies

Exposure conditions for the last series of graphite specimens charged as part of the F File burnout production test have been very good. In both process tube locations containing the previously weighed graphite samples, the temperatures of central specimens have been between 420° C. and 450° C. for a period of about three weeks. In view of this desirable history, the samples exposed to the pile atmosphere will be discharged as soon as possible. The remaining specimens, which are being exposed under several controlled atmospheres, will be discharged at the following shutdown.

A heater assembly, designed to maintain graphite specimens at controlled temperatures as high as 550° C., has been assembled and tested in the laboratory under simulated pile conditions. Following successful operation for a period of about ten days, the entire assembly has been disassembled for study. A production test will be initiated shortly to install a similar heater in a process tube channel to obtain burnout data in the pile atmosphere at higher temperatures.

Graphite-Gas Reaction Kinetics

The rate of reaction between graphite and carbon dioxide at 854° C. has been determined for a static system containing an initial pressure of 0.5 atmosphere. Previous experiments of a similar nature have been completed for 903° C. and 955° C. For the lower two temperature runs, the initial reaction rate appears to be second order with respect to the carbon dioxide pressure. An activation energy based only on these two temperatures was found to be 56 Kcal per gram mole compared with 76 Kcal per gram mole reported earlier from studies utilizing a flow system. This discrepancy will be examined more closely as more data become available. In all three cases, the reaction shifts to follow a first order expression as moderate amounts of carbon monoxide form in the system.

Apparatus utilizing a flow system has been modified to obtain the rate of reaction between reactor grade graphite and a mixture containing about 3.5 per cent carbon monoxide in a carbon dioxide atmosphere. The data at several temperatures will augment the studies mentioned above and will show the effects of small amounts of carbon monoxide on the reaction rate and activation energy of a system similar to the pile gas. This study is in progress.

#### X-Ray Diffraction Studies

A special goniometer has been constructed to complement existing X-Ray equipment and allow the crystal orientation of various manufactured materials to be obtained by measurement of the intensity of reflected X-rays. The method is independent of the absorption coefficient of graphite and should allow rapid evaluation of orientation.

Theoretical studies relating the intensity of various X-Ray reflections from graphite with the area of the reflecting atomic planes in crystallites has indicated that the standard expression for angular dependence may not apply for most reactor grade graphites. Studies will continue in an effort to place relative intensity measurements on a more significant basis and relate such observations with structural changes in irradiated graphite.

#### In-Pile Heat Generation in Graphite

Calculations have been made to establish the feasibility of an in-pile experiment to determine the amount of heat generated in graphite during pile exposure. A system comprised of a graphite cylinder with thermocouples to measure radial temperature differentials appears to have promise. Principal difficulties with this system would be changes in the thermal conductivity of the graphite with exposure and the dependability of thermocouples in the pile. Studies are being continued.

#### Stored Energy Studies

The stored energy spectra for graphite samples exposed for 103 MD/OT, equivalent cold test hole exposure, at average temperatures of 111° C., 130° C., and 164° C. has been determined for annealing temperatures up to 600° C. The total stored energy released during annealing was 25, 16, and 10 calories per gram, respectively. A high rate of release of energy near 250° C. annealing temperature was noted for the sample exposed in the pile at 111° C. This behavior is similar to the stored energy spectra of graphites exposed in a cold test hole. The rate of heat energy released near 250° C. for the sample exposed in the pile at 130° C. was materially less and the rate of release of heat in this region of annealing temperature was virtually zero for the sample exposed in the pile at 164° C. These data agree qualitatively with other annealing studies which indicate that the effective in-pile temperature is much greater than the observed temperature as far as it affects the properties of graphite.

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Surface Studies

Careful studies of the surface characteristics of two grain KC graphite specimens have been completed following outgassing procedures at 500° C. and 1000° C. The samples were placed in quartz ampules, outgassed thoroughly at the same respective temperatures and sealed in high vacuum. Irradiation of these and similar samples is planned as soon as test cell space is available. This experiment is designed to obtain the effect of irradiation on the surface characteristics of graphites and also to explore graphite irradiation damage in the absence of a gas atmosphere.

Special Graphites

Irradiation damage studies of special graphites made at the Battelle Memorial Institute have begun. The first series of irradiations contain samples of resin bonded graphites having two filler particle sizes and two graphitizing temperatures. For each set of similar samples, the thermal conductivity has been shown to be twice as great for graphitization at about 2500° C. as at about 1400° C.

HEAT STUDIES

C Pile Panellit Gages

Work was begun to determine the necessary ranges of the Panellit gages for the C Pile. The following preliminary values have been determined:

<u>Orifice Zone</u>	<u>No. of Tubes</u>	<u>Relative Flow</u>	<u>Panellit Range, psig</u>
1	1130	1.000	150-250
2	264	0.885	110-210
3	282	0.708	50-150
4	234	0.523	40-140
5	94	0.430	10-110

These values were based on the assumptions that:

- (1) The flattening is the same as at the H Pile and
- (2) The desired flow is 60,000 gpm at a 360 psig riser pressure.

Additional experimental data to verify these data are being obtained.

Operation of Time-Delay Relays

Successful operation of the time-delay relay in the Panellit System has continued at the B Pile. On February 5, 1952, the relay was connected

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into the No. 1 Safety Circuit and has since been used as an operating part of the scram circuit. No unnecessary shutdowns have been caused by the relay since that time.

The relay was function-tested twice during the month. A Panellit gate was purposely tripped in order to activate the relay. In each case the pile was being shut down for some other reason; it was found that the relay performed satisfactorily.

Installation of the relays on the Panellit system on each pile was authorized in Design Change No. 78, February 3, 1952. Installation has been completed and relays are in operation with a three-second delay at each of the piles. To date, only the H Pile has experienced operational difficulties with the unit. On February 20, 1952, this pile was shut down for a period of 15 minutes. The scram resulted from a high pressure Panellit trip.

#### Study of Emergency Water Cooling Facilities

A study has begun to investigate the capabilities of the pile cooling facilities for operation during emergency conditions. The study will consider the primary cooling system, the high tanks, and the export water system. In addition, the possible need for supplementary cooling systems will be considered. It is anticipated that several weeks will be required to complete the investigation.

#### Slug Temperature Distribution

Calculations to permit determination of the temperature at any point in a slug have been made. These were based upon a thermal conductivity for unirradiated uranium since the data for irradiated uranium are limited and questionable. A report giving the temperature distribution as well as a comparison of various formulae is being prepared.

#### Measurement of Slug Bond Coefficients

The design of apparatus for the measurement of the heat transfer properties of various jacket-to-slug bonding layers has been continued. Drawings for various of the component parts have been completed. A delay in the construction program is anticipated, however, due to taxed machine shop facilities. Nevertheless, it is still hoped that the tests can be started by June.

#### Pressure-Drop Film Studies

Tests to determine the temperature effects of scale formation on the slug jacket surface are continuing. Scale is being formed on a tubular surface and the temperature effects are determined periodically. The initial data, which are subject to appreciable inaccuracies, indicate that temperature effect may be somewhat greater than presumed. Testing will be continued.

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Small modifications to certain equipment being designed by the Water Quality Program have been requested. It is believed that additional information on the temperature effect of scale formation may be obtained from the apparatus.

### Heat Transfer Aspects of Unbonded "J" Slugs

A theoretical investigation of the heat transfer aspects of the use of unbonded "J" slugs is being made. Such slugs are being considered for use in the C Pile. Temperatures to be encountered at the slug axis, surface, jacket, and end-caps for various possible slug-jacket interface conditions are being estimated. Recommendations will be made upon completion of the investigation.

### Slug End-Cap Temperatures

Calculations were made to determine the closeness of slug end-cap temperatures to local water saturation temperatures. The following variables were considered: (1) tube power, (2) size of outlet fittings, (3) water flow rate, (4) amount of scale formations, and (5) estimated thermal conductivities for the scale. The tentative results are given in "Technical Activities Report - Heat Transfer", HW-23669, March 5, 1952.

### Thermocouple Slug Design

Design work has continued on a thermocouple slug having a thermocouple placed on the surface of the uranium metal adjacent to the aluminum jacket. This type of thermocouple slug will permit a more accurate determination of surface temperatures. Preliminary testing of thermocouple wires and insulation in the Al-Si and lead canning baths has been completed. So far, the results look promising.

### Experimental Slug Stress Work

Fabrication of the resistance heating equipment for slug stress studies has been continued. Work was accomplished during the month primarily on

- (1) a hydraulic end-pressure system to simulate axial pressures encountered by slugs in the pile
- (2) an electrical bus system to supply current to the test specimen
- (3) a specially-constructed Pyrex tube for housing the specimen
- (4) various methods for bonding the end-caps to the slug, and
- (5) miscellaneous mechanical components necessary for operation of the equipment.

It is hoped that actual testing can begin within six weeks.

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### Tube Water Shut-Off After Pile Shutdown

Work is continuing to evaluate more accurately the period for which the water flow can be removed from a tube following shutdown. The present curves are somewhat conservative, and it is hoped that more liberal ones may be justified. It is probable that newer curves will not be available for several weeks.

### Thermal Shield Cooling

A preliminary investigation has been made of shield temperatures resulting from a reduction in the cooling water flow through the shield. External temperatures have been extrapolated from experimental values obtained at appreciably lower power levels. In view of a need for better data, it is planned to conduct more experiments in the near future.

### Stresses in the Old-Pile Shields

Additional study has been made of the stress conditions in the thermal and biological shields of the B, D, and F Piles. The information available provides a basis for one general conclusion: thermal distortions are minor and secondary as compared to distortions caused by graphite growth. Further, it can be stated that thermal distortion and stress are not likely to be major problems unless the interior faces of the biological shield are allowed to reach temperatures considerably higher than those existing at present. Further studies of the shields are to be made.

### Concrete Biological Shields

Tests are being planned in conjunction with other groups to obtain better data on the moisture content of hardened concrete. Concrete slabs are now being fabricated in the Concrete Control Testing Laboratory for use in these tests.

### Possible New Pile Designs

An investigation is being made of the advantages of the use of metal charges cooled at the axis of the charge rather than at the periphery. Such composite charges would consist, in cross-section, of a cooling tube surrounded by a donut-shaped uranium charge. Passage of the coolant through the tube wall then provide internal rather than external cooling. Preliminary experimental data indicate that appreciable reactivity gains might result through use of this type charge. Calculations indicate that the pressure drop necessary to force the coolant through the tube would be well below the drop through the present geometry. The investigation is being continued.

**DECLASSIFIED**WATER STUDIES105-D Flow Laboratory

The test to determine the optimum pH for dichromate free process water has been in operation for about 30 days. Although no significant corrosion data are yet available, some data on film formation rates have been obtained. These data show the film formation rate increases with increasing temperature and with decreasing pH. Three types of water--raw, process, and filtered--are being tested. The film formation rate is lowest for raw water and highest for filtered water. The low film formation rates with raw water at elevated temperatures are surprising in view of a previous test which showed that the film formation rates with cold, raw water were very high. Further investigations are being made to determine if the heating process changes the charge of the colloidal particles believed responsible for the film formation.

Fundamental Film Formation Studies

The film test apparatus has been in operation for approximately 200 hours. The apparatus is operating with an outlet water temperature of 50° C. and a water velocity of 30 ft./sec. Data show that the film under these conditions is alternately built up and removed in a cyclic process. The Reynold's Number in the apparatus is similar to the Reynold's Number in pile process tubes. Thus, it appears that the effect of velocity on film formation rates is greater than was originally supposed. A further test using the same Reynold's Number but with a much lower velocity should give data on this velocity effect.

Data obtained from the alum production test, Production Test 105-503-E, indicate that no film is formed with high quality water; the film formation rates are high with water containing small amounts of iron and turbidity and that no film is formed with very impure water. Data are not yet available to determine what constituent is primarily responsible for the film formation or the mechanism by which the film is formed.

In order to evaluate more fully the relationship between the iron residual and the film formation rates, a test is being conducted at 100-H Area with ferric sulfate coagulant. In this test the lowest iron content water which may be obtained by the use of this coagulant will be supplied to the pile. Since this water will have considerably lower iron residual, it should be possible to determine if this residual is primarily responsible for the film formation.

Production Test No. 105-473-P - The Use of Commercial Aluminum Sulfate for 100 Areas' Process Water Coagulation

Operation of the 193 Filter was normal during the past month with the exception of a two-day period in which severe breakthrough difficulties were

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Pile Reactor Unit

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- (2) A water leak into the R Pile resulted from a ruptured slug on February 10. The pile was restarted after removal of the slug and the water was removed by the operators.
- (3) Indications of a new water leak caused a shutdown at R Pile on February 11. All tubes up to Row 22 were pressure tested and six leaking tubes were found.

#### Ruptured Slug Correlation

Correlation work with the data on ruptured slugs has resulted in the following conclusions:

- (1) The rupture rate increases sharply with tube exposure. Approximately one-fourth of the ruptures occur in tubes with exposures less than 400 M-D/T.
- (2) The correlation of those failures which exhibit cleavage of the uranium to tube power shows that most of these failures occur in high power tubes.
- (3) Of the slugs which were manufactured between December, 1950, and April 26, 1951, more than twice as many of those manufactured on Friday had cap failures as those canned on any other day of the week. During most of this period, Friday was the last day of the work week.
- (4) Of all the slugs manufactured from December, 1950, until now, more than twice as many of those failures, showing uranium cleavage, were taken through the canning line on Truck No. 1 as on any other truck.

Comparison of Group Seven and Group Eight metal is nearly complete and a report is being prepared. Group Seven is defined as that metal canned between November 30, 1949, and April 26, 1951. Group Eight includes all the slugs canned since April 26, 1951.

#### Thorium Program

All of the thorium charged into the piles through December 7, 1951, was discharged during February to meet the initial off-site request. The in-pile thorium inventory was decreased during the month to 895 pieces to prevent excessive power losses from large changes in flattening loading. A tentative in-pile inventory goal of 900 to 1000 pieces, as permanent flattening, appears feasible from the standpoint of flattening efficiency.

#### Reactivity Status

A representative summary of the reactivity status of each of the operating piles during the last equilibrium period of the month is given below:

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ENCLOSURE

Slug Jacket Erosion at High Flow Rates

Process tubes loaded with dummy process slugs at a flow rate of 35 gpm have shown that the erosion rate with cold water is negligible. The test was conducted during the first period with ferrous sulfate treated water and during the latter period with alum treated water. The abrasion rates for both types of water are negligible.

High Temperature Corrosion

The high temperature corrosion apparatus was out of operation during the past month. The boiler scale in the heat exchangers which caused a shut-down of about 20 days has been removed and the exchangers are now operating at normal capacity. An analysis of the data obtained during the previous operational period shows that the corrosion rates obtained with this apparatus are considerably less than those obtained in a process tube heated by an external steam jacket. The reason for the discrepancy in corrosion rates is believed to be attributable to (a) the temperature differential between the 2S and 72S aluminum and/or (b) the change in pH resulting from pre-heating the water. Tests are now being conducted to evaluate the effects of each of these conditions.

Graphite Aluminum Tests

Preliminary data have been obtained from a bench type test to determine the rate and type of 2S aluminum corrosion encountered when the aluminum is coupled to graphite. The data indicate that the pitting attack in the overall corrosion rates are a maximum at low temperatures and that both types of attack decrease with increasing temperatures.

Corrosion Effects of Heavy Metal Ions on Aluminum

The three-month test to determine the effect of silver, copper, lead, tin, and chromium ions on 2S and 72S aluminum corrosion rates has been concluded. The data indicate that the 2S aluminum is attacked uniformly regardless of the type of ion and its concentration. The rate of attack of the 2S aluminum is slightly greater when heavy metal ions are out in the water. The data indicate that 72S aluminum is attacked less uniformly than 2S aluminum and is more subject to a pitting type attack. These studies were carried out at an average temperature of 30° C.

A companion test to determine if foreign metal impurities were present on unexposed slug jackets in amounts great enough to cause accelerated corrosion has also been concluded. The data indicate that no detectable deposits of copper or tin were present either on the slug surface or below the surface of the end cap.

Recirculation

The F Laboratory recirculation equipment has been in operation for about one month. Although some operational difficulties have been encountered, the test is proceeding satisfactorily. The first test is being run on steam condensate with a specific resistance of 230,000 ohms/sq. cm. and with a pH of about 7.3. An analysis of the condensate shows that about the only impurities present are 0.015 ppm iron and 1.2 ppm calcium.

MECHANICAL STUDIESCharging and Discharging Program

Studies are being continued to determine the causes and extent of slug cocking during charging with the continuous charging machines. It has been determined, by X-Ray studies, that when slugs are charged under full-flow conditions considerable cocking results with both four- and eight-inch pieces. A test was run in which the top half of the tube was cut away and the bottom half filled with water. No cocking was observed under this condition except that backseating resulted in buckling of the column. This indicates that the cocking observed during the continuous charging tests may have been caused by the full-flow conditions. This is to be checked by further X-Ray studies under varying flow conditions. The Industrial X-Ray Corporation, Seattle, Washington, has been retained for this work, and the schedule calls for the work to be done during the week of March 3 to 7.

A pressurized sphincter seal is being made up for use on the rear face to eliminate the need for backseating the charge and recapping the tube after charging is complete. This would also eliminate the complicated discharge machine which was part of the original design.

Horizontal Control Rods

Testing of the Horizontal Rod Gland Seal has been completed in the cycling mechanism after 50,000 cycles. This seal, employing oil saturated GBF graphite bearing blocks and slightly greased "O" rings operated satisfactorily in this mock-up, but it remains to be seen how it will operate on the full-scale mock-up. A new type seal is being developed employing Teflon rings which, due to their natural low friction characteristics, will require no lubrication. These should provide more satisfactory service under pile conditions where lubrication is not practical.

The full-scale mock-up, Project C-468, is nearing completion by Minor Construction forces.

Detailed designs are proceeding on the Experimental Modified Horizontal Control Rod for the old piles. When the design is complete, a prototype

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HW-23696

will be built and tested in the Horizontal Rod Mock-Up in 199-D. This design features an external trundle through the inner rod room with a conventional shaft seal at the barricade wall. This will make possible the elimination of the present trundle in the pile and will provide additional clearance in the rod channel to compensate for graphite distortion.

#### Vertical Safety Rods and Third Safety Systems

Development of a variable orifice for the C Pile shock absorbers is continuing. This will reduce the severe stressing which results from impact of the rod head on the shock strut assembly. The original air valves received with the shock strut assembly had to be replaced because they would not withstand the high pressure developed.

A graphite erosion test has been completed to determine the extent of the damage which would result from use of a Ball 2-X System, as considered under FDA-DC-3. One full charge, 4.73 cu. ft., of three-eighths-inch steel balls was dropped into a C Pile stack 100 times. Maximum wear was in layer 96 at the point where the balls impinged on the graphite as they poured down the chute from the hopper. Maximum depth of wear was 13/64 of an inch. A total of 1399 grams of graphite was worn away by the 100 drops. This would be roughly equivalent to four years operation and does not appear serious.

Tests on sphincter gas seals are continuing for the C Pile and presently operating piles. A seal housing with a three-inch silicone rubber seal has been installed at the White Bluffs Test Tower and is being tested simultaneously with the shock struts. This seal is being lubricated with Molykote, molybdenum disulfide, instead of grease. The "free fall" time of the rod was increased from 1.36 to 1.46 seconds when the seal was installed. A check was also made to determine if the rod was being held by the seal such that it could not move at the instant of release. It was determined that any such holdup which might exist was less than 0.01 second.

Molykote lubricant has been applied to the No. 20-D rod. The scram time for this rod was measured as 3.3 seconds. This is a flexible rod in a badly distorted hole and the time is not comparable with the above times.

Silicone rubber samples with one, five, ten, and twenty per cent Molykote compounded with the rubber had lower coefficients of friction but were not satisfactory mechanically. Apparently the included Molykote reduces the strength and tear resistance.

#### Slug Damage Tests

The in-pile slug damage test, Production Test 105-468-P, has been completed and is being issued as Formal Document No. HW-23543. It was concluded that approximately 25 per cent of the slug charged into the pile receive rib

scratches deeper than the 0.001-inch surface defects allowed in 500 Area Manufacturing. It was also concluded that occasional slugs will be damaged so severely that the damage may contribute to failure during operation.

### P-13 Removal

The P-13 Pressure Assembly removal program has been given to the Project Engineering Unit to be issued as a formal Project Proposal. Information is being awaited from Argonne National Laboratory confirming the allocation of their funds to cover the cost of this program. Detailed design of the system is proceeding.

## METALLURGY OF URANIUM

### Fabrication

During January, 25 uranium billets were rolled at Watervliet and Lackawanna in an experiment to determine whether a uranium structure suitable for alpha-phase canning can be produced employing production facilities. The rods, pre-heated in salt, were rolled at selected temperatures in the range from 538° C. to 650° C. Samples from this rolling are being examined to determine the grain size, mechanical properties, and degree of preferred orientation as functions of rolling temperature. Available data indicate that rods rolled at 640° C. exhibit a fine-grained microstructure and a nearly random orientation.

One hundred twenty billets were rolled at Watervliet and at Lackawanna in February using a simulated Fernald rolling process based on data obtained from the rods in the experimental rolling in January. The billets were rolled in the high alpha phase in an attempt to obtain a fine-grained, randomly oriented structure in a small production run.

Fifty slugs produced from uranium metal powder were received from Sylvania. It is planned that these slugs will be pile-tested when the 50 slugs prepared from uranium hydride powder are received.

### Uranium Quality

A routine rod testing program has been established as a quality control measure. Samples, taken at random from rods in the survey lots, will be promptly processed to evaluate the metal in each month's rolling for determination of the grain structure, mechanical properties, and the preferred orientation. The purposes of these tests are to check uniformity of material from month to month and to form a basis for evaluating future process changes.

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The quality of uranium rods received at Hanford from Simonds Saw and Steel has improved greatly in recent months. Improvement in melting and casting techniques at Mallinckrodt resulting in better billet surfaces has contributed to sounder rods, and the use of Radiomatic heads to measure rod temperature during rolling permits better temperature control than was possible previously.

A meeting was held at Mallinckrodt Chemical Works, St. Louis, Missouri, to discuss a Hanford proposal for maintaining lot identity and for exchanging pertinent process information which will make it possible to evaluate the effects of variation in materials and of process improvements upon the quality of the uranium received at Hanford. The Hanford proposal, as outlined in Document Number HW-23308 was agreed upon with only minor modifications.

#### Uranium Alloys

A series of six uranium-chromium alloys of 0.1 to 0.6 atomic per cent chromium has been prepared. These alloys will be forged and rolled to one-half-inch diameter rods and evaluated by metallurgical techniques to determine the optimum composition of this alloy for a proposed pile test.

#### Mechanical and Physical Properties

The study of mechanical properties as a function of position in the alpha-rolled uranium rod cross-section showed an increase in yield strength and proportional limit as samples were taken closer to the rod surface. A 20 per cent increase in yield strength was observed in rolled rods, and a 10 per cent increase was found in rolled, beta heat-treated rods.

Additional data show that the chemical composition of uranium is a minor factor in the variations in impedance measured by the General Electric Metals Comparator.

#### METALLURGY OF PLUTONIUM

The major construction forces, operating under Project C-198, have completed their work. The plutonium metallurgy laboratory has been turned over to Operations. An informal request, ER-2712, previously mentioned, has reached the final planning stages. Work will commence as soon as the work authority is issued.

The preliminary design for the security and contamination barriers, air lock modifications, helium system, and intercommunication system is complete. The conveyor, on which design is half finished, will complete the necessary steps of the preliminary design.

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Further investigation of the X-Ray diffraction of  $\alpha$  shows that  $\alpha$  is alpha  $AlF_3 \cdot 3H_2O$  is in complete agreement with the lower hydrate aluminum fluoride; this indicates that the linear compound may well be the trihydrate. If this is true, the 70-52 fluoride may also be a trihydrate and isomorphous with the alpha aluminum fluoride trihydrate. A 70-52 oxide sample was run and the pattern resembles beta  $Al_2O_3$ . However, the kappa  $Al_2O_3$  pattern is very similar and a positive isomorphism has not yet been established.

Calibration work on all components of the dilatometric interferometer equipment was undertaken.

### METALLURGY OF HANFORD STRUCTURAL MATERIALS

#### Aluminum

Corrosion of 63S-T6 aluminum in water containing 20 per cent NaCl plus 0.3 per cent  $H_2O_2$  has been found to occur by simple pitting and intergranular attack. The type-of-attack tests indicate that intergranular corrosion of the 63S-T6 aluminum is extensive in both fine and coarse grain samples. Extensive pitting was found on 52S, 72S, and 150S samples; the 2S(H-14) exhibited extensive pitting and some evidence of intergranular attack.

The thickness of the 72S cladding on Hanford process tubes has been measured on rejected "C" Pile tubing and on process tubing following high temperature corrosion tests. Thicknesses of nine and twenty-two mils of cladding on the tube wall and ribs, respectively, were observed for the C Pile material and of eight and sixteen mils on the tube wall and ribs, respectively, for those tubes which had been corrosion tested.

A 50 per cent increase in tensile strength was obtained in 63S aluminum alloy after artificially aging at 177° C. for four hours.

Alloys of aluminum with magnesium, magnesium and silicon, and zirconium have been cast and rolled into bars suitable for preparation of tensile specimens.

#### Control Materials

A diffusion heat-treatment for nickel-plated, high-boron carbon-steel balls to be used in the J-X Ball system was developed. The bond between the nickel and steel obtained by this heat treatment appears uniform in thickness. An investigation is in progress to determine the corrosion-resistant properties of the surfaces of the balls so treated.

#### Corrosion of Aluminum Slug Jackets During Autoclaving

A preliminary examination has been made of several eight-inch and four-inch slugs that were rejected following autoclaving because of the presence of stained and pitted areas. In some instances the pits were estimated to be

20 mils deep, extending into the 31-51 boundary layer. The cause of these surface defects is unknown but will be the subject of further investigation.

#### Examination of Process Tubes from 100-F

Since the publication of W-13342, "Progress Report on the Corrosion of Process Tubes from 100-F", by R. G. Wheeler and R. S. Dalrymple, Tubes 0284, 0893-II, and 1290 have been inspected. Samples of corrosion products from the exteriors of these tubes are being analyzed by X-Ray diffraction. Visual examination of the inside surfaces revealed no evidence of corrosion.

By means of a weight-loss traverse, it was found that there are sharp lines of demarcation between corroded and non-corroded sections, viz.,

#### Distance from Rear Flange in Feet

<u>Tube Number</u>	<u>Start of Corrosion</u>	<u>End of Corrosion</u>
0284	7	10
0893	7	13
1290	6	9

Numerous pit depth measurements have been made throughout the corroded sections of the process tubes. The maximum pit depths measured and locations are as follows:

<u>Tube Number</u>	<u>Distance from Rear Flange (Feet)</u>	<u>Maximum Pit Depth (Mils)</u>
0284	8	20
0284	9	14
0284	front flange	42
0893-II	11	17
0893-II	12	12
1290	7	3
1290	8	1.2
1290	9	6

#### Examination of Rear Face Flanges at the B Pile

The rear flanges of Tubes 1695, 1696, 1796, and 1580 were examined during the shutdown of the pile on February 2. The gasket material adhered to all of the flanges examined but no evidence of flange corrosion could be found. Flange thicknesses, as measured by a dial indicator, were found to be 50 to 60 mils.

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Corrosion Tests on Nickel Plated Copper Spherical Balls

Nickel plated copper balls were tested under three conditions to determine their storability as received and after heat-treatment in vacuum at 970° C. for one hour. The results are shown in Table I, below:

TABLE I

<u>Corroding Condition</u>	<u>Exposure Period - Hours</u>	<u>Results of the Tests</u>	
		<u>As Received Balls</u>	<u>Heat-Treated Balls</u>
Boiling distilled water under reflux	24	Several small rust spots accompanied by lifting of the nickel plate surrounding the pits.	Numerous small rust spots. The solution was discolored during the test.
100 per cent relative humidity at 80° F.	48	No evidence of attack.	Fairly uniform rusting
In sodium chloride solution at room temperature	24	Many small pits and blisters in the nickel plate	Many small pits.

It was concluded that the heat-treatment was detrimental to the corrosion resistance of the nickel plated balls.

Materials of Construction for a Redox Type Plant

The exposure of as-welded and welded-annealed specimens of Type 430 stainless steel to selected Redox process streams was continued during the month. Corrosion rates less than 0.0005 inches per month were recorded for as-welded and welded-annealed specimens exposed in boiling 2DF solution after a total exposure period of 432 hours. Corrosion rates less than 0.00005 inches per month were recorded for as-welded and welded-annealed specimens after a total of 1008 hours exposure at room temperature to each of the following Redox process streams: 2 DF, 1 AS, 1 BX, 2 DS, 1 AX, 25 per cent NaNO<sub>3</sub> solution, 50 per cent Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> solution, 60 per cent nitric acid, and aluminum nitrate nonahydrate solutions of concentrations 25 per cent, 50 per cent and 70 per cent.

Specimens of Type 430 stainless steel welded with Type 317 electrodes and Huey-tested in the as-welded and welded-annealed conditions showed a slight improvement over specimens welded with Type 310 electrodes. The weld deposits on the welded-annealed specimens suffered severe intergranular attack, however, in spite of the use of the niobium-stabilized electrodes.

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A program of corrosion tests in Paper process streams has been requested by the Separations Technology Unit. Seven process streams will be investigated and each is scheduled for tests at various chloride-ion concentrations. Four stainless steels--Carmenter 20, and Types 347, 316, and 309 SC6--will be tested. The Separations Technology Unit has volunteered the use of two laboratory hoods and assistance in preparation and disposal of solutions in order to expedite the program.

A series of corrosion tests in Purex process 1 AW stream is in progress in co-operation with the Separations Technology Unit. Specimens of Types 430, 304 ELC, 309 SC6, and 347 stainless steel were weighed and examined in the Corrosion Laboratory and exposed in a scale-up unit in Building 321. The object of the investigation is to determine the threshold concentration of chloride-ion at which pitting of the specimens occurs. Two tests have been completed, one at a chloride-ion concentration of 10 ppm and one at a chloride-ion concentration of 100 ppm. Tentative plans are to conduct the next test at a chloride-ion concentration of 1000 ppm since no pitting has been detected at the two lower concentrations. Previous experience indicates that the threshold chloride-ion concentration, above which pitting occurs, is less than 2500 ppm.

#### Corrosion of 200 Area BiPO<sub>4</sub> Metal Waste Storage Facilities

A short test of specimens of SAE 1010 mild steel in boiling synthetic BiPO<sub>4</sub> Metal Waste has been completed. Specimens exposed to the liquid had corrosion rates of 10<sup>-5</sup> inches per month, which were in good agreement with previously reported data. Partially immersed specimens exhibited no accelerated attack at the liquid-vapor interface. Specimens exposed to the vapor were severely pitted, and pit depths up to 0.0016 inches were measured following a 424-hour exposure period.

Corrosion tests of specimens of SAE 1010 mild steel scheduled for three months' exposure in First Cycle BiPO<sub>4</sub> waste at pH levels six, seven, and eight at 80° C., have been completed. Specimens exposed to the liquid at the three pH levels were found to have no significant difference in corrosion rates. The corrosion rates for the three pH levels ranged from 10<sup>-6</sup> to 10<sup>-5</sup> inches per month. The partially immersed specimens had no accelerated attack at the liquid-vapor interface. However, pitting was found on the portion exposed to vapors. Specimens with various times of exposure in the vapor will provide additional information for the final report.

#### CANNING DEVELOPMENT

##### Eight-Inch Slugs

Sixty-five per cent of the approximately 14,000 eight-inch slugs canned to date were acceptable for pile loading. Since satisfactory frost test

conditions were also checked for the presence of the entire available amount of frost test defects here. Large number of three-inch diameter slugs show their reactivity is equal to or better than that of four-inch slugs.

#### Salt Bath Heat-Treatment and Lead-Dip Canning

The Metal Preparations Section has manufactured the equipment for the salt bath heat-treatment of uranium to assure uniform transformation.

Initial lead-dip canning attempts on salt bath heat-treated slugs were not successful because of partial non-wetting of the uranium slug with a consequent partial lack of a good metallurgical bond between the slug and jacket. The unwet areas of the slugs do not show up in the frost test. The trouble is believed to lie in the nature of the slug surface after the salt bath treatment and in the cleaning and pickling procedure for this type of slug. The magnitude of the problem has been reduced by cleaning the lead-Al-Si interface, by lengthening the pre-heat time, and by mechanical agitation of the slug in the lead and the Al-Si.

#### 63S Aluminum Canned Slugs

Four slugs were canned in 63S aluminum for a preliminary evaluation of this aluminum alloy as a slug jacket. Tests in the 305 File showed the reactivity loss of 63S to be comparable to that of the present 2S alloy production cans.

#### Pre-Wet Caps

Fifty slugs, canned and capped using pre-wet caps, showed good uniformity in braze line thickness.

#### Examination of the Cracks in the Welds of Hanford Slugs

Argonne National Laboratory has reported the presence of radial cracks or fissures in a number of weld closures of Argonne prepared slugs. An investigation at Argonne National Laboratory to determine the depth of these cracks revealed that some penetrated the braze line to the uranium slug itself. An examination of the welds on a number of Hanford slugs revealed similar fissures on Hanford slugs canned in 1949. Welds made since June, 1951, show fewer cracks than those made previously. The fissures appear where the arc was removed from the weld bead, and they extend radially on the weld and vary in length and width. At low magnifications it appears that a fine hairline, having the appearance of a crack, extends from the base or tip of several of the open fissures. Observations at high magnifications showed that these very fine lines are silicon stringers dispersed in the weld metal. To date no crack has been found which penetrates the weld to a distance greater than 19 mils.

**DECLASSIFIED**Tensile Strength of Al-Si Bond

A means of determining the tensile strength of the Al-Si bond on a Hanford slug was devised and tested. Nine tests of this method showed the tensile strength to be 1700 to 2000 psi with no significant variation.

Compound Layer Investigation

A program was formulated for an investigation of the effects of variables on the composition and properties of the compound layer formed between the aluminum-silicon bond and the uranium during canning. Samples of slugs were obtained for this evaluation.

Sleeveless Canning

Statistical evaluation of process data on UO slugs canned without use of steel sleeves has provided information on the optimum bath temperatures and submerge time limits. These data may be used in canning about 400 slugs for a pile test.

Warm Pressure Canning

Four triple-dipped Al-Si coated slugs were hot pressed into aluminum cans producing good cap-can closures. These slugs indicate that the technique merits further investigation.

Die designs are being modified to improve the cap-can closure and to prevent galling of the aluminum.

Canning Mechanization

A tentative design and cost estimate for mechanization of the component assembly and quench operation were received from the General Electric General Engineering Laboratory.

In an operating trial run, the Hanford-designed prototype canning machine performed satisfactorily. Approximately two dozen slugs were canned over a temperature range of 585 to 600° C.

Effect of Aluminum in the Bronze Bath

An investigation of the maximum allowable percentage of aluminum in the bronze bath revealed that the addition of 0.05 per cent pure aluminum results in the formation of an insoluble precipitate which floats to the top of the melt. Such solid particles are undesirable in the bronze bath since they may be carried over to the canning bath and interfere with subsequent canning operations. The addition of aluminum in the form of a tin-aluminum alloy containing 2.0 per cent aluminum, or less, does not lead to the formation

of the high-melting-point compound in the bronze. At normal operating temperatures. At the present time the silicon content of the tin used for make-up of the bronze is less than 1.0 per cent.

## RADIOMETALLURGY

### Irradiated Slug Studies

Twenty irradiated slugs, representative of slugs with normal and abnormal appearances and of ruptured slugs, were sent to the Westinghouse Atomic Power Division's hot laboratory in Pittsburgh, Pennsylvania, for study of the mechanism of rupture. Westinghouse personnel will view and photograph the ruptures before doing work on the other slugs. Mr. D. P. O'Keefe of Hanford will provide technical assistance as long as Westinghouse continues to work on the pieces.

The types of ruptures have been compiled for failures, number one to 136, and show that the types of failures, one through seven, as defined in EM-23351 are in order of 40 per cent for type one, 20 per cent for type two, with the others occurring with about the same frequency.

Sixteen chemically cleaned, normally discharged slugs were observed. Only the most severe "donuts" left discernable marks on the cans, but a mottled effect was noted on all the slugs.

A "donut" was removed mechanically from the surface of a slug in the 111-B laboratory. Observations indicate that the Al-Si was not bonded to the uranium in the area beneath the "donut", and it is believed that the consequent temperature gradient on the slug surface promoted formation of the "donut" through differential corrosion.

### Equipment

A cave was built to provide shielding for personnel during their examination of ruptured slugs. Three lead glass viewing plugs have been installed along with the necessary contamination control and handling facilities to permit the observation of one slug a day.

The usefulness of a newly designed high-low range radiation ionization chamber is being tested for use in the proposed hot cells.

It was found that a 10.5-inch long, 6.2 g/cc glass window attenuates light no more than the green filter usually used in conjunction with Super Fanchro-Press film in photo-micrography.

A single aluminum crystal, cut parallel to the (111) planes, has been bent to form a cylindrical surface and installed in the second diffracting position

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of the double crystal X-Ray spectrometer. The X-Ray diffraction pattern of uranium produced using this crystal is superior to any previously obtained by double diffraction methods. The fact that this crystal effectively focuses the diffracted intensity out of the plane of the sample and also produces a more suitable spectrum indicates that substantial progress has been made in the development of the double crystal X-Ray spectrometer.

An evaluation of the surface produced in cutting an irradiated slug with a milling cutter is being made.

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Engineering...  
Project 6-122 is reported as 98 percent completed. The metallurgical  
laboratory, the second metal line, and exceptions to acceptances have yet  
to be completed.

The pneumatically operated valve with a Teflon seat and gasket was installed  
on the metal line between the measuring tank and Toepler Pump No. 4. In addition,

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Pile Technology Unit

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a manually operated valve with a Teflon seat and gasket was installed on the metal line between the measuring tank and manifold. These valves are a modification of the Skinner valve and fit into the existing Skinner valve base.

The remaining P-10-A rod was packaged and shipped to Brooklyn, New York for duPont usage. This shipment reduced the Hanford stock of unfinished lithium-aluminum alloy, both billet and rod, to zero.

SPECIAL IRRADIATIONS

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

Non-metallic materials are being irradiated in special underwater baskets by the fission product gammas from exposed uranium pieces. The uranium pieces were replaced with recently discharged metal on February 16. Seventeen samples are nearing the end of specified exposure periods.

Gamma Irradiation of Carbon Tetrachloride Samples

At the request of Separations Technology personnel, gamma irradiation of samples of carbon tetrachloride was initiated using two buckets of recently discharged uranium as sources.

Fission Chamber Life Test - DFW-M-101 - Production Test 105-528-SR

A life test under pile conditions is planned to determine the suitability of fission chambers for monitoring the pile neutron flux. The production test authorizing this irradiation has been issued and charging of at least one test assembly is tentatively scheduled at D Pile on March 20. DuPont representatives are to be present for initial testing, installation, and startup.

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Creep Rate of Pins - KAPL-M-105 - Production Test 105-400-P

The object of the Knolls Atomic Power Laboratory creep test is to determine the effect of neutron flux on the creep rate of small diameter stainless steel tubes with high internal pressure. The slug assembly was charged into F Pile on January 27, and the experiment has been operating continuously since then. The neutron flux apparently retards the creep rate of Type 347 stainless steel; however, further tests will be required before definite conclusions can be established.

Creep Rate of Zirconium - WAPD-M-111 - Production Test 105-529-SR

The object of the Westinghouse creep test is to determine the effect of neutron flux on the creep rate of a zirconium specimen with bellows loading. The fourth slug assembly was charged into B Pile on February 4. Performance was satisfactory for eight hours after charging, then the input and output leads of the microformer became shorted together making further monitoring of the creep rate impossible. The fifth slug assembly is scheduled for charging into B Pile during the March shutdown.

Electrical Resistivity Measurements of Cu<sub>2</sub>Au - WAPD-M-112 - Production Test 105-513-SR

The electrical resistivity of ordered and disordered copper-gold specimens is being investigated as a measure of the effect of pile radiation on lattice spacing. The resistivity of the ordered specimen has increased about 12 per cent during an exposure of three months.

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

A continuous measurement of the thermal conductivity of a uranium-zirconium alloy is to be made under pile irradiation. Operational difficulties at the assigned pile have prevented charging of the test slug. Charging is tentatively scheduled for March 11.

Heater Test for Graphite Thermal Conductivity Determination - KAPL-M-109 - Production Test 105-508-A

This test will check the performance of two types of heaters which have been proposed for the continuous determination of graphite under pile irradiation. The equipment has been received and tested, and the production test is being circulated for approval.

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

Sample series No. 2 was discharged from the water annulus cooled facility in Tube 1684-B on February 6 and series No. 4 was charged. The exposures are being made at 98° C., 115° C., and 135° C. with 135° being the control

point. The Series 2 pieces are being examined by the Graphite Studies group. Series 3 is being revised to allow temperature control on individual samples.

#### Pile Gas Reaction Studies

At the request of the Graphite group, samples of graphite are to be irradiated in sealed ampoules containing various compositions of pile gas. A production test has been prepared and a water-cooled annular tube facility has been fabricated for the initial low temperature tests. The samples are being prepared by the Graphite Studies group.

#### In-Pile Calibration of Thermocouples

As a means of in-pile calibration of thermocouples, a heated stainless steel slug containing lead and two sizes of two types of thermocouples is to be irradiated. A production test has been written for this work and the special slugs are being prepared.

#### Measurement of Slug Operating Temperature - Production Test 105-411-P

The production test has been written for charging a uranium slug containing a central thermocouple. The effect of fission build-up, amount of heat generation after shutdown, and effect of water shut-off after pile scram will be measured.

No satisfactory slugs were obtained from the first canning process. Two canned assemblies failed to pass the frost test, one failed in the autoclave, and the remainder failed to pass surface inspection. Ten additional annular slugs and five thermocouple slugs were canned on February 26. These slugs are now being inspected and tested.

#### Measurement of Neutron Cross-Section of Xenon

Special Irradiations personnel will assist the Experimental Physics group in the measurement of xenon cross-section with the neutron spectrometer at DR Pile. Design of the in-pile installation for a 105 Pile xenon generator is being undertaken. Charging, discharging, and recovery procedures will be outlined.

#### Controlled Gas Atmosphere Experiment. Project G-410

This equipment will be used to investigate the equilibrium reactions of various gases with graphite samples during pile exposure under carefully controlled conditions.

Sub-assemblies of the gas analysis system have been completed and leak checked. Almost all leaks have been eliminated. This equipment should be ready for transport to the X-1 level of the DR Pile by early March.

Continue edit agreed with new version of the G-410

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Numerous defects were found in the test-hole heater facilities received from the General Engineering Laboratory in Schenectady. Project Engineering personnel have been advised that the defective heaters need replacements and that the new heaters need testing before being charged into the pile. This work will cause an additional delay of about two months.

Since a satisfactory aluminum sample container has not been made, quartz replacements are being considered.

A study of the method of determining composition of a gaseous mixture by thermal conductivity measurements indicates that, if CO<sub>2</sub>, CO and O<sub>2</sub> content are measured directly, the determination of He and N<sub>2</sub> by thermal conductivity measurements is feasible.

Status of Special Irradiations

P-10-A pieces charged	457
P-10-A pieces discharged	251
P-10-A pieces irradiated	457
Thorium pieces charged	725
Thorium pieces discharged	839
Thorium pieces being irradiated	895
Special Request Samples charged	87
Special Request Samples discharged	65
Samples being irradiated	457
Samples shipped during February	1
Samples awaiting charging	121
Samples awaiting shipping	87

B Hole Test Facility Reactivation

On February 17, an unsuccessful second attempt was made to remove the stuck samples in H Pile, B Hole. Corrosion in the tube has become serious enough to prevent additional attempts at sample removal. The test hole facility will be removed with the samples in place and a new B Hole assembly will be installed.

Irradiation of Ten Per Cent Lithium-Aluminum Samples - DFW-M-100 - Production Test 105-472-P

Samples of a ten per cent lithium-ninety per cent aluminum alloy are being irradiated to determine the effect of composition on tritium yield. Decay and gamma energy data are being taken on a central piece discharged after an exposure of 404 MWD. Pieces previously discharged at 270 MWD, on which similar data were taken, were examined for warp resulting from irradiation and were found to be unaffected. A similar warp check will be made on the recently discharged samples.

Shielding Requirements for Irradiated Uranium

Gamma decay and energy absorption measurements taken for a typical four-inch uranium slug indicate two apparent gamma-ray components: one of 1.1 Mev, and the other of about 4.1 Mev. The 4.1 Mev component is about 2.5 per cent of the overall intensity and may be disregarded in shielding considerations.

PROCESS CONTROLPile Operations

All five piles achieved new maximum operating levels during the month. Part of these gains resulted from a revision of tube power generation limits.

DR, F, and H Piles were affected by water leaks during February. DR Pile operated at nearly normal levels during the month but was still affected by the January leak and required a distorted flattening pattern. Six more leaks were found at F Pile, five of them in the lower far corner. Recently experienced F Pile water leaks have all been near the fringe and have not caused appreciable reactivity or power losses due to either the water or the abandoned tubes. The discharge of from 40 to 50 tubes from the F Pile zone in which the leaking tubes are concentrated is being considered. This action would result in an expected loss of approximately one inhour per discharged tube until the tube is replaced. The maximum attainable power level at F Pile would be decreased approximately ten per cent following discharge of these tubes. Most of the water which leaked into the lower far quadrant of H Pile, with a resultant loss in reactivity of more than 50 inhours, was removed after a week's operation.

Of the total of 17 ruptures during February, seven were removed during normal scram recovery time and ten required special outages to effect removal. In addition, one suspected rupture was discharged during one of the special outages.

Unusual Incidents

- (1) E Control Rod - 100-D Area. During startup on January 25, the B control rod could not be removed from the pile under normal power. The rod was removed with crowbars until approximately three inches of the uncoated tip was inside the reflector. To prevent possible leaks from the rod, the cooling water was shut off while the rod was in this position. During the February shutdown, the rod was sawed off and preparations were made to remove rod, thimble, and all during the next outage. As yet, no reason for the malfunction can be assigned.

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(2) A water leak into the R Pile resulted from a ruptured slug on February 11. The pile was restarted after removal of the slug and the water was removed by the covers.

(3) Indications of a new water leak caused a shutdown at R Pile on February 11. All tubes up to Row 22 were pressure tested and six leaking tubes were found.

Ruptured Slug Correlation

Correlation work with the data on ruptured slugs has resulted in the following conclusions:

- (1) The rupture rate increases sharply with tube exposure. Approximately one-fourth of the ruptures occur in tubes with exposures less than 400 MWD/T.
- (2) The correlation of those failures which exhibit cleavage of the uranium to tube power shows that most of these failures occur in high power tubes.
- (3) Of the slugs which were manufactured between December, 1950, and April 26, 1951, more than twice as many of those manufactured on Friday had cap failures as those canned on any other day of the week. During most of this period, Friday was the last day of the work week.
- (4) Of all the slugs manufactured from December, 1950, until now, more than twice as many of those failures, showing uranium cleavage, were taken through the canning line on Truck No. 1 as on any other truck.

Comparison of Group Seven and Group Eight metal is nearly complete and a report is being prepared. Group Seven is defined as that metal canned between November 30, 1949, and April 26, 1951. Group Eight includes all the slugs canned since April 26, 1951.

Thorium Program

All of the thorium charged into the piles through December 7, 1951, was discharged during February to meet the initial off-site request. The in-pile thorium inventory was decreased during the month to 895 pieces to prevent excessive water losses from large changes in flattening loadings. A tentative in-pile inventory goal of 900 to 1000 pieces, as permanent flattening appears feasible from the standpoint of flattening efficiency.

Reactivity Status

A representative summary of the reactivity status of each of the operating piles during the last equilibrium period of the month is given below:

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HW-23698

	<u>B</u>	<u>D</u>	<u>DR</u>	<u>F</u>	<u>H</u>	<u>Totals</u>
Control Rod						
Excess (in hours)	132	115	168	145	138	
Xenon	686	673	697	708	718	
Plant Assistance	20	5	6	18	2	
"9" Program	120	105	100	89	100	
Dummy Columns	10	36	55	90	0	
Hot Reactivity	1290	1311	1213	1382	1322	
Co Allowance	-378	-124	-280	-163	-268	
Cold, Clean Reactivity	912	887	933	919	1054	

Test File

Regular metal testing proceeded routinely during the month.

The TDS values of regular uranium egg samples continues to be high. Ten lots of eggs had the following TDS values:

<u>Number of Lots</u>	<u>TDS</u>
1	15
3	15
1	17
3	18
2	19

Five special work requests were performed during the month.

Tube Temperature Limits

A revision of the limits for protection against tube boiling or vapor lock, which was recommended in document HW-23294, was put into effect at all piles this month. These limits are the same as those recommended in the 100 Areas Process Specifications which are now being circulated for discussion.

These new limits resulted in small gains in power levels at the H, DR, and F Piles. The B and D Piles, which are primarily limited by graphite temperature, were not noticeably affected.

Ruptured Slug Summary

There were 17 slug failures during February and one suspected rupture. Of the failures, eight were Group Eight metal and nine were Group Seven metal. Of the Group Seven metal slugs, five were in low power frame tubes.

The DR Pile reactivity is still somewhat affected by water in the graphite.

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REPORTED DATA

<u>Tube No.</u>	<u>Date of Failure</u>	<u>Days in Pile</u>	<u>Tube Power at Failure</u>	<u>KW per Slug</u>	<u>Local Water Temp., °C.</u>	<u>Canning Date</u>	<u>Type of Failure</u>
1774-DR	2-2-52	241	346 KW	6.4	47	4-30-51	Split
2180-H	2-2-52	178	362 KW	6.3	48	7-6-51	Side
1090-B	2-3-52	258	258 KW	5.4	*	2-26-51	Cap
1875-DR	2-7-52	246	334 KW	6.3	31	5-3-51	Side
4186-B	2-12-52	272	264 KW	**	*	4-5-51	Cap
1871-DR	2-14-52	253	417 KW	7.6	*	5-9-51	Cap
1058-DR	2-15-52	123	290 KW	5.5	16	4-5-51	Split
3465-H	2-15-52	191	390 KW	**	*	6-6-51	Cap
1685-F	2-15-52	169	362 KW	**	*	7-17-51	Split
4283-B	2-16-52	276	190 KW	2.8	*	4-28-51	Compound Cap
0772-F	2-16-52	284	404 KW	**	*	4-16-51	Compound Cap
3690-F	2-17-52	152	291 KW	6.2	28	3-30-51	Split
1057-D	2-18-52	348	304 KW	5.7	18	1-29-51	Split
2064-DR	2-21-52	240	393 KW	7.1	18	5-29-51	Split
1860-DR	2-25-52	292	341 KW	7.2	24	4-2-51	Split
1886-F	2-27-52	295	404 KW	***	*	4-14-51	Cap
3873-F	2-28-52	163	351 KW	6.3	53	8-17-51	Split

\* Slug position unknown

\*\* Data unavailable

\*\*\* Pushed into chute with other metal

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HW 1981

Graphite Thermocouple Error

Accumulated evidence reveals that the graphite thermocouples, which were installed during the construction of B, D, and F Piles, give erroneous temperature readings. By comparison with recently installed thermocouples in the C hole stringers and on vertical thimbles, the minimum error can be estimated with reasonable certainty. On the basis of this comparison, a correction of  $-10^{\circ}$  C., at  $380^{\circ}$  C., for the 15-G and 16-G thermocouples was approved this month. Since these thermocouple readings were limiting to power, the correction resulted in small power gains at B and D Piles. Study is continuing in an effort to make a closer evaluation of the error. A test, to establish a basis for calibrating the proposed process tube channel thermocouples, is being formulated.

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.

Signed:

*G. E. McCullough*  
G. E. McCullough  
Manager, File Technology

GEMcC:lgd

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HW-23698

March 6, 1952

SEPARATIONS TECHNOLOGY UNIT

MONTHLY REPORT  
FEBRUARY, 1952

VISITORS AND BUSINESS TRIPS

Cornelius Groot visited Oak Ridge National Laboratory, Knolls Atomic Power Laboratory, Brookhaven National Laboratory and Argonne National Laboratory January 28 through February 29 for consultations on separations methods and Purex Process development.

W. C. Schmidt visited Alaska Copper Company, Seattle, Washington February 4-8 to supervise packing of off-gas filters for 201-C.

R. E. Burns attended a conference on application of intense fields of nuclear radiation at Brookhaven National Laboratory February 18-19.

H. M. Jones visited E. I. duPont de Nemours and the Savannah River Project, Aiken, Georgia February 18-22 for consultations on purex instrumentation.

W. H. Reas visited the University of California at Los Angeles February 22-29 to recruit BS-MS technical personnel.

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HW-23698

Separations Technology Unit

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	<u>January</u>	<u>February</u>
Administration	2	2
Special Assignment	3	3
Research	41	41
Chemical Development	82	84
Process	<u>45</u>	<u>43</u>
	173	173

Research: One Chemical Engineer was transferred from Process, and one Tech. Grad. was transferred from Radiological Sciences. One Tech. Grad. was transferred to Technical Services and one Problem Leader was terminated.

Development: Two Tech. Grads. were transferred from Pile Technology.

Process: One Chemical Engineer was transferred to Research and one Tech. Grad. was transferred to Pile Technology. Four Tech. Grads. were transferred from weekly to monthly status.

B<sub>2</sub>O<sub>3</sub> PLANT ASSISTANCE

Canyon Buildings - 221

Operations were conducted at a reduced rate in both "T" and "B" Plants as the major portion of irradiated material was processed at the Redox Plant. Seven rework operations (1 First Cycle By-Product Precipitate, 2 First Cycle Waste Supernate, and 4 Second Cycle Waste Supernate) were conducted; all of them served to recover approximately 12 per cent of a run. The acid wash in "T" picked up 33 per cent of a standard run and the "B" acid wash picked up 34 per cent.

Metal waste storage tank temperature in 107TX (98 per cent full) was 148°F. The temperatures in 101TX, 105TX, 101BX and 104BX were not obtained due to construction work in progress in these areas.

Waste Evaporators - The waste evaporator at T Plant operated routinely for the month. Instantaneous evaporation rates averaged 750 gal/hour with an average heel of 1200 to 1400 gallons. The log beta decontamination factor remained at approximately 4.0.

The waste evaporation rate at B Plant decreased from 865 gal/hour to 345 gal/hour. On February 2, 1952 an acid flush using 1000 lbs. of 60 per cent nitric acid was employed to cleanse the evaporator. The sprays were plugged, consequently the acid was diluted up to 4000 gallons or an approximate

Separations Technology Unit

concentration of 2 per cent by weight. This solution was sparged continuously for 24 hours, and then dumped to the 108-B Tank. Following this flush the overall rate of evaporation was 865 gal/hour but each succeeding batch had a much lower rate than the previous one. The evaporation rate fell to 345 gal/hour on Run E-12-02-F13, and the sludge heel had built up to 1613 gallons. Following four acid flushes rates returned to better than 700 gal/hour.

Concentration Buildings - 224

Master Recycle Runs - B and T Plants - Three master recycle runs were processed at B Plant and one at T Plant during the month. The recycle inventory was thus reduced preparatory to the receipt of Redox recycle.

The master recycle runs were made up to a standard product batch and oxidized in the E-4 Tank, the nitric acid concentration adjusted in the D-1 Tank and diluted to 49 per cent volume. The runs were processed at 49 per cent volume through the lanthanum fluoride by-product and product cells and as a standard run in metathesis.

Isolation Building - 231

S Plant (Redox) Material Processing - Twenty-three essentially full level Redox runs have been processed through the Isolation Building without incident. Processing in general has been under the same conditions as those of bismuth phosphate runs with the exception that the solutions are not filtered prior to processing, first cycle precipitation is carried out at 30°C with 15 minutes digestion instead of at 20°C with no digestion, and the high acid concentration of the material as received (6.3 to 12.4 N) is being neutralized to 2 N with sodium hydroxide instead of potassium hydroxide. Resultant final nitrate solutions of the first six runs processed have ranged from 5,000 to 30,000 parts of sodium per million parts of plutonium. Batches received thus far have averaged approximately 70 per cent of the anticipated 350 grams. Of the amount received (P-1) an average of 6.3 per cent (range of 3.1 to 17.7 per cent) has been recycled to the Concentration Buildings in the supernatant solutions. This is equivalent to an average of 4.2 per cent (range 2.4 to 11.6 per cent) of the 350 gram nominal batch size.

Prior to processing the full scale runs, four tracer runs were processed through the Isolation Building. The product content of these runs was increased by filtering through the N-1 filter with resultant leaching of product previously deposited in these filters. With the exception of Run S-12-02-L-6, which was loaded into sample cans, these runs were recycled to the Concentration Building.

Production Test 231-B Time Cycle Reduction - A month's production in all three cells has been accomplished using the shorter time cycle developed under Production Test 231-13. Changes effected under this test are as follows:

- I. Omission of the 30 minute digestion after the peroxide strike in both first and second cycle.

Separations Technology Unit

II. Decreasing the settling times in minutes in both first and second cycle as indicated below:

Cycle	Normal		PT-231-B	
	1st	2nd	1st	2nd
Strikes	60	60	30	30
1st wash	30	30	15	15
2nd wash	30	30	15	15
3rd wash	30	60	15	30

The net effect of the test conditions has been an increase of approximately 1 to 2 per cent (P-1 basis) in the amount of product recycled to concentration with a wider range of individual values. The most frequent values obtained in test runs and on control runs (B and T-11-10 and part of B and T-11-11 series) are tabulated below.

Production Test 231-13

	Recycle Per Cent of P-1	
	Normal	PT 231-13
B Plant	3.2 - 3.6	5.5 - 5.9
T Plant	3.5 - 3.9	4.5 - 4.9

Neither the greater amount of product recycled or their spread in value is a serious handicap to normal operation under current conditions. It is recommended that the changes described above be made a normal part of the Isolation Process.

Production Test 231-14 Use of Filter Boats - Five runs, originating with material from the bismuth phosphate plants, have been made under Production Test 231-14, with two peroxide cycles followed by a Pu(IV) oxalate precipitation filtered into filter boats designed for eventual use in the Purification Building RM Line. Some difficulties with leaks in the piping system and boat station have precluded demonstration of filtration rates under maximum head tank vacuum conditions. It is indicated, however, that filtration rates, with a full boat, are in the order of 0.5 liters per minute. Effort is currently being expended in determining the best technique for obtaining quantitative transfer from the P-2 Tank to the boat station. Product contained in the oxalate filtrate has been indeterminate, since the appearance of precipitate in the solution, by leakage or by post precipitation, has lead to difficulties in sampling and assaying. No difficulty in decomposing the hydrogen peroxide in the combined peroxide-oxalate supernatant solutions has been experienced and the previously mentioned precipitate appears to dissolve under the "heat kill" conditions leading to satisfactory total recycle analyses.

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PURIFICATION AND FABRICATION BUILDING PLANT ASSISTANCE

RG Line

Task III (Reduction) - Addition of 70-58 at the reduction step was resumed January 30, 1952 with reduction Y-12-1-113.

Redox material which will soon be the major feed material to the 234 Building will have a negligible lanthanum content and the addition of 70-58 at the reduction step which was previously discontinued because of increased La content should not cause any departure in quality. Buttons of satisfactory purity are being produced (La Avg. 312 ppm, Max. 550 pp., Min. 80 ppm.).

Average reduction yields for 121 runs during February was 93.3 per cent.

Gas Evolution in Sample Can - The pressure has increased in a closed sample can containing 160 grams plutonium as AT solution to 73 lbs/sq.in.g in 86 days. Average gas evolution (STP) in 86 days has been 0.2918 cc/g/day. Other values are 0.337 for the period 18 to 48 days, and 0.308 for the period 48 to 60 days.

Cost data are being obtained on small needle valves which would be attached to a modified adapter plug and would fit inside the present filter cap. This arrangement would permit shipment of a closed Sample Can but permit release of pressure prior to opening.

Packaging and Storing Skulls - Casting skulls shipped to Los Alamos after storage in metal cans, have exhibited pyrophoricity during dissolution. A letter from R. D. Baker of Los Alamos to P. R. Collins (GEM-19, 245) includes some unpublished

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HW-23698

Separations Technology Unit

and preliminary data which indicate that the pyrophoricity is due to plutonium hydride. This hydride forms in the presence of moist air or moist helium. To protect skulls from moisture, packaging in heat sealed aluminum foil bags has been investigated. A "Pack Rite Continuous Hand Rotary Heat Sealer" was obtained and several types of aluminum foil bags were evaluated as to the type of seal obtainable. Bags made by W. T. Segerstrom and identified as Methlan #222 were most satisfactory for heat sealing. The heat sealer, a design for a slight alteration to the sealer, and a design for a shield to insure complete protection during its use along with a recommendation of the above mentioned bags have been given the Separations Section.

Production Test 234-5 - At present nineteen 160 gram batches and five 350 gram batches of the Pu(IV) oxalate have been processed. Information collected to this date has in general, indicated that Pu(IV) oxalate will give desirable results.

The wet chemistry cycle is 1-1/2 to 2 hours longer than for the Pu(III) oxalate when comparing 160 gram batches; however, the 350 gram batch requires about 5 hours to process through the wet chemistry cycle as compared to 3 hours for a 160 gram batch of the Pu(III) oxalate. The Pu(IV) oxalate will give a cake volume (settled cake - not filtered) of 300 cc to 400 cc from a 160 gram batch and 530 cc to 800 cc from a 350 gram batch size, the larger volumes apparently are due to too rapid initial addition of the oxalic acid.

Supernate waste losses average 0.32 per cent overall. The loss for the 350 gram batch size averages 0.17 per cent and for the 160 gram batch size averages 0.40 per cent. Direct recycle of supernates without concentration to the 224 Building have shown no adverse effects on the Concentration Building process.

The entire hydrofluorination cycle at present requires 8-1/2 hours as compared to 9 hours for the Pu(III) oxalate. The  $PuF_4$  has a density of approximately 1.5 gm/cc on the average with the currently employed cycle giving 1.22 to 1.95 gm/cc. Apparent fluoride reduction yields range from 96.1 per cent to 100.2 per cent with an average of 98.4 per cent. The purity of the metal appears satisfactory and c/q values for the button analyses range from 0.3 to 0.6 in general with one at 0.80 and one at 0.98.

RMA Line

Task II (Hydrofluorination) - Temperature calibration of the furnaces in Task II of the RMA Line was completed and data were obtained for a program-controller can to be used during shakedown runs on this equipment. Steady state temperatures at three locations in the filter boat, at the winding, and the baffle thermowell, were recorded for each of the furnaces with several settings of the controller. The times required to reach a constant temperature in the filter boat after a change in the controller setting were obtained.

On the average, the boat temperature differed from the winding temperature by 10°C. For one furnace, not included in the above average, this difference

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HW-23698

Separations Technology Unit

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was 40°C. The average difference between the bath temperature and the average boat temperature was 13°C for all furnaces. The average temperature difference inside the boat was 30°C.

Task III (Reduction) - A study of the Task III time cycles indicates that, as the equipment now exists, three runs can be processed in 7.5 hours or ca. 9 runs/3 shift day. By providing a position switch that would by-pass an interlock that prevents the rams from being raised except when the carriage is at the station, this cycle could be reduced to three runs in 6 hours or 12 runs/three shift day.

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Process Recovery

The 31 RC cans (total volume ca. 600 liters, total Pu ca. 535 grams) of accumulated caustic solution (CSS) used to scrub iodine from the Task I

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HW-23698

Separations Technology Unit

precipitation vessels vent gases were returned to the 224 Building for product recovery. Twenty-eight of the RC cans were shipped to the 224 Building without prior processing. The solution in the remaining three containers was high in iodine (ca. 50 g/l) and was processed for iodine removal by blending one lot of CSS to seven batches of SN-1 solution (175 liters), adjustment of the composite solution to ca. 1.5 N HNO<sub>3</sub>, the addition of 8 liters of 14.5 per cent hydrogen peroxide, and evaporation to a volume of approximately 50 liters. The processing of CSS solutions through the lanthanum fluoride by-product and all subsequent operations in the Concentration Building has been normal.

Polythene feed tanks for the addition of hydrogen peroxide to the evaporator have been installed in Hoods 29 and 30. The evaporator in Hood 30, which had a failure of the glass lining, has been replaced. Separate SN-3 addition lines from Hood 32-A to the evaporators in Hoods 29 and 30 are being installed. The processing of SN-3 solutions will be resumed upon completion of the equipment modifications.

REDOX PLANT ASSISTANCE

Plant Performance

Eight full activity level 3-1/8 ton feed preparation batches were processed through the head-end scavenging-centrifugation step. Cake losses for uranium and plutonium have averaged 0.05 per cent and 0.2 per cent, respectively. These losses are in close agreement with those observed during the 5 per cent tracer level runs after plows were installed in the centrifuge. Scavenging decontamination factors have averaged 3 for beta and 1.1 for gamma activity. Permanganate reduction methods are currently being reviewed in an effort to improve scavenging decontamination factors. Ruthenium removal has been very erratic with indicated D.F.'s ranging between 2.8 and 280.

The 5 per cent tracer level solvent-extraction shakedown runs were completed on February 2. Plant design and chemical performance were satisfactorily demonstrated operating two uranium and three plutonium cycles on the tracer operations, including a 36-hour period of operation at a 4 ton/day uranium processing rate. Performance data for the tracer runs are summarized as follows:

Separations Technology Unit

Column	Waste Losses % LA Feed		Beta dF	Gamma dF	%U in Pu
	U	Pu			
IA	0.2	0.5	3.0	3.0	---
IB	---	---	4.3(1)	3.8(1)	0.05(2)
IC	< 0.001	---	3.9	3.9	---
2D	< 0.001	---	---	---	---
2E	< 0.001	---	5.0	5.0	---
2A	---	0.02	---	---	---
3A	---	0.02	---	---	---

Notes:

(1) IAF to IBP

(2) Calculated contamination of the IBP plutonium with uranium if the plutonium concentration had been the full Flowsheet value rather than the 5 per cent tracer level concentration.

In view of the satisfactory tracer level performance, full radioactivity level operation was started on February 10 at a uranium processing rate equivalent to 2.5 t/d. Production was maintained at this rate until February 13, at which time it became necessary to reduce the production rate to 1.0 t/d in order to rework a plutonium 3BP batch which had become contaminated with aluminum nitrate salting agent. This off-standard condition was caused by a plugged dip tube in 3A Column with resultant loss of interface control and entrainment of aluminum nitrate into 3B Column. The plutonium rework was successfully accomplished and operation was continued until February 17, at which time high plutonium losses in the combined salt waste stream necessitated a plant shutdown. A review of extraction column operation prior to the appearance of plutonium in the waste has revealed no unusual circumstances to which the losses could be attributed conclusively. Attempts to recover the plutonium by processing the salt waste through the IS (rework) Column in conjunction with main line production were only partially successful because poor fission-product decontamination in IS under acidic (Pu<sup>4+</sup>) flowsheet conditions resulted in both the uranium and plutonium product streams being off-standard with respect to fission-product activity. The balance of the month was devoted to rework of this material.

Plant solvent extraction performance data obtained during the productive period (7 days) prior to rework are summarized as follows:

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HW-23698

Separations Technology Unit

Column	Waste Losses % IA Feed		Beta dF	Gamma dF	Product % U in Pu	Pu in U (ppb)(a)
	U	Pu				
IA	0.24	0.1	3.0	2.5	---	---
IB	---	---	---	---	0.07	---
IC	<0.001	---	5.0	3.6	---	200
2D	0.002	---	---	---	---	---
2E	0.01	---	7.0(b)	6.4(c)	---	50
2A	---	0.13	---	---	---	---
2B	---	0.001	6.7	6.5	---	---
3A	---	0.01	---	---	---	---
3B	---	<0.001	7.1	6.5(d)	0.03	---
Total	0.253	0.242				

Notes:

- (a) Specification = 100 ppb parts U.
- (b) Beta radioactivity from fission products in the recovered uranium was less than the tentative specification value of 30 per cent of natural uranium beta (the best representative value for the recovered uranium being approximately 10 per cent of natural uranium beta activity).
- (c) Gamma radioactivity from fission products in the recovered uranium averaged less than the tentative specification value of 300 per cent of natural uranium gamma, values being reported as low as approximately 35 per cent of natural uranium gamma activity.
- (d) Average PR Can readings were negligible (less than 6 mr/hr).

Total uranium discarded to waste to date, which includes the "cold" shakedown runs, is less than 1 per cent of the processed uranium. Total plutonium discarded to waste is 3.5 per cent. Approximately half of this discarded plutonium originated from the high waste losses encountered just prior to the rework period, and for which discard authorization was received.

During the month, the Redox Plant "hot" pumps and agitators functioned satisfactorily, with no mechanical failures requiring either equipment replacement or plant shutdown.

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Separations Technology UnitProcess Chemistry

Uranium Product Purity Studies - A new 3/8-inch Mini 12-stage miniature mixer-settler was operated as a Redox 2D contactor in a series of 4 "cold" runs to study the Na, Al, and Fe content of the uranium product stream as a function of influent stream compositions. The unit was operated with 4 scrub and 8 extraction stages, with a stirrer speed of 2000 rpm. Introducing the ferrous sulfamate with the 2DF rather than the 2DS, reduced the Fe in the 2DU from approximately  $4 \times 10^{-3}$  g/l to  $5 \times 10^{-4}$ . The use of neutral in place of the acid-deficient 2DS reduced the Na content of the 2DU from 0.3 g/l to 0.05 g/l. The aluminum concentration in the 2DU was approximately 0.07 g Al/l in all cases.

Hexone Purity Studies - The non-volatile oil residues which were found in the samples of Redox Plant hexone have not yet been positively identified, but it has been fairly conclusively demonstrated that they are products of the hexone stream itself rather than lubricating oils as they were formerly believed to be. Hexone samples taken before and after the hexone distillation column (G-3) have been analyzed on a routine basis since the start of full level Redox runs on February 2, with the G-3 column operating on water reflux rather than dilute NaOH. In the first 3-day period, the rate of residue formation appeared to rise steadily, the amounts of non-volatiles in the IOO stream increasing from approximately 350 mg/l to 1150 mg/l, while the residue in the plant distilled hexone remained fairly uniform at 40 to 80 mg/l. Since that time (2-13-52) the IOO residue content has shown no definite trend, varying between 300 and 800 mg/l.

Over the period from February 11 to 20 the diketone concentration in the plant distilled hexone has risen from less than 0.001 wt. per cent to 0.04 wt. per cent. Laboratory studies of the extraction characteristics of hexone have been continued. These have shown that process concentrations (0.05 vol. per cent) of diketone and such other contaminants as lubricating oil and 1, 1 dinitro isobutane, have no significant effect on the U, Pu, gamma and beta distribution coefficients (either extraction or stripping) under approximate IB Column conditions. Concentrations of diketone from 0.5 to 1 vol. per cent, however, do appear to affect Pu stripping adversely. These studies are continuing, and will be extended to include a comparison of plant hexone with pretreated hexone under IA, IIA and IIB Column conditions.

URANIUM RECOVERY PLANT ASSISTANCE241-U Tank Farm Operations

Initial sluicing operations were begun on February 5 in underground waste tank U-101. Sluice pump rates of 500 to 600 gal/min were obtained, but a transfer of only 100 to 150 gal/min was produced by the sludge pump. This low rate was caused by a leaking air-operated by-pass return valve and a plugged air-operated valve in a master diversion box jumper. The by-pass line was blanked, the diversion box jumper was replaced with a valveless jumper, and the desired sludge pump rate of 600 gal/min was attained.

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HW-23690

### Separations Technology Unit

Approximately 15 tons of sludge was slurried into the Slurry Accumulator during a 48-hour period. Periscope operational difficulties have prevented a thorough inspection of the sluicing area but a hole approximately two feet deep appears to have been dug under the sludge pump. A second periscope is being installed near the sludge pump for closer visual inspection of the sluicing area.

Initial blending operations were started on February 15. After the addition of 19,000 lb of slurry to the blend tank (approximately one-half of the required amount to produce the turbidity endpoint), the blend tank agitator motor overheated. An inspection revealed that the clearance between the top flange of the torque tube and the shaft was too small causing galling of the shaft. This has been corrected by enlarging the hole in the torque tube flange, and the agitator is being replaced. A possible reoccurrence on the second blend tank agitator is being eliminated by enlarging the hole in the torque tube of that agitator.

Construction of the 241-WR Storage Vault is virtually complete, and beneficial occupancy is scheduled for February 27, 1952.

A run plan, 241-UR-2, "Evaluation of pH Electrodes for Blend Tank Batch Control" was issued on 2-12-52.

### 221-U Plant

About one-half of the 221-U canyon cells may be released for beneficial occupancy on March 3, 1952.

A test to determine the adequacy of the RC Column plate supports was made in 221-U Building. With the column filled with water and the pulse generator operating at 90 cycles/minute, the measured movement of the plates was less than 1/32 inch. Process-wise no trouble is anticipated from this slight movement.

An acceptance test program for the pulse generators was agreed upon by Technical, Manufacturing, Design, and A & J Company. Two pulse generators have been put in operation in 221 Building. 17-2<sup>3</sup>(RC) has completed 7 days uneventful operation with an average leakage rate past the piston of 0.6 gal/min; and 19-8 (RA) has completed seven days uneventful operation with a leakage rate of 0.17 gal/min. The run-in has been made at a frequency of 75-90 cycles/minute.

A rough draft of the first complete cold uranium shakedown run in each of the two production lines was delivered to the Separations Section for comment. The 221-U Building Operating Procedures are being typed in final form.

224-U Plant - UO<sub>3</sub> Conversion - Six lots (46 drums) of UO<sub>3</sub> were shipped to Oak Ridge during the period. The first two of these contained material from Redox "cold" uranium runs while the remainder came from 5 per cent tracer runs. No excessive radiation hazards have been experienced to date in processing full-level material from Redox. Three lots (24 drums) have been drummed and are awaiting analyses for shipment. A UO<sub>3</sub> calcination run plan utilizing a lower

Separations Technology Unit

final drying temperature has been issued for one test lot in an attempt to reduce the overall time cycle from the 10-12 hours presently required.

Process Chemistry

The Tirez cable sheathing under test in synthetic underground waste slurry (pH 10.5 at 80°C) has been immersed for more than 720 hours with no apparent effect other than a slight surface hardening, as measured by the depth of penetration of a steel cone under a weight of 5 kg. There has been no indication, however, that this has reached the point where crazing or spalling can be expected.

REDOX AND METAL RECOVERY DEVELOPMENTProcess Studies

Purex Chemical Flowsheet HW#1 is essentially complete and will be issued soon as HW-23529. A Material Balance Flowsheet has been completed and submitted to the Process Engineering Unit, Design Section for drafting and publication. Process and utility flow data were also submitted for inclusion on the Process Flow Diagrams.

In conjunction with RDA-DC-7, a recommendation is being made to proceed immediately with the design and installation of a new continuous-concentrator type of PR cage in the Redox 202-S Building. The feasibility of using ion exchange techniques for adapting a Redox 2BP or 3BP to a form usable by the 234 process is currently being evaluated. This study is based primarily on work continuing at O.R.N.L. and on work currently in progress at Hanford by Chemical Research. At the present stage of development, the ion exchange process is not considered sufficiently far advanced to recommend it in place of the continuous PR concentrator, although such a recommendation may be made within the next few months.

Chemical Engineering Development

Purex Solvent-Extraction Studies - During the month fifty-one Purex-process solvent-extraction studies, with  $\text{CCl}_4$  as the diluent and with "cold" (unirradiated) uranium, were carried out in 321 Building. Forty-five of these runs were made in a simple 3-inch-diameter glass pulse column, and six in a simple 16-inch-diameter stainless-steel pulse column. The 3-inch column runs included ten IA Column extraction section and twenty IC Column HPU determinations, and five IA Column extraction section and ten IC Column flooding studies. The 16-inch column runs included two IA Column extraction section and four IC Column HPU determinations. All these studies were made with a "standard" perforated-plate cartridge (stainless-steel plates, with 0.125-inch-diameter holes, 23 per cent free area, spaced 2 inches apart), under the approximate conditions of the Purex flowsheet presented in Document HW-22888. The highlights of the new findings are as follows:

Separations Technology Unit

1. The following IA Column extraction section HTU values and flooding capacity were determined at a pulse amplitude of 0.5-inch:

Volume Velocity, Gal/(Hr)(Sq.Ft), Sum of Both Phases	Short Tons U/Day in 16-in.-diam. Column	Ampl. x Frequency, In./Min.	HTU, Ft.	
			3-in. Column(a)	16-in. Column(b)
500	5	45	0.8	---
500	5	55	---	0.8
500	5	60	0.7	---
1400	13	45	0.9	0.9
1600 ± 100	14 ± 1	45	Flood	---

Notes:

- (a) Plate-section height 9.1 ft. Uranium losses 0.0005 to 0.006%.
- (b) Plate-section height 10.4 ft. Uranium losses 0.0003 to 0.002%.

2. The following IC Column HTU values and flooding capacity were determined at a pulse amplitude of 0.5 inch, at aqueous-to-organic volume flow ratios in the neighborhood of 1.8, with 0.03 M HNO<sub>3</sub> as the aqueous extractant (ICX):

Volume Velocity, Gal/(Hr)(Sq.Ft), Sum of Both Phases	Short Tons U/Day in 16-in.-diam. Column	Ampl. x Frequency, In./Min.	HTU, Ft.	
			3-in. Column(a)	16-in. Column(b)
500	2	60	1.3	2.5(c)
1000	4	60	---	1.6(d)
1100	4	60	1.2	---
1500	6	60	1.2	1.4(e)
1900	8	50	1.3	1.1(f)
1750 ± 250	7 ± 1	60	Flood	---

Notes:

- (a) Plate-section height 9.1 ft. Uranium losses 0.19 to 0.53%.
- (b) Plate-section height 10.4 ft.
- (c) Uranium loss 7.5%.
- (d) Uranium loss 1.5%.
- (e) Uranium loss 0.46%.
- (f) Uranium loss 0.04%.

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## Separations Technology Unit

Mechanical Development

Purex Waste Concentrator Corrosion Studies. Metallurgical samples of Type 309 SCb, 347, 304 ELC, 302, 304, Carpenter 20, and 430 stainless steels have been exposed to saturated vapors, condensing vapors, and boiling bottoms liquid in a batch semiworks concentrator which simulates the solution and conditions in the Purex No. 1 acid concentrator. Two runs have been made in which the samples were exposed to solutions containing 0.01 g/l chloride ion and 0.10 g/l  $\text{Cl}^-$  for 135 and 62 hours, respectively. In all cases the corrosion rates for 300 series stainless steel and Carpenter 20 have been less than 0.0015 inch per month. The Type 430 stainless steel underwent a maximum corrosion rate of 0.0015 inch per month. The Type 430 stainless steel underwent a maximum corrosion rate of 0.0025 inch per month. Additional tests are underway with solutions containing 1 g/l  $\text{Cl}^-$  (approximately 1000 ppm  $\text{Cl}^-$ ).

-8

Purex Corrosion Testing Program. In addition to the corrosion tests described above, tests are currently underway to determine the corrosion rate of Type 309 SCb, 304 ELC, Carpenter 20, and 316 stainless steels when exposed to simulated Purex solutions: IAW, IAP, 2AW, ICU, Uranium product, 2DF, Pu product, and an agitated two phase system representing the IA column feed point. The solvent phase (if present) in all of these streams is 30 volume per cent tributyl phosphate in  $\text{CCl}_4$  diluent. Separate tests in which each simulated process stream is spiked with 10, 100, and 1000 ppm  $\text{Cl}^-$  are being made. The test program is presented in detail in HW-23566, "Proposed Corrosion Testing Program for Purex Process", by R. E. Olson.

Pump Development

Submerged Pump No. 2. A regenerative turbine pump mounted on a torque tube at the lower end of a 2-foot long drive shaft is being replaced in service to study the behavior of  $\text{CCl}_4$  as a lubricant on process-lubricated graphitar and other bearing materials.

General Engineering Laboratories Motor-Pump. A 5 hp, stainless-steel-encased electric motor has been modified to drive a 10 inch diameter propeller type agitator at 1750 rev/min. Tests are currently being initiated.

Bearing Test Machines. Three bearing test machines designed to allow the evaluation of sleeve bearings under varying load conditions have been received from the General Engineering Laboratories and are being set up in Building 321-C.

Materials Testing

Kel-F NW 25 (Kellogg Co.), a Kel-F dispersion applied to a carbon steel rod and baked at 750°F resisted immersion in hexone, decabase + 12.5 per cent TBP, 50 per cent NaOH, and  $\text{CCl}_4$  + 15 per cent TBP, for 19 days at room temperature. In 60 per cent  $\text{HNO}_3$  the base metal appeared to be attacked at pinpoints in the coating.

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HW-23698

### Separations Technology Unit

Amercoat 1574, an Epon base multilayer coating, was immersed in 12 per cent HF at room temperature. No effect was noted after one day; an orange peel-like surface developed in two days; in seven days the surface of the sample was 75 per cent covered with small blisters.

Effect of Radiation on CCl<sub>4</sub>. Two simulated Purex solutions have been exposed to gamma radiation estimated to be in the range of  $5 \times 10^7$  roentgens/hour in the 105F slug cooling basin. The solutions are Purex IAX (30 per cent TBP in CCl<sub>4</sub>), and a two-phase system of "cold" IAFS and IAX mixed in a volume ratio of 2:1 (org/eq). Samples of solution are being withdrawn after one hour, two hours, one day, six days, fifteen days, and thirty days, and analyzed for Cm. No results are available at the time of this report.

### 321 Building Operation.

On February 4, operations in 321 Building were resumed on a three shift/day, twenty-one shift per week schedule. Purex solvent-extraction studies have been reported elsewhere in this report. In order to make the 16-inch column runs, 3200 pounds of bare reject slugs were charged to the dissolver to produce 2957 pounds of dissolved U in 15 cuts. A total of 4500 gallons of IAX (30 per cent TBP in CCl<sub>4</sub>) was prepared; the 16-inch column was packed with a stainless steel perforated plate cartridge consisting of 61 polyethylene rimmed plates (1/8-inch diameter holes on 1/4 inch centers) spaced 2 inches apart; the column and cartridge were de-drifed by flushing with hot NaOH followed by several water and dilute acid flushes.

### Hot Semiworks

Construction of the Hot Semiworks is 71 per cent complete. All buildings have been completed except for painting. Equipment installation and process piping is approximately 80 per cent complete in the Solvent Handling Building and 60 per cent complete in the Aqueous Make-Up and Control Building. Installation of equipment was started in "C" Cell of the Hot Process Building. Heating and ventilating equipment has been installed in the Solvent Handling and Aqueous Make-Up Buildings.

## SEPARATIONS PROCESS RESEARCH

### Recuplex Studies

Pulse Column. With the exception of three remaining repeat runs in the CA column, pulse column studies on Recuplex Flowsheet No. 2 have been completed and a formal report 75 per cent completed.

Pentachloroethane Diluent. The use of pentachloroethane (C<sub>2</sub>HCl<sub>5</sub>) as a diluent for TBP in the Recuplex Process is under investigation. It is available in large quantity (at \$0.125/lb.) and has the advantages relative to carbon

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EW-23698

#### Separations Technology Unit

tetrachloride of (1) a greater density, 1.673 vs. 1.595 and (2) a lower vapor pressure at 25°C, 10 vs. 115 mm. (Boiling point: 162 vs. 76°C)

Use of this compound as a diluent should permit use of a higher TBP concentration in the Recuplex extractant while still maintaining a favorable aqueous-organic density difference. For example, the use of 22 per cent TBP-C<sub>2</sub>HCl<sub>5</sub> (density equal to that of 15 per cent TBP-CCl<sub>4</sub>) should provide a 70 per cent increase in the plutonium extraction coefficient.

The chemical stability of pentachloroethane appears acceptable; only 0.02 g/l Cl<sup>-</sup> was found after 8 days contact of 15 per cent TBP-C<sub>2</sub>HCl<sub>5</sub> with 4 M HNO<sub>3</sub>. Disadvantages of using pentachloroethane as diluent are (1) the extraction coefficients of plutonium are ca. 25 per cent smaller and (2) the disengaging times are ca. 5 per cent longer than with CCl<sub>4</sub> solutions of the same TBP concentration.

It is interesting to note that in other solvent studies pentachloroethane was found in unsalted systems to compete with uranyl nitrate in complexing with phosphates or phosphonates. In these zero free acid systems the distribution coefficient for uranium E<sub>U</sub><sup>2+</sup> is lower by a factor of 20 to 30 in TBP solutions if the diluent is pentachloroethane rather than a hydrocarbon. Presumably this reduction in E<sub>U</sub><sup>2+</sup> is much less at the high acid concentrations in Recuplex extraction.

#### Pulse Column Studies

The effect of reduced hole size and plate spacing on extraction efficiency is being investigated using Kel-F coated compound plates in a pulse column operating with the Purex IC system at room temperature. Reduction in HETS to 2.7 inches (HTU = 1.5 inch) was obtained using 0.020 inch holes at 1/2 inch plate separation as compared to ca. 8 inch HETS values previously obtained with 0.027 inch holes at 1 inch plate separation.

Life-testing of Kel-F coated plates, sandblasted before coating, has been carried through 50 days of continuous immersion in 15 per cent TBP-CCl<sub>4</sub> and UNH-HNO<sub>3</sub> solutions with intermittent pulsing. The Kel-F film has shown no loosening or pronounced swelling.

#### Alternate Solvent Extraction Processes

Detailed chemical flowsheets describing methods of increasing canyon production capacity by utilizing solvent extraction have been developed and will be issued shortly (EW-23588).

Flowsheet IA describes the solvent extraction of plutonium from 14-4P with final purification and isolation to give 60 g/l Pu by means of ion exchange. Removal of residual uranium from the plutonium stream in the course of the ion exchange step appears promising, separation factors of 180 and 2000 being obtained in a 20 ml and a liter scale experiment, respectively.

Separations Technology Unit

Flowsheet IB describes the decontamination and recovery of uranium from un-neutralized current metal waste by use of two solvent extraction cycles in the Uranium Recovery Plant.

Flowsheet IIA describes the solvent extraction of plutonium from 14-4P with refluxing to concentrate to 60 g/l Pu and the separation of residual uranium by a single extraction cycle.

Flowsheet III describes the solvent extraction of plutonium from 7-4P with final purification and isolation by ion exchange.

Flowsheet IV describes a Redox-type head end treatment and plutonium-uranium separation by  $\text{BiPO}_4$  precipitation in the  $\text{BiPO}_4$  canyons, recovery of uranium by a single extraction cycle in the Uranium Recovery Plant, and recovery of plutonium by one solvent extraction cycle with ion exchange coupling.

Resin Coupling

Several experiments have been completed using a Dowex-50 resin column to concentrate Redox or Purex IIBP for 234-5 operations. With Purex IIBP (1.5 g/l Pu, 0.3 M  $\text{HNO}_3$ ) increasing the resin bed depth from 5 inches to 12 inches increased the eluted Pu concentration from 40 g/l to 55 g/l for 90 per cent Pu removal in each case and also decreased the Pu losses from 0.1 per cent to 0.01 per cent. These runs were made in a 1-1/2 inch diameter column at a flow rate of 2 ml/min/cm<sup>2</sup> with a 100 per cent excess of resin over that required for saturation.

The higher nitric acid concentration of Redox IIBP (1.5 g/l Pu, 0.9 M  $\text{HNO}_3$ ) lowers the resin capacity yielding a 90 per cent-eluted Pu concentration of but 30 g/l and giving waste losses of 1.1 per cent. However, three-fold dilution of simulated Redox IIBP (0.5 g/l Pu, 0.3 M  $\text{HNO}_3$ ) at two to four times the flow rate (4.4-8.5 ml/min/cm<sup>2</sup>) in the same 12 inch long column increased the 90 per cent-eluted Pu concentration to 46 g/l and decreased the waste losses to 0.15 per cent.

Pu(IV) oxalate precipitation from a resin column product stream gave a slightly sticky precipitate which, however, on hydrofluorination and reduction gave a button of satisfactory yield (95.9 per cent) and purity.

Decontamination of Uranium Solutions by Adsorption and Ion Exchange

Organic Streams. Adsorption of organic-soluble fission products from IAP or IBU is under investigation as a possible substitute for additional solvent extraction cycles to achieve the required decontamination of the uranium product stream in the Redox or Purex processes. In initial experiments materials are being compared using batch contacting of a Purex-type IBU prepared from full Hanford level dissolver solution at a 4:1 volume ratio of IBU:adsorbent or resin.

Separations Technology Unit

Of 64 materials tried thus far, those giving gross beta and gamma decontamination factors both in excess of 15 include zeolite, zinc oxide, alumina, and Amberlite IRA-400. Maximum decontamination factors observed were: gross gamma, zeolite, 83; gross beta, zinc oxide, 22; ruthenium, zinc oxide, 57; zirconium, alumina, >100; and niobium, alumina, >50.

Aqueous Streams. Decontamination of the aqueous first cycle uranium product stream by adsorption or ion exchange has also been investigated by passing simulated Purex ICU spiked with dissolver solution through packed columns. With the resins and adsorbents tried, the maximum decontamination factors obtained were: zirconium, zirconium iodate, 3; niobium, silica gel, 8; and ruthenium, ferrous sulfide, 17. Unfortunately, the effluent from the ferrous sulfide column was dark indicating dissolution of the adsorbent. Use of the less soluble cupric sulfide gave no ruthenium decontamination.

In view of these low decontamination factors further experimentation on fission product removal from aqueous uranium streams has been suspended in favor of the more promising removal from organic streams.

Ruthenium(IV) Chemistry

Preliminary experiments have given an upper limit of only  $2 \times 10^{-4}$  for the distribution coefficients of Ru(IV) in 2 M HClO<sub>4</sub> into 0.005 to 0.1 M TTA solutions. It is uncertain whether this apparent upper limit represents equilibrium conditions or is low due to the slowness of Ru(IV) in its complex ion reactions.

The reaction between Ru(IV) perchlorate and acid solutions of nitrite ion is slow. When the reaction is complete as evidenced by the disappearance of the Ru(IV) perchlorate spectrum, the ruthenium no longer exhibits the property of oxidizing iodide ion. The kinetics and equilibria of this ruthenium-nitrite system will be studied in an apparatus under construction which will permit careful control of variables such as the partial pressure of nitric oxide.

Recovery of Radio Zirconium and Niobium

Consideration has been given to the separation of carrier-free fission product zirconium and niobium from the manganese dioxide cake slurry obtained in head end treatment, thus recovering a compact and large source of moderately long-lived gamma radiation from Redox waste. Precipitation of zirconium from a solution simulating dissolved manganese dioxide cake according to a variety of standard analytical procedures is quantitative but gives a flocculent precipitate. Mandelic acid gave the most granular and fastest settling precipitate; other reagents giving fast settling, dense precipitates under proper conditions included potassium iodate, triethyl phosphate and metaphosphoric acid. Zirconium mandelate and iodate ignite to the oxide, ZrO<sub>2</sub>; the phosphates, to pyrophosphate, ZrP<sub>2</sub>O<sub>7</sub>.

Separations Technology Unit

Niobium should precipitate as  $Nb_2O_5$  under the conditions required for zirconium precipitation. However, the carrying of this very fine precipitate by the more voluminous zirconium precipitate as well as the possibly undesired carrying of plutonium and long-lived fission products can be best tested only by working with active manganese dioxide from the Redox Plant.

Decontamination of Redox Concentrator Distillates by Ion Exchange

After passage of 15,000 gallons of simulated Redox concentrator distillates (at pH 4.5) per cubic foot of resin through a Dowex-50-H column the gross beta decontamination factor decreased from 20 to 15 where it has held through 18,000 gal/cu ft. Similarly, gross beta decontamination of distillate at pH 2 decreased from a factor of 20 after passage of 7500 gal/cu ft to 12 where it remains through 12,000 gal/cu ft. Ruthenium appears to be decontamination-limiting in both cases.

Further decontamination of the Dowex-50-H column effluents by passage through beds of activated charcoal or stainless steel helices appears unpromising. Although the activated charcoal gives an additional decontamination factor of 50 initially, its capacity is very low, the factor dropping to 2 after passage of but 450 gal/cu ft. Attempted removal of residual ruthenium by electrochemical displacement on steel gave a decontamination factor of less than 2.

234-5 PROCESS DEVELOPMENT

Redox Coupling

Plutonium peroxide precipitation - A laboratory scale precipitation of plutonium peroxide from Redox product solution (3BP) indicated that the high plutonium recycle from the first 231 Building strike from tracer-scale 3BP could be reduced by making the precipitation at ca. 30°C instead of at 20°C.

Plutonium(IV) oxalate precipitation - Precipitation of plutonium(IV) oxalate from synthetic 2BP solution (10 g/l Pu, 4.3 - 5.5 g/l H+, 3.6 g/l Cr<sup>+3</sup> in Redox cold 2BP) gave low waste losses (1.65 - 2 per cent) and satisfactory precipitates which filtered easily and converted to PuF<sub>4</sub> readily. The fluorides produced had densities of 2.00 to 2.20 g/ml and were reduced to metal of satisfactory purity (Cr = 10 ppm, Na = 25 ppm) with yields of 96.1 and 97.0 per cent.

Recuplex

Phase I of the Project Proposal for the Recuplex installation (requesting funds for detailed engineering design and material procurement) has been prepared for submission to the Appropriations and Budget Committee meeting of March 10, 1952.

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Separations Technology Unit

Slag and Crucible Dissolving Equipment. Installation of the 10 gallon-scale slag and crucible dissolving facility was completed, and the equipment was tested and found to operate satisfactorily.

A uranium feed solution to simulate slag and crucible plus Pu(IV) oxalate supernatant solution was prepared in the slag and crucible hood by dissolution of a full scale slag and crucible from reduction of  $UF_4$  using sulfur as the booster. The charge was dissolved in 8 M  $HNO_3$  (8 hours), digested with ANN (4 hours), filtered through G-201 glass cloth, and then adjusted to 4M  $HNO_3$  by addition of 13 M  $HNO_3$ .

The disengaging time for CAF (slag and crucible plus supernatant) in 15 per cent TBP - carbon tetrachloride extractant using the above solution was found to be 1-3/4 to 2 minutes.

"Mini" Unit Operations. Eight more experimental runs were made on the 3/8 inch Mini unit and eight experimental runs were made on the 1/2 inch Mini unit using the ternary system water-chloroform-acetic acid. The last three experimental runs confirm the estimated flooding point of the 3/8 inch unit as being 600 cc/hr as indicated in a previous report. The estimated flooding point of the 1/2 inch unit is 1200 cc/hr.

Miscellaneous Recovery Operations

Caustic Scrubber Solutions. Evaporation to a volume of 50 ml, of a solution containing 30 ml caustic scrubber solution derived from the RG Line, 170 ml SN-1, 10 ml 15.6 M  $HNO_3$  and 8 ml 14.6 per cent  $H_2O_2$ , resulted in reduction of the iodine content to a low enough concentration that the residue could be recycled to 224 Building.

Plutonium Button Recovery. Dissolution of six metal buttons from the 234-5 dry chemistry process, prior to recycle to 231 or 224, was completed and the material returned to process. Eight laboratory buttons were dissolved using various reagents in an attempt to improve and shorten metal dissolution procedures. The use of formic and sulfuric acids shows promise.

Materials Testing

A Dorex charcoal cannister, of the type intended for use in adsorption of HF from the RM Line Task II hood exhaust, was found to adsorb 48 - 49 grams of HF, with an efficiency of 94 - 95 per cent, from an air stream containing 0.2 mole per cent HF and having a velocity of 250 ft/min from the outlet. One additional gram of HF is adsorbed with an efficiency of only 40 per cent. The charcoal capacity was approximately 0.9 gm HF/gm charcoal.

The acid resistant coating on the framework of the cannister stood up well in anhydrous HF. Only slight disintegration of this coating was noted in two weeks of HF exposure.

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Crucible Shop

Fifty CD-1101 crucibles were transferred to the RG Line and 12 to the RM Line during February. An inventory of 51 CD-1101 crucibles exists at month's end.

Tests to develop a mixture of MgO sand which will "cinder" during use in the RM Line have been made. Preliminary data indicates that a satisfactory binder will form if 7.5 to 10 per cent  $\text{CaF}_2$  -  $\text{MgF}_2$  (1:1) is added by weight at temperatures of ca.  $1000^\circ\text{C}$ . Additional work will be done to find a material that will "cinder" at  $600$  to  $700^\circ\text{C}$ .

Several slip cast crucibles were made during the month including 1) laboratory crucibles for 10 g reductions (IRS-1) and 50 g reductions (IRS-2), and 2) casts of the XRS-1 (a flat bottomed 500 g production reduction crucible). A brass sleeve required to make the upper half of the casting crucible for casting "roughly" to shape was completed during the month.

Experimental Coating Hood.

The experimental coating hood was accepted without exceptions. Provisions were made to purchase additional pressure gauges and a large bell jar prior to closing out the project.

Operating procedures have been written, safety procedures are completed and work is in progress in developing chemical tests for detecting holes in the coating of aluminum stand-in shapes.

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

3/7/52

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HW-23698

ANALYTICAL UNIT

FEBRUARY 1952

VISITORS AND BUSINESS TRIPS

T. G. Will, Consolidated Engineering Corporation, Pasadena, California, spent February 1-16 installing a mass spectrometer.

B. F. Rider and E. L. Bernier of KAPL and the du Pont Company, respectively, spent February 1 in consultation on the development of counting instruments and inspection of Redox control laboratory operations.

C. E. Crouthamel, ANL, spent February 11-15 reviewing analytical methods at Hanford.

C. G. Gieszl of Applied Research Laboratories Corporation, Glendale, California, spent February 27-29 inspecting and adjusting spectrographic equipment in the 3706 and 234-5 Building Laboratories.

H. Anderson, Dow Chemical Company, Rocky Flats (Colorado) Plant, spent February 25-28 discussing 234-5 Building analyses.

R. J. Brouns and J. E. Meinhard spent February 1 at Coates Chemical Laboratories, Louisiana State University, Baton Rouge, attending the fifth annual L.S.U. Analytical Symposium.

H. R. Schmidt spent February 1 at the Reed Institute, Portland, Oregon, discussing progress under a research sub-contract.

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HW-23698

Analytical Unit

R. H. Moore spent February 19-22 at the Ames Laboratory, Ames, Iowa, discussing analytical methods for uranium. February 18 was spent at the University of Nebraska, Lincoln, and February 20 at Iowa State College, Ames, recruiting technical personnel.

D. F. Shepard spent February 28-29 at LAMS, discussing plutonium assay and associated problems.

ORGANIZATION AND PERSONNEL

Personnel totals in the subdivisions are summarized as follows:

	<u>January 31</u>	<u>February 29</u>
Analytical Services	185	187
Analytical Research	38	40
Administrative	<u>3</u>	<u>3</u>
Unit Totals	226	230

ANALYTICAL RESEARCH

Redox Process

Particular attention was paid to the determination of fission product activity in final uranium (IIEU) solution. As previously described, a chromatographic technique developed to separate fission products in this sample from strongly interfering quantities of U-237 and uranium daughters has yielded satisfactory results with tracers; however, it failed with actual Redox samples because of the treacherous behavior of process ruthenium. Errors so introduced were emphasized in the case of several batches containing high ruthenium. The method has been abandoned for control laboratory use, although promising results obtained through pre-digestion with chloride (for stabilization of ruthenium species) may lead to a reinstatement at a later date. As an alternative procedure, direct gamma counting on a scintillation counter with 5.2 g/cm<sup>2</sup> lead absorber has been adopted. By this technique interference from U-237 activity is eliminated, and although fission product gamma activity is attenuated, results obtained are converted to corresponding Shonka counter results by use of fission product spectrum data and factors relating the comparative response of each instrument to each of the different fission products. In parallel with this work procedures for determining radioactive Ru, Zr-Nb, and Ce nuclides were modified so that three-hour analyses could be obtained; results obtained from such analyses support the gross counting data and assure reliable conclusions.

The TTA procedure developed for determining plutonium in LW and D-9 salt waste streams included a digestion period to destroy plutonium polymer, which if formed in the process would logically occur in the wastes. After process samples became available, it was concluded that polymer was either completely absent or completely unaffected by the digestion treatment; consequently, the latter step was eliminated with a saving of one-half hour of analytical time.

Several H-3 slurry hold-up samples were analyzed for Am-Cm. Within the precision afforded by the extremely low counting rate, it was concluded that approximately

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Analytical Unit

5% of the total Am-Cm was present in this stream; excellent results were obtained on the recovery of the elements from spiked samples.

Services were rendered in support of several process development and trouble-shooting items. A micro procedure for determining chloride in dissolver solution was developed which involves use of a micro diffusion cell and subsequent photometric measurement. During start-up operations it was found that an oily material was present in recovered hexone; infrared absorption examination of this oil and comparison with a number of standard lubricating oils revealed no similarity. The spectrum of the sample oil indicated that it might be a hexone condensation product.

Preliminary tests of the adaptation of the gamma scintillation counter to continuous in-line monitoring were quite satisfactory; a sample containing gamma radiation equivalent to the permissible maximum for cribbed wastes was enclosed in a two-inch steel pipe and counted with the scintillation instrument; 9000 d/m were observed, whereas the background was only 800 d/m. A mock-up unit for more efficient testing is being designed and constructed.

A laboratory model chain hydrometer, covering the specific gravity range 1.17-1.31 and being considered for possible in-line use, was placed in the control laboratory for field trial. The instrument provides for extremely rapid measurements, but there is question whether it is adequately precise.

Metal Recovery Process

The Consolidated mass spectrometer for the isotopic analysis of recovered uranium operated satisfactorily and was accepted from the vendor February 15. The first process samples were submitted three days later. Results obtained to date are summarized as follows:

<u>Lot</u>	<u>U-235 in UO<sub>3</sub> Product,</u> <u>%</u>
6	0.709
7	0.680
8	0.677

Although duplicate determinations on different days showed agreement to less than 0.001%, it was agreed to report results to only two significant figures during this initial period. It will be necessary to gain experience with the instrument, to find if any memory effect exists, and to determine the frequency of pump-outs and source cleaning.

An apparatus for determining the specific surface area of UO<sub>3</sub> product was installed in the control laboratory, and personnel were trained in its use. Work on a shorter alternate procedure was terminated because of unsatisfactory results and because it appears that specific surface area is a less significant factor than was once thought. It was previously reported that the procedure for determining U<sub>3</sub>O<sub>8</sub> in oxide product appeared to be unsatisfactory; this procedure involves determination of uranium in the HCl insoluble matter obtained from the sample. An alternate method involving dissolution of the sample in acid in the presence of

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HW-23698

#### Analytical Unit

formic acid to prevent oxidation of the U(IV) by nitrate, as employed at Site K-25, was found to be subject to error due to the reduction of some U(VI). Work is continuing on the development of an accurate method.

The need for continuous monitoring of pH in neutralized process waste stimulated a research program to evaluate the extent and to eliminate the effect of radioactivity on glass pH electrodes. A low pH, high temperature electrode in a non-active simulated waste of pH 10.5 showed a slow drift of asymmetry potential with time and revealed a sluggish electrode behavior after several days. Similar tests with a high pH, normal temperature electrode revealed an almost negligible drift and no sluggish behavior after several days exposure. A Model H Beckman pH meter was shown to lack the required stability; however, a Beckman Industrial Model R maintained a reading within  $\pm 0.05$  pH units for many days.

#### P-10 Process

It was previously reported that the G.E. and Consolidated mass spectrometers employed in routine P-10 analyses yielded somewhat different results for the concentration of air gases (particularly nitrogen) in product samples. The fact that the former instrument gave the higher results suggested a memory effect on the larger metal surface of the manifold. Replacement of the metal sections by glass units completely eliminated the discrepancy.

#### General

Tests with the newly received alpha scintillation counter show that the counting efficiency is 27% and that the instrument can discriminate against  $10^9$  d/m of beta activity. At beta levels four times this value, however, the instrument completely failed to determine alpha counts. The design of a scintillation unit, which consists of fine zinc sulfide crystals embedded in plastic, suggests the possibility of immersing the unit directly in process streams to monitor plutonium.

A sample of pure Am-241 was isolated. Employing this material which has an alpha energy identical with Pu-238 as a stand-in for the latter, it was possible to determine the geometry of the alpha pulse analyzer. The result agreed quite closely with that previously employed.

Counting tests with plutonium in a windowless flow chamber revealed two distinct plateaus in the plot of electrode potential versus counting rate. Since this chamber avoids beta absorption by the window membrane, it was suspected that the second plateau was due to the extremely soft beta emission from Pu-241. Comparison of the numerical counting rate indicated by the first - alpha - plateau and the second yielded results in close agreement with the expected Pu-241 content of the sample; it is thus believed that a convenient quantitative method for determining this isotope is available.

It was shown that persulfate is capable of effecting a 99+% oxidation of Am to the hexavalent state; since Cm is known to be unaffected, a convenient method for separating this pair is available.

A supply of isotopically pure U-237 was obtained and used to considerable advantage in connection with study of the interference of this element in fission

Analytical Unit

product activity determinations. The material was isolated by an extraction procedure from an aged plutonium product sample in which the U-237 was in equilibrium with its parent Pu-241.

In conventional spectrographic analyses a broad range of the ultraviolet and near-visible spectrum is covered by cyanogen bands resulting from the reaction of carbon and nitrogen in the excitation source. To eliminate this interference, tests were conducted in which the excitation source was enclosed in a chamber through which was passed a nitrogen free gas. By employing a mixture of helium with 20-30% oxygen and a gas flow of 7-10 l./min., and by replacing the graphite electrodes with carbon electrodes to allow higher arc temperatures, the interference was eliminated. Subsequent work will involve investigation of the usable analytical lines in the newly available region, especially those lines from the rare earths in this region.

The thiocyanate photometric procedure has not been employed routinely at Hanford for the determination of uranium. An examination of a recent ANL modification of this method shows it to have exceptionally good sensitivity and precision and to be free from many of the interferences in other methods.

The modified procedure employed, or being installed, for the determination of carbon in uranium and plutonium metals has been adapted to several other useful applications, particularly the determination of carbon in calcium, stainless steel, and various oxides.

ANALYTICAL SERVICE

Work Volume Statistics

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

	January		February	
	Samples	Determinations	Samples	Determinations
Process Control - 234-5	684	3,806	666	3,105
Process Control - Metal Preparation	617	1,302	511	1,060
Research & Development Programs	1,392	2,535	1,740	3,163
P-10 Control	751	7,510	943	9,430
Water Quality, P-13	446	1,475	625	1,755
Redox, TBP, UO <sub>2</sub>	470	1,395	1,263	3,331
Process Reagents	526	1,195	334	693
Essential Materials	21	44	3	16
Special Samples	398	4,479	448	5,170
Totals	5,305	23,741	6,536	27,723

100-300 Area Services

The General Electric and Consolidated-Nier Mass Spectrometers in the P-10 Laboratory are performing satisfactorily. The General Electric instrument is used to analyze by-product samples after separation (B+) and out-gas samples (O) because of its higher resolution while the Consolidated-Nier is used to analyze the P-10

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HW-23698

### Analytical Unit

product samples (P). The electromagnet installed on the Consolidated-Nier in place of the permanent magnet has proven very satisfactory for control use. A Beckman meter recently attached to the Consolidated-Nier power supply has enabled the operators to identify peaks faster by expanding the voltage readings 2 1/2 times.

Faulty vacuum pumps and a broken joint in the P-13 glass line handicapped P-13 analytical work during the month. Repairs have been made and the apparatus is now working satisfactorily.

Laboratory space for analytical assistance to File Technology Unit's water quality program has been obtained in the 185-F Laboratory. Work orders have been issued for necessary modifications and beneficial occupancy is expected by March 15.

Several interesting special service problems were completed. Residues from hexone which caused faulty operation of the 202-S organic still last month were analyzed for nitrogen at the request of Process Chemistry group. No nitrogen was detected. The analysis of nickel plated steel balls submitted by File Technology Unit personnel to determine if the manufacturer was using cobalt free nickel plate as specified in his contract showed relatively high percentage cobalt in the nickel plate and in the steel balls. Because of the sampling problem it is possible that samples of the nickel plate were contaminated with cobalt from the steel balls. An attempt is being made to obtain samples of the original nickel used in the plating baths.

Purex studies were started in the 321 Building on a 24-hour basis early in the month. Analytical service was requested on a seven-day two-shift basis to follow this work. The service is currently being provided without extra personnel and no analytical difficulties have been experienced.

### 234-5 Building Laboratory

The addition of Chemical 70-58 was changed from the casting step to the reduction step because of poor mixing in the former. As a result of this process change and also to provide greater process control, the laboratory was requested to assay routinely the button sample (B-1) for 70-58. It is estimated that 45 man-hours/month will be required for this additional determination.

Spectrographic assistance was given to the study of Isolation Building problems associated with processing material from the Redox Process. Because sodium may carry through to the final solution (AT) as a result of the large amounts of NaOH required to neutralize the Redox material in the starting solution (P-1), the sodium concentrations were followed closely. Analyses indicated that there was 1000-10,000 ppm in the AT samples from three Redox tracer runs. Copper contamination suspected in one run as a result of a backed up in one of the copper lines in the 202-S Building was found by spectrographic analyses of a P-1 sample to be 10,000 ppm.

The production test to evaluate the precipitation of plutonium (IV) oxalate was initiated on January 29. Evaluation of the plus four process on the 160-gram batch size (234-5) has been completed and the evaluation of the process on the 300-350-gram batch size (231) is underway. The laboratory is assisting the program by providing complete spectrographic and/or wet chemical analyses on the

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Analytical Unit

231 Building final solution (AT), plutonium oxalate slurry (DC-1), plutonium tetrafluoride (DC-3) and button samples (B-1) taken during the test. A preliminary precision study of the plutonium assay on nine plutonium tetrafluoride samples (DC-3) revealed that the precision for duplicate titrations was  $\pm 0.37\%$  (99% level) and for one dissolution and duplicate titration it was  $\pm 0.85\%$  (99% level). The average plutonium concentration was 76.49% as compared to 75.87% theoretically for 100% plutonium tetrafluoride.

A standard calculated value has been used in the past for the plutonium content in the slag and crucible material. Recently when Chemical Research personnel were working with some of this material they found that the plutonium content was much lower than the assigned value. The data accumulated on the plutonium tetrafluoride sample in the above production test may be of value in the study of slag and crucible losses.

The recovery of plutonium from laboratory waste solutions continued during the month with a total of 77.1 grams returned to the 231 Building process. Batches of waste from chemical assay titrations and P-4 sample wastes totaling 230.7 grams have been made chloride free and are awaiting return to the 224 Building process. On February 18 there were 717 grams of plutonium in laboratory wastes still to be recovered.

222-S Building Laboratory

Specification analyses for alpha beta, and gamma concentrations in  $UO_3$  product were initiated on  $UO_3$  Lot 003 since this lot and subsequent lots contain varying amounts of irradiated metal. All six lots analyzed to date have been well within tentative specifications.

Determination of isotopic ratio of the  $UO_3$  product was started with  $UO_3$  Lot 006, the last lot calcined from the Redox 5% tracer material. The U-235 content of this Lot was 0.71% while in Lots 007 and 008 which are calcined from Redox 100% level runs it was 0.68%.

A sample exchange program to evaluate plutonium determinations in certain samples was carried out between 222-T, 231 and 222-S Building Laboratories. Samples involved were Redox metal storage (E-7), Redox feed (E-1-F), Redox final plutonium before concentration (E-3) and 231 Building starting solution (P-1). Standard procedures were employed for all determinations wherein a specified volume of sample was evaporated on a 1" stainless steel disc and counted on an Alpha Simpson Proportional counter. Statistical studies of the data tabulated below indicated no significant differences between the laboratories.

Lab.	Serial #	Sample	Disc Average*	c/m/ml	c/m/gal
222-S	2741-X	E-7	5670	$2.286 \times 10^7$	$8.65 \times 10^{10}$
222-T	2741-X	E-7	5598	$2.257 \times 10^7$	$8.54 \times 10^{10}$
222-S	2752-X	E-1-F**	1289	$5.197 \times 10^6$	$1.97 \times 10^{10}$
222-T	2752-X	E-1-F	1296***	$5.225 \times 10^6$	$1.98 \times 10^{10}$
222-S	2683-X	E-3	20225	$4.077 \times 10^7$	$1.54 \times 10^{11}$
231	2683-X	E-3	20140	$4.093 \times 10^7$	$1.55 \times 10^{11}$
231	2683-X	E-3	20151	$4.107 \times 10^7$	$1.55 \times 10^{11}$
222-S	2731-M	P-1	45145	$7.281 \times 10^8$	$2.76 \times 10^{12}$
231	2731-M	P-1	45090	$7.324 \times 10^8$	$2.77 \times 10^{12}$

## Analytical Unit

- \* Average of two dilutions and four discs corrected for uranium and/or coincidence.
- \*\* H-1-F sample lower than H-7 by factor of ca. 4 indicating non-representative sampling of the H-1-F tank, but sufficient for the purposes of this test.
- \*\*\* Average of two discs from one dilution; there was insufficient sample for 222-T to make two dilutions.

Installation of a gamma scintillation counter was completed during the month and all gamma determinations starting with the first full level Redox run have been obtained by means of this instrument rather than the Shonka ionization chamber. Because of the smaller sample size required for scintillation counting, it may be possible for operations to take a large number of samples which require no shielding in bayonets rather than in the 38 pound Kellax doorstop. An additional advantage of this method over the previous method is that the same sample plate may be counted for both gross gamma and gross beta.

The falling drop specific gravity apparatus in the first analytical sampling line was assembled, tested with standard solution and placed in control use. The photo tube failed twice during the month and at month's end the unit was again out of service. Efforts are being directed toward a very simple apparatus as back-up equipment or to replace the present one if current difficulties can not be overcome.

On February 17, a blown transformer, operating errors by laboratory personnel coupled with an abnormally high plutonium content in some waste concentration samples (D-9), and insufficient instrument maintenance coverage resulted in only one Alpha Simpson Proportional counter out of four being available for use during a period when extra assistance in plutonium determination was needed by 202-S Building personnel. To prevent like situations from occurring in the future, shift instrument coverage has been obtained and laboratory personnel have been given additional training on counting instruments and techniques.

Several changes in laboratory operating procedures were made during the month to speed up the flow of samples through the laboratory. To relieve the bottleneck at the analytical sampling line, a lead barricade has been set up for sampling and dilution of doorstops containing primarily fission products and gloved boxes have been modified for sampling of doorstops containing primarily large amounts of plutonium solutions. Analyses of solutions such as D-9, which are low in plutonium content but contain fission products, are now being carried out in open hoods. This enables the analyst to make maximum use of distance for shielding and reduces the analytical time by approximately 10%.

Improvements made in the second oil displacement sampler and falling drop specific gravity apparatus were: (1) Teflon stopcock to decrease the oil leakage in the sampler, (2) direct drive on the falling drop reel to provide more efficient positioning of the tubes, (3) relocation of the pipette cleaning assembly to reduce pipette cleaning times and associated hazards, and (4) division of the coverplate containing the temperature control elements from the coverplate containing the tube reel on the falling drop tank to eliminate need for complete disassembly of the unit when maintenance is required.

DECLASSIFIED

HW-23698

Analytical Unit

Radiation problems have been reduced by using short sections of leadpipe to provide extra shielding around small equipment such as titration vessels and dilution flasks.

Obtaining a representative sample of laboratory waste in the large and unwieldy PR can for accountability and transfer purposes has posed a problem. A 1 1/2" x 1 1/2" x 5" Alnico 5 magnet mounted on a centrifuge motor under the PR can coupled with tygon-covered magnetic stirring bars inside of the can provides satisfactory agitation of the contents for representative sampling.

Uranium glass standards (Corning #3389 filters) which have been calibrated against known amounts of uranium are being read on the fluorimeter with each set of samples. This eliminates the need for frequent recalibration of the instrument and also eliminates any effects caused by instability of the ultraviolet source.

Methods Control

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

Safety and Special Hazards Control

Two high air samples were obtained in Rooms 148 and 157 of the 234-5 Building Laboratory. The positive sample in Room 148 was attributed to a spill and subsequent breakage of three empty but contaminated glass titrating cups. The cups were inadvertently knocked to the floor near shift change resulting in contamination spread of approximately 100,000 d/m. The room was immediately evacuated and the contamination was cleaned the following shift with respiratory protection. No personal contamination resulted from the incident. The cause of the high air sample in Room 157 is not known. Routine work proceeded in this area during the time in question and no off-standard or unusual incidents were reported.

Gross floor and hood contamination occurred in Room 152 of the 234-5 Building Laboratory when a 4 liter bottle containing conc. nitric acid and acetone wash solutions apparently exploded. The hood door was open approximately 1/2" which allowed contamination (Max. 600,000 d/m) to spread to the floor of the room. The area was unoccupied when the incident occurred. Use of acetone in this work has been discontinued and personnel have been re-instructed in the hazards associated with mixing organic solvents and strong oxidizing agents.

In the 222-S Building Laboratory there have been numerous instances of low level hand contamination during the month. Most of these can be attributed to poor gloved box techniques and re-emphasis is being placed on the proper procedures for removing items from the boxes.

The high level radiation, ca. 250 mr/hr from dilution carriers containing two dilutions of dissolved centrifuge cake solution (E-3) has made it necessary to provide additional shielding and analysis techniques specifically for this sample.

No badges, pencils, or finger rings processed to date have indicated over tolerance exposures to Analytical Unit personnel in the 222-S Building Laboratory.

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HW-23698

Analytical Unit

There were 10 minor injuries during the period covered by this report.

INVENTIONS

All Analytical 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 February, 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.

Inventor(s)

Title

None

Signed:

*F. W. Albaugh*

F. W. Albaugh  
Manager, Analytical Unit

FWA:lc

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HW-23698

TECHNICAL SERVICES UNIT

FEBRUARY 1952

3-12-52

VISITORS & BUSINESS TRIPS

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

No business trips were made by personnel of this Unit during the month.

ORGANIZATION AND PERSONNEL

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

	<u>January</u>	<u>February</u>
Laboratory Engineering	82	84
Technical Information	91	93
Administrative	<u>2</u>	<u>3</u>
Unit Totals	175	180

LABORATORY ENGINEERING SERVICES

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

Work volume statistics for the Mechanical Shops are as follows:

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	Customer Unit or Program	January		February		
		No. of Jobs	Man- Hours	No. of Jobs	Man- Hours	
<u>Work Done on Jobs Completed</u>	P-10	3	22	6	319	
	File Tech. (Incl. Exponential File)	31	510	37	718	
	Separations Tech.	25	413	29	457	
	Analytical	20	466	17	456	
	Technical Services	12	338	9	205	
	Others	6	24	13	73	
	Sub-Totals	97	1773	111	2228	
<u>Work Done on Jobs Not Com- pleted</u>	P-10	5	370	2	-	
	File Tech. (Incl. Exponential File)	8	463	6	58	
	Separations Tech.	8	100	14	487	
	Analytical	5	250	4	118	
	Technical Services	10	537	11	592	
	Others	3	25	2	191	
	Sub-Totals	39	1745	39	1446	
Total Work Done			3518		3674	
					<u>Man-Hours To Complete</u>	
<u>Work Backlog:</u>	<u>Jobs Started</u>	P-10	5	77	2	19
		File Tech. (Incl. Exponential File)	8	265	6	112
		Separations Tech.	8	196	14	286
		Analytical	5	154	4	99
		Technical Services	10	503	11	644
		Others	3	190	2	45
		Sub-Totals	39	1385	39	1205
<u>Jobs Not Yet Started</u>	P-10	2	460	-	-	
	File Tech. (Incl. Exponential File)	13	371	16	439	
	Separations Tech.	2	203	7	185	
	Analytical	5	49	8	149	
	Technical Services	4	154	7	252	
	Others	3	661	6	842	
	Sub-Totals	29	1898	44	1867	
Total Backlog			3283		3072 (a)	

(a) Does not include 182 man-hours cross-ordered to other shops.

The Shop is operating on a 3072 man-hour backlog which represents approximately 15 working days with present forces. Sixty man-hours' assistance were received from other plant shops, while 222 man-hours were received on cross-orders from other plant shops.

Two additional offices and a lunchroom were constructed in Building 1717-D. These facilities were in the original plans for utilizing these temporary 1717-D quarters, but construction had been delayed pending removal of Project C-410 equipment.

The following work was completed for the Technical units as indicated:

#### Analytical Services

Considerable machinists' assistance was furnished in connection with the Building 222-S start-up. This assistance included the fabrication of a revised Falling Drop apparatus and a revised Oil Displacement Primary Sampler. These pieces of equipment have been described in previous reports; however, numerous mechanical improvements were incorporated in the design and fabrication of the new units. This new apparatus will be incorporated in the #2 Analytical line. Many of the changes are the direct result of close working contact between craft and engineering personnel. The Technical Shops were successful in the fabrication of Teflon trombone pipette tips. The Saran pipette tips previously made were found to be affected by the Redox process solutions.

#### Pile Technology

The fabrication of the heavy-duty steel table and lead collimator blocks described in the January report was completed. The lead collimator blocks were machined to close tolerances in order that the apertures of adjacent blocks would be in perfect alignment. This was necessary to permit the collimator source unit, also fabricated by the Shops, to be easily and accurately positioned. Several 3"x6"x12" high density concrete blocks similar to those in use by Brookhaven National Laboratories were cast, using Transportation Section employees. After curing, the edges will be taped and the blocks will be painted with clear plastic to avoid flaking and dusting. The blocks will be used in radiation attenuation studies. The fabrication of the dry test nozzles and the resurfacing of a set of rolls for the Metallurgy Laboratory rolling mill were completed. Fabrication has started on a pair of 2-S aluminum sheets and a pair of 72-S aluminum sheets for the film test apparatus.

#### Separations Technology

Fabrication of an air-actuated pulse mechanism for the metal recovery research program was started. Mechanical details, tolerances and finishes are being developed during fabrication. It is anticipated that after final design, this type of pulser may replace the Bellows type pumps in use at the present time. The revision of the Miniature Mixer Settler was completed and involved the fabrication of a special broaching tool to cut ways in the fluorothene mixing chambers. These ways were fitted with .010" thick stainless steel gates, approximately 1/4" wide and 3-1/4" long. Any or all of the ports may be opened or closed by raising or lowering the gates. A second 9' gloved box is nearing completion. The special Homolite sheet required for the windows of this gloved box has been received and is being machined.

Technical Services

The Mechanical Development Shops continued to provide routine machine assistance to all Technical units through the Building 3706 and Building 222-S one-man shops. Fabrication of a liquid sampling unit for Laboratory Equipment Design is nearing completion. The unit is interchangeable with the modular blocks used in the construction of the Building 222-S multicurie cells, and will be used to withdraw small samples from the large shielded shipping container.

Glass Shops (Bldgs. 3706 and 222-S)

Work volume statistics for the Glass Shops (exclusive of P-10 services) are as follows:

<u>Jobs Completed</u>	<u>January</u>	<u>February</u>
New	73	78
Repairs	10	7
Revisions	<u>25</u>	<u>21</u>
Total	108	106

Four of the above jobs required quartz fabrication. At the present time the shop has a backlog of 20 jobs which will require approximately five man-days to complete. Five of the jobs on the backlog require quartz fabrication.

One glassblower mechanic assigned to the 108-B Building was reassigned to the 3706 Building shop when it was found that he had exceeded his radiation tolerance. No replacement was required due to reduced operations of the P-10 Program.

Equipment Design

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

	<u>January</u>		<u>February</u>	
	<u>Engineering</u>	<u>Drafting* &amp; Misc.</u>	<u>Engineering</u>	<u>Drafting** &amp; Misc.</u>
<u>File Technology</u>				
Engineering	44	391	50	386
Metallurgy	-	86	136	184
P-10	10	26	-	45
File Applications	-	-	-	53
<u>Separations Technology</u>				
Development	50	80	134	176
Research	72	517	152	404
<u>Analytical</u>				
Service	176	1019	418	1146
Research	-	60	17	10

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	<u>Engineering</u>	<u>Drafting &amp; Misc.</u>	<u>Engineering</u>	<u>Drafting &amp; Misc.</u>
<u>Technical Services</u>				
Laboratory Engineering	550	567	522	618
<u>Laboratory Equipment Development (RDA #TC-5)</u>	<u>826</u>	<u>710</u>	<u>83</u>	<u>618</u>
Totals	1728	3456	1512	3640

\* Includes 1472 hours of drafting time.

\*\* Includes 1488 hours of drafting time.

Relatively high work loads continued in connection with design and outfitting of equipment for the analytical laboratories and multicurie cells of Building 222-S.

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

File Engineering

Engineering assistance was given on the drafting of the slug weighing mechanism, film test apparatus, shipping cask, adapter housing, control rod gland, Postum system, graphite heater, test sample tube #2, various charts and graphs, and some show cards.

File Metallurgy

Drawings were made of a thermal cycling unit, a sounding tank, a crystal growing furnace, and for the corrosion laboratory. Engineering assistance was given on the design and development of the bicrystal furnace, and in scoping various manipulators for radiometallurgy cells.

P-10

Assistance was given on preparing various graphs.

File Applications

Drawings of the gamma tube and various graphs were prepared.

Chemical Development

Continued assistance was given on outfitting the multicurie cells of Building 222-S, and of several junior cave boxes. One technical graduate was assigned to work full time with Chemical Development on multicurie cell problems.

Chemical Research

Work continued on outfitting the multicurie cells of Building 222-S, and the alpha-column gloved box. Assistance was given on the design of a sample shaker, and on various equipment for the "hot" boxes. Drafting assistance continued on the solvent washing rack, the hydraulically operated pinch clamp opener,

the wiring diagram for the counter-current batch extractor, and various graphs and charts.

### Analytical Services

Continued assistance was given on the outfitting and testing of the Analytical Line and gloved boxes for Building 222-S. Engineering assistance was given on the drafting of falling drop apparatus, aluminum watch glass holder, bottle tumbler, pipette washer, gold absorber holder, fluorimeter dish holder, and various charts and graphs.

### Analytical Research

Engineering assistance was given on gloved box outfitting, and on the drafting of the housing for the Narelco spectral lamp.

### Laboratory Equipment Development (RDA #TC-5)

Development of basic equipment for the Building 222-S multicurie cells was nearly complete. Development of decontamination facilities continued with the addition of gamma shielding to one panel of the decontamination chamber.

The development of the "Hanford Slave" manipulator was virtually complete, with the addition of a remote plug-in feature on the tool end. This feature allows the operator to remotely change tools which may include various sizes of grasping jaws, screw drivers or drilling attachments. Small refinements such as an improved hydraulic line and a counterbalance are being added, and formal drawings are being made of the whole assembly.

The model of a remote cut-off device for uranium slugs was completed and successful test cuts were made in collaboration with Metallurgy personnel. This device is based on a low speed milling cutter, with automatic feed, cutting, and slug rotation in a liquid bath to control contamination. Although the present cutters are good for only a few cuts, they can be readily adapted to remote replacement.

Development of a powered floor machine which uses a mastic-type cleanser for cleaning contaminated laboratory floors was started. This device will look somewhat like a vacuum cleaner, and would be used in the same way.

### New Laboratory Planning

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

The Minor Construction Section installed a partition down the center of the corridor bordering the Phase II construction area. This partition will enable A & J forces to work in the Phase II area without special hazard restrictions.

#### Mechanical Development Bldg., Proj. C-406

The Dix Steel Building Co. has almost completed the preliminary plans and specifications for the design of the interior (Phase II) of the Mechanical Development Building.

Radiochemistry Bldg., Proj. C-381

First shipments of structural steel members have been delivered and unloaded in position for erection. It is estimated that the structural steel work will be completed within six weeks. The shop drawings for the Martin-Parry partitions have been reviewed and approved with certain exceptions.

Certain changes in the design of the hoods for this building have been made after study of the shop drawings, following the suggestions made by the Blickman Company. The chief changes have been (1) fabrication of the hoods from 3-SHL2 aluminum instead of the 61-S originally specified, (2) construction of the window frame of welded stainless steel instead of extruded aluminum channel, and (3) lowering of the rear edge of the trays to improve the fit.

Outside Facilities and Utilities, Proj. C-394

Badge House - The exterior of the Badge House is complete except for painting of the trim. The interior partitions are about 80% complete, exclusive of painting.

340 Building - The forms for the concrete walls are in place and the floor slab has been poured.

Retention and Neutralization Basin - The slab has been poured and forming has begun for the walls.

Piping - The 12-inch water line from North Richland is complete except for the portion in the northeast corner. The underground pipe grid is partially complete.

The grading for the parking lot was started during the last week of the month.

Radiometallurgy Bldg., Proj. C-385

Placement and erection of structural steel began on February 25 and at month end the steel floor beams for the office area, decontamination room and equipment storage rooms had been completed. Reinforced concrete work on the exterior basement walls and the dry storage area was nearing completion.

After reviewing the vendor's radiographic test report, which indicated no void greater than 5% of the casting thickness was present in the slab, approval was granted to the vendor to proceed with machining of the 10 $\frac{1}{2}$ " cast Meehanite cover for the Dry Storage Cell.

Pile Technology Bldg., Proj. C-414

Work is continuing on the reinforced concrete walls and footings for the Pile Technology Building. Preliminary alignments are being made for the electrical and plumbing services required under the basement floor.

All the contractor installed, G.E. purchased equipment items have arrived for this building and are being stored within the Mechanical Development Bldg. shell.

The initial shipment of crushed magnetite, for forming the high density concrete for the interior walls of the counting room, has arrived on the plant site.

Library and Files Bldg., Proj. C-421

First shipments of steel have been received and erection started. An architectural study is still underway on the floor pattern and interior decorations of this building.

Building Services

Building 3706

Material control, stockroom and miscellaneous services activities are summarized as follows:

	<u>January</u>	<u>February</u>
<u>Purchase Requisitions</u>		
Total number processed	90	90
Number requiring special expediting	90	90
Number requiring emergency handling	0	8
<u>Stores Stock Requests</u>		
	1	1
<u>Store Orders</u>		
Total number processed	1345	798
Number requiring emergency pick-up & delivery	10	6
<u>Work Orders Processed</u>		
	56	63
<u>Miscellaneous Services</u>		
Office Furniture requests	14	9
Precious metal transactions	7	14
Office machines required	15	14

A complete inventory of all office furniture and machines in Building 3706 was completed.

Routine replacement of the CWS filter pads in the ducts leading from the "hot" hoods was started.

Building 222-S

A shortage of lead lined "doorstop" and "FR" sample carriers has necessitated constant interruption of decontamination routines to avoid delays in sampling. This special service has resulted in inefficient operation of the decontamination room and is a probable cause of an increased spread of contamination. The Separations Section has agreed to supply additional units as soon as they can be fabricated. It has been suggested that shielding requirements be reviewed to permit use of standard doorstop carriers when possible.

A special sample cask used by Process Chemistry for obtaining a bulk sample of dissolver solution overflowed on February 20, resulting in extremely high radiation readings on the outside of the container. A specially fabricated lead shield was required to reduce the reading sufficiently to permit removal to the burial ground. Activity in the decontamination room was restricted during storage to prevent overexposure of personnel.

An average of 128 gallons of "hot" liquid waste is collected per day in TK-103. This waste is transferred to Building 202-S for neutralization and storage. The Building 222-S stockroom dispensed \$2,625 in materials to customer groups. A total of 49 work orders were issued and processed by Building 222-S Work Order Control.

TECHNICAL INFORMATION SERVICES

Plant Library

Library work volume and book statistics were as follows:

	<u>January</u>	<u>February</u>
Number of books on order	377	228
Number of books fully cataloged	129	223
Number of bound periodicals processed but not fully cataloged	112	27
Pamphlets added to the pamphlet file	30	6
Miscellaneous material received, processed and routed (including reprints)	23	84
Books and periodicals circulated	4,098	4,428
Unclassified reports processed	470	203
Unclassified reports circulated	520	201
Reference services rendered	1,553	1,738
Inter-library loans	28	40
Photostats from off-site	25	19
New periodical titles added to Kardex	8	10

	<u>Main Library</u>	<u>W-10 Library</u>	<u>108-F Library</u>	<u>Total</u>
Number of books	8,416	3,825	454	12,695
Number of bound periodicals	<u>5,134</u>	<u>0</u>	<u>640</u>	<u>5,774</u>
Totals	13,550	3,825	1,094	18,469

Operation of the Plant Library proceeded routinely during the period, with circulation reaching a new high and reference work increasingly active. A representative sampling of typical reference questions follows:

Tables of depreciation rates of automotive, earthmoving and railroad equipment.  
Methods of fireproofing materials.

Methods of brush and electroplating with chrome.  
Pneumatic gauging of small precision metal parts.  
Determination of lignin and tannin in river waters.  
Determination of traces of turbidity in water.  
Spectrum of  $U_{x-2}$  (Protactinium 234)  
Methods of decomposition of oxalic acid, by catalysts and radioactivity.  
Heat transfer co-efficients and thermal resistances of metal-to-metal surfaces.  
Effects of irradiation on the human body.  
Determination of radioactivity by calorimetry.  
Chemical analysis of 322 stainless steel.  
Design of cylinder type electric heater.  
Nickel-carbon phase diagram.  
Dispersion of energy of falling water upon striking a large screen.  
Design of steam jets and syphons.  
Manual on use of ultra microscope.  
Testing effectiveness of Company training programs.  
Effects of radiation on plastics.  
Design of water - water heat exchangers  
Scheduling, particularly as related to the optimum use of IBM machines.

Also noticeable was the increased work load required in locating and securing unusual and non-routine publications from off-site. During the month the Library obtained for the Reactor Section a U.S. Bureau of Mines report on the Scapoose Mine in Columbia County, Oregon, a preliminary report on high alumina iron ores in Washington County, Oregon, and a "Review of Iron Bearing Deposits in Washington, Oregon and Idaho." For the Community Real Estate and Services Department, the Library secured from the E.D. Reed Co. of Dallas, Texas, the Illinois-Excelsior Codes and Key Charts, Chicago Double Bit Codes and Charts, and the Master Pin Tumbler Codes. For the Employee and Public Relations Department the Library secured a course in basic economics used by the Republic Steel Corporation, and from the Opinion Research Corporation a publication on "Cross Trends in Industry Communications." Other letter requests were for a manual on thermometry from the Pratt-Whitney Division of the United Aircraft Corporation, and a survey from the University of Utah of literature pertaining to stress distribution in the vicinity of a hole.

A number of valuable periodical runs were added to the Library's files. These included the "Journal of the Royal Meteorological Society," a basic journal in this field, and the "Matematisk - fysiske meddelelser," a noted Danish journal in theoretical physics unusually valuable because most of the papers are in English. The Library was also fortunate in locating a number of volumes of the Journal of Research of the Bureau of Standards (including the first two volumes which are extremely rare) which completed the file of this valuable journal.

A basic reference tool purchased during the month was the Library of Congress printed catalog. This reference will greatly expedite the verification of order information, the ordering of Library of Congress preprinted catalog cards, and the local cataloging of material when time does not permit waiting for L.C. cards.

A suggested procedure for eliminating the use of purchase requisitions for inexpensive reference materials was approved by the local AEC and forwarded by Engineering Accounting. However, the Purchasing Unit has requested an opportunity to review it before it is made effective, and at month end their reaction had not been received.

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Classified Files

Work volume statistics for the Classified Files were as follows:

	<u>January</u>	<u>February</u>
Documents routed and discharged	30,243	18,618
Documents issued	6,965	7,274
Registered packages prepared for off-site	351	448
Inter-area mail sent via transmittal	39,043	29,064
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	14	20
(b) Because of transfer of work assignment	11	8
(c) Because of termination	2	4
Inventory reductions:		
Copies of documents destroyed	2,376	3,371
Copies of documents downgraded	256	77
Copies of documents declassified	220	232
Classified documents located which were unaccounted for in previous inventory	12	23
Standard storage cartons of material retired to the Records Center:		
Unclassified and Official Use Only	0	0
Classified	0	0
Off-site originated reports requested by Hanford personnel		201
Hanford originated reports requested by off-site personnel		120

A number of changes will be noted in reporting the work volume statistics for the Classified Files. The number of reference services rendered is omitted, and will be in future. In lieu of this, a representative sampling of reference questions asked will be included. Interesting ones worked on in February were:

- Analysis of stored neutralized metal waste.
- Recent report from the H.K. Ferguson Company regarding the conversion ratio and multiplication factor in a proposed water-cooled pile.
- Authorization for process changes in 300 Area.
- Changes in reactivity due to undercutting of graphite in the H pile.
- Lead-cadmium alloys in relation to poisoned slugs.
- Radiation effects on ceramics, silicones, plastics and rubber.
- Material on Plutonium fluorination and reduction.
- Emergency water towers in the pile.
- General survey of shielding.
- Phase diagram for U-chromium system.
- Capture cross section, absorption cross section, and fission cross section for slow neutrons of U-239, U-238, and Np-239.
- Analytical methods for rare earths, especially the fission products.
- Specific heat of graphite.



Decontamination studies, agents and results.  
Pressure drop in pile cross headers.  
Operational aspects of the activation of H pile.  
Slug failures in H pile.  
Material on Zirconium.  
Solubility of aluminum in liquid Al-Si.  
Material on the dissolution of Plutonium metal.

The number of requests for off-site reports continued to grow, and presently represents a considerable volume of work in the Classified Files. Many of the requests are for classified documents prepared under contracts by the various defense agencies of the Government and represent difficult problems in location and acquisition, since the channels which must be used are not clear. This usually involves correlation with programs of the Central Air Documents Office, Office of Naval Research, Office of Technical Services of the Library of Congress, and other centralized distribution programs through which defense agencies' reports are distributed. Many of the items involve foreign liaison, such as a recent large shipment of Porton reports received from Great Britain. Others encounter complex compartmentation problems such as a recent effort to secure for use at Hanford MTA reports on thermal cycling of uranium. Plans are underway to centralize the cataloging and acquisition of reports in a single work unit of the Classified Files.

The inventory of the Classified Files is proceeding on schedule. The summary of the Research and Development reports was completed and at month end the annual report to the AEC Security Division was in preparation. The report will indicate that there are approximately 33,263 classified Research and Development reports on the site, of which 38 are unaccounted for in inventory. This is a cumulative total including items reported as missing in the 1951 inventory which have not subsequently been located. The summary of the 300 and 700 Classified Files is nearing completion except for the very early Hanford reports. This phase is proceeding slowly because many of the early documents are undated, unnumbered, and poorly identified, but it will be completed in a matter of 4 to 6 weeks.

Considerable time was spent during the month in an effort to set up a centralized control of classified photographs and negatives. The present procedure involving the Information Division of the local AEC is quite unsatisfactory and it is agreed that this function should be taken care of by General Electric. Personnel from the area photographic laboratories met with representatives of the Classified Files, AEC and GE Security, AEC Classified Files, and the Photo House to review the problem. A committee was appointed to see if a more satisfactory procedure could be worked out. Subsequently, representatives of the Classified Files and AEC and GE Security visited the area photo laboratories to further understand the individual problems involved. It appeared that centralized control of negatives, which would be very desirable from the point of view of Security, would be very difficult to work out and would prove to be quite impractical.

On February 18, the administration of the Design and Construction Classified Files was transferred to Technical Information Sub-Unit. It is believed that placing all the Hanford Classified Files under one supervision will have many advantages. Procedures will be standardized, confusion to the users eliminated, and correlation with other Hanford programs (notably Security and Records Management) improved.

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Programs of customer education will be simplified by eliminating the necessity of explaining that two diverse programs are operating at Hanford. One agency will be dealing with off-site installations on problems of classified documents. This will also establish a clear-cut responsibility in dealing with sub-contractor Classified Files operations and similar files at the Schenectady Nucleonics Office, the General Engineering Laboratory, and other Schenectady offices. Furthermore, the report resources of the Design and Construction files will now be integrated into the total information resources of the site.

During the month the question of establishing the Nucleonics Office in Schenectady as an AEC authorized document transfer and accountability station was explored. Two meetings on the matter were held with representatives of the Classified Files, the Schenectady Nucleonics Office and AEC and GE Security. It was agreed that the Nucleonics Office in Schenectady would draft a letter setting forth the advantages of making such a move. The draft letter will be reviewed at Hanford. If satisfactory, a request will be made to the local AEC to designate the Nucleonics Office in Schenectady a document transfer and accountability station.

The establishment of the General Engineering Laboratory as a classified document accountability and transfer station has smoothed out problems of transmitting documents to personnel there. In accordance with their request, a list has been compiled of all documents transmitted through the Knolls Atomic Power Laboratory under the earlier procedure. At month end this list was being typed for transmittal, and a similar list prepared by the Design and Construction Files has been forwarded.

A meeting was held with representatives of the AEC Classified Files to discuss the return of classified documents to the General Electric Company at the termination of the Atkinson and Jones sub-contract. It was agreed that all classified documents charged out to them should be returned and those which they still require would be permanently transferred. This would be taken care of easily since the local AEC plans to designate the Company, which will be a prime contractor to the AEC after April 1, as a document accountability station.

On January 31 and February 2 two small shipments of accumulated du Pont records, comprising four crates, were shipped to the du Pont Company at Newbridge, Delaware. This is in accordance with the letter of January 10, 1951, to A.C. Nielsen in which it was indicated that any early du Pont records located by the Classified Files Audit and Inventory Unit would be accumulated and copies transferred. Inasmuch as both the field and Classified Files inventories have been completed, it is unlikely that it will be necessary in future to forward any additional documents.

Central Reporting and Abstracting

	<u>January</u>	<u>February</u>
Ditto masters run	818	453
Mimeograph stencils run	1,201	1,051
Ditto masters prepared	34,270	18,280
Mimeograph copies prepared	78,615	55,518
Multilith masters typed	209	643



	<u>January</u>	<u>February</u>
Multilithed copies handled	24,726	53,960
Formal Research and Development Reports issued	6	11
Formal reports in process	9	9
Reports abstracted	530	822
Volume of unclassified mail handled by the 300 Area Mail Room	42,980	34,235

As reported last month, the Office Services Unit has supplied Central Reporting with a Multilith Model 80, a Multilith Model 1250, and a Xerox machine. After necessary training of operators, these were put into service early in the month. The Xerox machine was put into operation for photographing copies and preparing multilith masters. Although the machine appears to have definite limitations, it will be extremely useful for certain types of work. Some 121 masters were prepared during the month by this process.

Eleven formal reports were published during the month, including the Technical Section's Annual Report. The Information Bulletin, published monthly by the Plant Library, is now routinely prepared by Central Reporting. The unit also assembled and reissued a "Series B" of HW-22597 entitled "Catalog of Hot Laboratory Equipment." In addition, the special typewriters in the unit were used to prepare ten large tables for the Engineering Sub-Unit.

During the month 822 reports were abstracted by the Abstracting and Indexing staff, which set a new high. Satisfactory progress was made on the three major bibliographies in process.

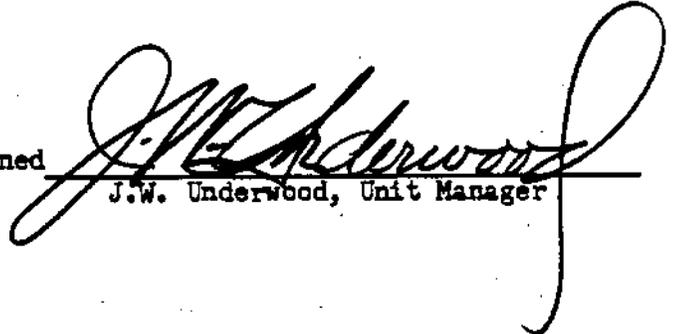
Consideration is being given to expanding the activities of the Abstracting and Indexing unit. The unit is presently performing a cataloging function for the Classified Files by abstracting, indexing and preparing catalog cards for Hanford originated reports. This function should be performed by a technically trained staff, since the clerical staff can be trained to use the reports index but lacks technical knowledge to develop one. Furthermore, as the number of reports received from off-site becomes significant, it is necessary also to catalog this material. The original plan of relying on TIS at Oak Ridge to supply catalog cards for incoming material has proved unsatisfactory, and the AEC is turning these cataloging problems back to the contractors. Functionally, it would be desirable to localize in this unit the procurement of off-site reports, the review and routing of incoming material, and the cataloging of all reports received or issued, where preprinted catalog cards are not available from the AEC or other Government agencies. Such a unit would also be responsible for the organization and maintenance of the Classified Files reports index, and the handling of technical reference questions beyond the capabilities of the Classified Files clerical staff.

Effort is being made to work out with the United States Atomic Energy Commission in Washington a co-operative effort to write a badly needed bibliography on Plutonium Metallurgy. Hanford agreed to undertake this bibliography if the reports in the Washington files could be made available to us.

INVENTIONS

All Technical Services 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 February, 1952. 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.

Signed



J.W. Underwood, Unit Manager

JWU:cf

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DESIGN SECTION

FEBRUARY, 1952

VISITORS AND BUSINESS TRIPS

J. I. Thomas, R. Lang, S. Stroller, Vitro Corporation, visited Hanford to discuss progress on separations plant engineering service contract.

C. W. George, J. L. Matrone and J. E. Brow, General Engineering Laboratory, visited here during week of February 11 to discuss their proposed work on RDA-DC-9 and other work.

J. O. Ludlow visited Argonne, Oak Ridge and Catalytic Construction Company February 2-15 to obtain information on concentration equipment and test data on evaporators and deentrainment facilities.

J. H. Snyder visited Chas. T. Main and Sheppard T. Powell February 18-20 for consultation on filtration rates and water plant design problems.

R. C. Mann visited (1) du Pont at Wilmington and Savannah River to discuss process control instrumentation.

(2) du Mont and Remington Rand to discuss studio type television equipment.

(3) KAPL to discuss instrument development program.

ORGANIZATION AND PERSONNEL

On February 18, 1952, the Design Section, composed of the Process Engineering Unit, Design Planning Unit, and Design Engineering Unit, was organized. On this date the section assumed responsibility for all research and development work and all Design Engineering work formerly under the jurisdiction of the Design and Construction Section.

Personnel Statistics

	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>
Design Management	4	2	6
Process Engineering Unit	44	11	55
Design Planning Unit	9	7	16
Design Engineering Unit	60	13	73
Total Section Personnel	117	33	150
Technical Graduates Rotational		22	22
TOTAL	117	55	172

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During the month of February, new job classifications were established, personnel were assigned, a new accounting system for the section was set up, section budgets for fiscal years 1953 and 1954 were prepared, and procedures were set up to channel the flow of work between the three units of the section.

The internal quarterly report of Research and Development covering the second quarter of FY-1952 was issued.

DESIGN DEVELOPMENTRDA-DC-3 - Engineering Development Studies to Improve Design Bases for Future 100 Area Production Facilities

The principle effort this month was directed toward the preparation of Design criteria and scope and arrangement drawings for a 1300 MW reactor, now approximately 60% complete.

The results of the study on optimum annulus size and tube length were issued (HDC-2433). The preliminary drawings on the process tube assembly were completed. Those finished this month include inlet and outlet assemblies and process tube cross sections.

The horizontal rod operating diagram, the horizontal rod arrangement drawings and a horizontal rod assembly were completed and are available for comment.

Preliminary drawings of the mechanical features of the "ink" system are about 80 percent complete and will be issued for comment as scheduled on the 105-I drawings schedule. Work is progressing on calculations of the activities to be expected from a 10 percent ink solution. Data were developed on boiling points vs. solution concentration and precipitation temperature for a 20 percent concentration.

A preliminary general arrangement drawing for the Ball 3X system was completed. The General Engineering Laboratory completed the feasibility study of a magnetic conveyor for the 3-I reactor control balls. The Laboratory was instructed to proceed with design, manufacture, erection, and test of a 20 ft. working model. Ten thousand dollars (\$10,000) was authorized for the initial work.

The study to determine the size of the gas system for the 1300 MW reactor is in progress. Tests are being run by Pile Technology and the University of Washington.

Preliminary calculations were made on the heat load of the thermal shield, for use in the design of the cooling system. Four preliminary arrangement drawings and one detail drawing have been developed for use as check prints on thermal shield requirements.

The piping layout of 105-C Building was outlined for use as a basis for 105 Building arrangement. Process water piping, filtered water piping, and raw water emergency tie-ins were included.

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Design Section

HW-2369E

Preliminary designs were prepared for the top shield. Arrangements have been completed with the Prepart Corporation for a joint developmental program for determining the merits of placing high-density concrete by intrusion grouting. This program will be underway the first part of March.

Drawings on block pattern layers were completed during the month. These drawings are now compatible with the vertical control openings as established by HDC-2499.

RDA-DC-4 - Engineering Development Studies to Improve Design for Future Separations Facilities

Comparative cost estimates were prepared and published for different building arrangements (HDC-2494). Drawings and cost data presented showed a small cost differential for the structure required for the rectangular types of separations buildings studied to date.

The evaluation and comparison of 1) the mixer settler and pulse column type contactors, 2) the jet orifice flow and pump rotameter control systems are continuing with a single longitudinal type building arrangement used for purposes of comparison. This comparison will determine the relative effect on building arrangement and cost, accuracy and reliability of flow control, equipment cost, operations and maintenance reliability and process and performance rangeability. Thirteen drawings are being prepared for this comparison, and are scheduled for completion the week of March 24.

Building arrangement studies are being continued both as a part of the contactor evaluation and as individual studies. Particular emphasis is being placed on study of ways and means to decrease canyon height, and thus reduce the distance through which remote maintenance must be accomplished.

The Vitro Corporation is investigating two "open canyon arrangements", a circular canyon and a transverse canyon, to determine the general feasibility of the "open canyon design". This type separations plant is visualized as a canyon type building with equipment, piping, electrical and instrument installations independent of the structural concrete. All equipment, pipe supports, kick plates, etc. would be supported on structural steel framework.

Drawings for the improved 2" and 3" single and triple type Crane connectors were approved and fabrication started. A bid was requested of the Crane Company for the fabrication of one 8" "scaled up" Crane type angle pipe connector. An 8" in-line pipe connector utilizing the interrupted screw principle is also under consideration.

Design Section personnel visited Remington-Rand and du Mont Laboratories to discuss the loan or rental of studio type television equipment for test work at Hanford. Both firms expressed their willingness to cooperate and preliminary negotiations will be made in the immediate future for the use of necessary equipment. The larger studio type equipment produces high quality images which cannot be matched by the small portable industrial type television units.

Instrument engineering flow diagrams for future separations plant requirements are 4% complete. Scale model graphic panel-board layouts have been completed; the information is being incorporated in working drawings for a future separations facility. A visit was made to du Pont at Wilmington and Savannah River Works to study and review instrument performance in process stream control for mixer settler type solvent extraction contactors. A visit was also made to KAPL, Schenectady, to review instrument development being performed for Savannah River Works.

The study of pulse mechanism simplification is continuing, and will be completed the latter part of March. Three types of pulse mechanisms are now under consideration.

1. A simplified version of the present TBP system.
2. A hydraulic system employing cylinder and piston with cam-operated valve for pulsing.
3. A hydraulic system employing a diaphragm for the primary pulse mechanism.

RDA-DC-5 - Design Development, Mechanization of the 300 Area Slug and Component Preparation Facilities

(Included in Project Section Report)

RDA-DC-6 - Process Water Cooling System including Retention Basin, Design Development

Consultation with Charles T. Main, Inc. was completed on February 1 and the basic criteria for a water plant study at the Coyote Rapids site was tentatively established.

During the period February 4 to February 14 conferences held by the Manufacturing and Engineering Departments led to a change in thinking on basic scope requirements for the water plant. As a result, the basic instructions to C. T. Main were changed as follows after further corroboration of water treatment changes with Sheppard T. Powell:

1. The number of water service units at the Coyote Rapids site was changed from one to two.
2. Filtration rates were changed.
3. The filter process coagulants were changed from ferric-sulphate to alum and activated silica with the addition of chlorine as presently provided in the filter method. The use of sodium dichromate was eliminated and solid feed purge material was tentatively eliminated. Space was provided so that additional equipment could be installed at a later date, if necessary. Water from the filter beds was to retain its natural pH without additional lime.
4. A new decay curve was substituted for the one used with "C", which had by proportion been assigned to the Coyote Rapids study. A new decay curve represents a change in safety circuit, time control and a more accurate representation of heat loads to be removed by the water process.
5. The scope was altered to include an economic evaluation of the use of excess water developed by high filter rates at different times of the year in production of products.

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These changes did not materially affect the progress of work nor the Chas. T. Main, Inc. time schedule for completion and presentation of their report.

Test borings at the Coyote Rapids site were continued during the month. Seven of the nine test holes have been completed. The holes have been normal and no unusual conditions have been encountered. The large boulders natural to the area have made the drilling operations difficult and slow.

Work has continued during the month on bomb blast study.

Estimated completion dates of the study on improved inlet and outlet design for steel retention basin tanks is March 1.

Work on a comprehensive type study covering the river area in the Hanford Restricted Zone is under way. It is hoped that this study will bring out a clear comparison between the use of existing sites or a new site for additional production facilities.

#### RDA-DC-7 - Separations Process Engineering, Expansion and Improvement

A representative of the Section visited Argonne, Oak Ridge and Catalytic Construction Co. to obtain information on concentration equipment, and test data on evaporators and deentrainment facilities. Information was also obtained on the present status of ion exchange for condensate and Pu purification and an adsorption method for final uranium stream clean-up.

The design of the continuous concentration system for increasing Redox capacity was advanced to the stage where final design and installation could proceed. A document from the working committee recommending early installation of this system will be issued in March. A process alternative, the ion exchange system, is being given consideration. If the ion exchange system can be developed rapidly enough it may be considered for installation in place of the continuous concentrator.

Vessels, columns and concentrator designs, and cascade heights for the Purex process were critically reviewed and an alternative arrangement permitting removal of columns horizontally to reduce building heights was suggested for study.

The study of the use of  $\text{NO}_2$  for oxidation in the 1 BP stream shows a substantial reduction in waste volume over the usual involatile compounds in the Purex process.

Revision of Purex flow diagrams, in which recently developed improvements were added, was continued.

Assistance to the Technical Section on matters relating to the Recouplex process was continued in the form of preparation of the scope material and design criteria required for Project Proposal preparation.

#### RDA-DC-9 - Product Purification and Metal Fabrication Equipment

The basic RDA-DC-9 Scope Document has been revised to eliminate the preparation and recommendation for design improvements to a new RM line. Work authorized now consists of improvements that could economically be made to existing RM production lines.

Discussions were held at Hanford with members of the General Engineering Laboratory regarding proposed work.

Work up to this date has been limited to the preparation of scope, approval of the authority and discussions with GEL personnel.

### Program I

The following work was carried out at the request of the AEC:

1. Cost estimates were prepared for 1300 MW reactors and associated water plants at "H" and Coyote Rapids for comparison with "C" plant costs.
2. Budget estimates were prepared and submitted for the overall "X" program, including reactors, water plants, separations plant, metal preparation facilities and associated facilities and utilities.
3. Work was initiated on preparation of a preliminary Project Proposal for two cases.
  - (a) Two 1300 MW reactors and water plants at Coyote Rapids plus supporting canning facilities, separations plant, associated utilities and general facilities.
  - (b) One 1300 MW reactor and water plant each at "F" and "H" Areas plus the same supporting facilities as in case (a) above.

This proposal to be submitted during March will include a statement of reasons for proposed design changes, cost estimates, schedules, manpower forecasts and critical material requirements.

### Mechanical Development, and Standards

Two new Sub-Units, Mechanical Development and Engineering Materials & Standards, were engaged in organizing and preparing work programs.

### DESIGN ENGINEERING

#### Program I

Engineering activity on Program "I" was intensified during the month. A Project Proposal for complete design of the 105-X Reactor and building was submitted to the AEC.

Information was assembled for use in determination of design contractors fees. Joint meetings were held with several potential contractors for design of the Reactor building.

The detail design of the new 1300 MW Reactor was advanced from 2% on 2-1-52 to 4% on 2-29-52. Design of the 105 Building was advanced from 13% to 18%.

Design progress on the Reactor building has been delayed by the following factors:

1. Re-design of portions of the building for more adequate bomb blast protection.
2. Re-design required by re-evaluation of early estimates.
3. Lack of process information on piping and effluent systems.

Work has begun on detail drawings for the horizontal rod gate valve, the gland seal, and the rod assembly.

Detail drawings for the Vertical Rod System are scheduled to start the first week in March.

Approximately ten detail drawings on Process Tube Assembly have been completed, but will not be issued until the scope drawings are more firm.

C-187-E - Conversion of Unassigned Space for Radiochemistry Laboratory

Vendor drawings on hoods for 222-S laboratory addition were reviewed and approved for fabrication.

C-187-D - Redox Production Plant

Approximately 15 electrical drawings and 2 BFF's were brought to as-built condition.

C-295 - Enlarging 251 Sub-Station & Installing Addt'l 13.8 KV Feeders to 200-W Area

Work was continued on as-built drawings which are now 50% complete.

C-349 - Hot Semiworks

A series of conferences were held to resolve the differences of opinion on the contract interpretation for this project. A settlement was reached on responsibilities relative to instrument calibration and provision of control valves that failed to meet specifications.

C-361 - Metal Conversion Facilities

Instrument installation for Part B is 80% complete.

A total of eight construction drawings for Part C have been issued to the field completing this phase of the work. Present design effort is concentrated on the preparation of the acceptance test procedures which are to be completed the first week of March.

C-362 - Waste Metal Removal and Recovery

Continuity check and drop-out tests were completed, and all instruments on the UC and UD panels were calibrated.

All instrument drawings have been completed and material procured or on order for additions to lag storage facilities between 202-S and 224-U buildings. Modifications were made to tank farm lighting.

C-385 - Radio Metallurgy Building

Requisitions for the Health Monitoring System were issued; this work is now 90 percent complete.

C-412 - P-10-X Metal Extraction Facilities

Electrical as-built drawings are being prepared as rapidly as information is supplied from the field. This program is affected by modifications in equipment and arrangement of circuits on Electro-Chemical Laboratory and Flow Cup Studies.

The Second Metal Line, under fabrication at the General Engineering Laboratory at Schenectady, will be approximately 85% complete by the end of this month. Remaining work consists essentially of completing assembly of the line, testing, and crating for shipment. A meeting is scheduled during the week of March 10, 1952, at Schenectady to discuss disposition of the line.

G-413 - Expansion of 234-5 Capacity

Drawings covering "Remote Degreasing" and "F.S.M." have been issued to the field.

All major instrument items have been received and installed except the Lira CO Detector. Personal engineering assistance was given to Mine Safety Appliance during January, and continued efforts will be made to expedite delivery.

G-431-A - Water Facility, 100-C Area

Acceptance test recommendations were submitted to Contact Engineer for transmittal to the Architect Engineer.

G-431-B - 100-C Area Production Facility

Design work was advanced 6% to a total of 99%.

Scope for the Metal Examination Facilities was submitted to the Working Committee and approved on February 28. Final design was started on February 1, 1952, and is scheduled for completion May 15, 1952.

Detailed study of Pressure Monitoring System wiring diagrams revealed system inadequacies, but correction alterations were made prior to shipment.

Five Top Distribution drawings and five Ball Exit drawings on the Ball 3-X gravity trough were completed and approved this month.

Investigations into requirements for 100 Area waste cribs have indicated that the type previously proposed would not be suitable. A new basis has been established consisting of an underground sand filtering bed with controlled flow and distribution.

G-434 - New Bio-Assay Laboratory

Design Schedules are being prepared as a part of a revised Project Proposal.

G-438 - Ball Third Safety System

Copies of calibration, pre-installation and operational acceptance tests for the Ball 3-X system for 105-B, D, F & DR were completed and sent to the Project Section for comments.

A rough draft of a manual containing a narrative description of the 3-X Elev. system including simplified 8 1/2" x 11" elementary diagrams has been completed.

Line tracings involving the ball recovery system are being redrawn due to mechanical changes in equipment location and the addition of a second hoist in each area. Two additional tracings showing terminal block connections are being made with the intended purpose of decreasing installation time of electrical connections at the top of the units. The above drawings will not affect the starting schedule.

Delivery date on some electrical items are behind schedule but since the ball hoppers are still further behind schedule, there is no immediate concern. However, attempts are being made to shorten delivery time on these particular electrical items.

**DECLASSIFIED**C-447 - Portable Meteorological Station

Pump and instrument cabinet design is currently under revision. Order has been placed with 300 Area Instrument Shop to provide needed instrument mountings, brackets, etc.

C-475 - Crossheader Pressure Monitor

Design was advanced to approximately 75 percent completion.

C-479 - Replacement of Docks and Outside Stairs - 700 Area Perm. Bldgs.

The plans for this project were completed February 15, 1952. The specifications have been rescheduled for completion April 1, 1952.

C-480 - Remodeling 722-C Building for Use as Office Machine Repair Shop

Final design drawings were completed February 28, 1952. The specifications are now scheduled for completion April 1, 1952.

C-482 - Pile and Pile Water Plant Improvements

Design work and drawings have been completed on the installation of check valves on the 105 Building inlet crossheader piping. Advance material lists have been prepared and forwarded for procurement.

Stress calculations to determine allowable pressures for the existing process piping systems have been completed. At the present time, the design of new replacement risers and pipe reinforcement is underway. Material lists are in process of preparation.

Studies have been made on design and estimated cost for several schemes to increase the flow and pressure at the 190 Pump House. Present and future steam consumptions have been tabulated. These studies were required for the review of the work outlined in the Design Criteria.

C-483 - Replacement Downcomer - Building 105-F

A new "Grizzly" type downcomer design was sketched but not accepted. Accordingly, design is based on a downcomer similar to "H" but fitted within the available space at "F", and made so that it can be installed with the least difficulty. Detailing will be complete by the end of March. Attention was given to procurement of the least corrosive materials available. Procurement of materials is underway.

ER-2712 - Pile Technology Metallurgical Laboratory Alterations - Building 234-5

Final design for these alterations was completed February 21, 1952.

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Design Section

HW-23698

ER-2714 - Recuplex Installation - Building 234-F

Thirteen drawings were made for the Recuplex Installation Project Proposal.

Work has been started on the collection of design data and material requirements for scoping.

ER-2715 - Corrosion Test Laboratory - Building 108-B

Design work for this project was started February 18, 1952.

WO-B-30690 - Metallurgy Laboratory - 300 Area

The plans and specifications for this building are scheduled for completion March 17, 1952. The design is approximately 25% complete.

WO-B-43806 - Scale Models of 300 Area

Construction of two models of the 300 Area is proceeding. The work is approximately 30 percent complete.

WO-H-72588 - Phase Comparison Relaying - 230 KV Loop

A study is being made to determine the feasibility of Phase comparison relaying for the 230 KV loop in the areas.

WO-H-76028 - Positive Ion Accelerator Laboratory

A preliminary design with the positive ion accelerator installed in the east end of Building 189-F was completed February 27, 1952.

AEC Request - Tract Surveys for Tracts M-1, K-4, L-1 & L-4

Land descriptions and topographical maps on the above areas were completed for the proposed 500 housing units.

MONTHLY REPORT OF INVENTIONS AND 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, no inventions or discoveries were made in the course of their work during the period covered by this report. 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.

*R. H. Beaton*

R. H. Beaton, Manager  
Design Section

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HW-23698

MONTHLY NARRATIVE REPORT - FEBRUARY 1952

PROJECT SECTION

I. SUMMARY

A. ORGANIZATION

As of February 18, 1952, the Design and Construction Management Section was reorganized into the Project Section with five Units, and into the Design Section. Certain design personnel and service groups were transferred from the Section or terminated for employment with the Atomic Energy Commission, reducing personnel from 852 to 631.

B. SCOPE OF ACTIVITIES

Major projects attained construction completion status as follows: C-349, Hot Semiworks, 74%; C-361, Metal Conversion Facilities, including Part "C", 94%; C-362, Waste Metal Recovery (TBP), 75.6%; C-413, Expansion of 234-5 Facilities, 84.1%; C-431-A, 100-C Waterworks Facility, 41.8%; C-431-B, New Production Facility, 41.5%.

C. MATERIAL PROCUREMENT

Most activity was concerned with justifying previous requests for controlled materials. The regular quarterly forecast of selected materials for the next eight calendar quarters was submitted. Generally, procurement results are improving.

D. CRAFT LABOR

There were numerous labor disputes which affected completion schedules. Lack of welders and pipefitters continued to delay major construction; however, transfer of craftsmen from 200-West to "C" Area has helped the shortage. Work stoppage begun by boilermakers on January 18 was officially settled on February 27, with the dispute being moved to the Davis Panel for a hearing in New York on March 3. There was a sharp increase in voluntary terminations among manual employees. These plus 33 discharges left a net gain of only 25 men for the main CPFF contractor.

E. SAFETY AND SECURITY

There were no outstanding changes in the Safety Program or in injury statistics. Security functions were assumed by the Atomic Energy Commission.

F. HIGHLIGHTS OF UNIT ACTIVITIES

Minor Construction Management Unit was authorized nine new jobs estimated at \$93,285. Four work orders and two project assignments were completed. Plans and estimates are being made for replacing the portion of the Automotive Shop lost in the January fire.

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F. HIGHLIGHTS OF UNIT ACTIVITIES (Continued)

Project Services Unit was engaged in transfer of functions and re-aligning present activities. Drafting workload remained heavy, but reproduction work decreased. Five histories were issued. Of the 100 estimates scheduled, 65 have been completed. Project Control worked on Construction Budget for FY 1954 and revision of Budget for FY 1953.

Project Engineering Unit worked on 72 project items and 12 Informal Requests. Two new Project Proposals were transmitted to sponsoring organizations. Two new Project Proposals, four revised Project Proposals and two Informal Requests were approved by the A & B Committee and sent to the Atomic Energy Commission. Eight authorizations were granted by the Atomic Energy Commission. Four projects were completed. Design for C-438, Ball Third Safety System, was completed, and construction was begun in 105-B.

Reactor Projects Unit progressed on all phases of the 100-C Waterworks and Production Facility, except 107-C Retention Basins and 187-C High Tanks showed no advance because of the boilermaker work stoppage. In the 101 Building graphite fabrication, work was completed ahead of schedule, with 80 layers packaged and stored.

Separations Projects Unit completed Project C-187-D except for Minor Construction work orders and the AEC-USGS drilling of test wells. Construction on C-362, (TBP), was advanced 5.9% as compared to a scheduled 5.2%. This 0.7% gain helps overcome the serious schedule lag. On Project C-413, Expansion of 234-5 Facilities, a revised Project Proposal was sent to the A & B Committee February 27. The last full carload shipment of RMB Line equipment has arrived.

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. 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.

  
S. McMahon, Manager  
PROJECTS

Date: February 29, 1952

**DECLASSIFIED**II. STATISTICAL AND GENERALA. SIGNIFICANT ASSIGNMENTS1. Initial ReportingC-492 - Experimental One-Tube Ink Facility

This project was formerly ER-A-1172. Final design work is 50% complete; construction has not begun. Instruments and associated equipment have been ordered. Details for the nozzle and drain are being prepared. Radiological Sciences have recommended that drainage from the system be tanked.

C-493 - Duct Level Safety Showers, Building 234-5

This project was formerly ER-2600. Design work is complete, construction has not begun. The project is awaiting approval of the Atomic Energy Commission.

2. Final ReportingC-187-D - Redox Production Plant

Negotiations are continuing with Southwest Welding Company on their claim for \$127,000. Recheck of caryon and silo "as-built" drawings was continued. Test wells for 241-S Tank Farm are promised by April 30. No further monthly reports will be issued on this project.

C-289-R - 200-W Laundry Addition

Design had been completed previously; construction was advanced 10% to completion. Completion Notices are being processed.

C-403 - New Fence for Distribution and 230 KV Substation, Part I

Closing Notice is being prepared. Balance of substation fencing will be done on a new project.

C-485 - Revision 1 - Experimental Activated Silica Addition Equipment, Part I, Building 183-F

All field work and clean-up have been finished. The Completion Notice is being prepared.

M-822 - Water Lines and Electrical Service Extensions for Army

Completion Notice is being prepared.

3. Current ProjectsC-349 - Hot Semiworks

Design had been completed previously; construction was advanced 9% to a total of 74%. Requests for an extension of time and additional funds are being prepared. Cell painting with Amercoat is in progress, and cell vessels are being installed in one cell. Deliveries of some materials are slow.

C-361 - Metal Conversion Facilities

Construction completion status for the entire project is 94%. Part "C" is included for the first time, hence the variation from the January percentage of completion. Revision V to the Project Proposal was prepared and forwarded to the A & B committee. Revision V has four purposes:

1. To replace Revision IV to the Project Proposal as requested by the A & B Committee.
2. To increase scope to provide for approximately 30 days lag storage of Redox UNH solution before processing in the 224-U Building.
3. To present a revised cost estimate.
4. To change the physical completion date to April 1, 1952.

The shortage of welders and pipefitters continues to be a limiting factor. One Part B pump was received February 27; the other is scheduled for March shipment.

C-362 - Waste Removal and Recovery Facilities (TBP)

Design had been completed previously; construction was advanced 5.9% to a total of 75.6%. This advance represents a .7% gain on the schedule; however, the shortage of pipefitters and welders limits satisfactory progress. Atkinson-Jones has completed 82.4% of their work. Minor Construction forces have completed 51.6% of the assigned work. Work to be performed by General Electric on Phase I is 97% complete compared with 100% scheduled completion. Phase II is 37.8% compared with 68% scheduled completion. Minor Construction Management Unit has given a detailed schedule for completion of assigned work on Phases I and II.

The A & B Committee has asked for revisions to Part III of the Project Proposal. A new project estimate, which will reflect the increased Minor Construction costs of about \$400,000 is being prepared.

All required drawings have been issued and approved. For 221-U Building, six cells were scheduled for February delivery. None were completed.

C-406 - Mechanical Development Building (Phase II)

Design work was advanced 15% to a total of 30%; construction has not begun. Preliminary plans and specifications are scheduled for study and approval in early March.

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C-413 - Expansion of 234-5 Facilities

Of the portion of this work being done locally, overall design work was advanced 1% to a total of 94%; construction was advanced 12.4% to a total of 84.1%. The last full carload shipment of RMB Line equipment arrived from Schenectady February 9. All drawings for the project have been issued except the electrical and instrument drawings for the LIRA equipment. A revised C-413 Project Proposal was sent to the A & B Committee February 27. Area clean-up has begun.

C-431-A, 100-C Waterworks Facility

Design had been completed previously; construction was advanced 7.8% to a total of 41.8%. Progress during the month on main features was as follows:

At the 181-B River Pump House all temporary sheet piling and cofferdam have been removed, and the earthwork section of the cofferdam is being removed. Interior piping and electrical conduits are being installed.

For the 183-C Filter Plant, concrete work is practically complete. Filter balls have been placed in twelve filter bottom halves, also the classified gravel. Clearwells Nos. 3 and 5 are ready for fabrication of the steel tanks.

Steel erection for the 190-C Process Pump House is nearly complete, and the structure is being roofed. Both bridge cranes are in place and operating. The six units for each of the two process pump assemblies are on their foundations and are being lined up for grouting in place. Painting and electrical work are proceeding in step with the erection of steel.

Because of the boilermakers' work stoppage, no work was performed on 107-C Retention Basins and 187-C High Tanks.

C-431-B - 100-C Production Facility

Design work was advanced 6% to a total of 99%; construction was advanced 12.5% to a total of 41.5%. Structural steel erection for 105-C Building is about 96% complete. Concrete placement is practically complete, with 22,000 yards placed to date. Roofing and transite siding installations are proceeding.

Substantial progress was made on the 105-C Process Unit. "B" block tiers Nos. 1 through 6 outlet and inlet are complete. Installation of side shielding laminations is behind schedule with seven layers completed on the right side and five on the left. Progress is being made on cooling tubes, pressure monitoring tube fabrication, and rear face thermocouple leads. Graphite fabrication operations were completed February 14. At the end of the month, 80 layers were packaged and in storage ready for installation in 105-C. In 115-B Building, existing equipment has been cleared from rooms and two storage tanks have been installed. Work by Minor Construction forces in the 115 tunnels is scheduled for early March. This phase of the project has also been delayed by the overall shortage of pipefitters.

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C-433 - 384 Steam Plant Addition

Design work was advanced 3% to a total of 83%. Construction has not begun. Preliminary work was begun by the contractor for the start of construction in early March. Personnel have been cleared. A considerable amount of equipment was received late in the month.

C-438 - Ball Third Safety System

Design was advanced 3% to completion; construction was begun and advanced to 0.5%. Construction began February 22, with removal of the acid pumps in 105-B Valve Pit.

The entire order of balls placed with Tetomics has been canceled. Negotiations with another supplier are progressing for 30,000 pounds, with option of increasing to 90,000 pounds in 20 days. The additional order will be held, pending tests of a new glass ball. A contract has been awarded for the lead-polythene shielding. Requests for priority assistance have been made for four critical items: Geoprene cable, relays, contactors, and 303 stainless steel for vertical rods. Arrangements have been made for special service on SWP clothing.

C-482 - Pile and Pile Water Plant Improvements

Design was advanced 20% to a total of 25%; construction has not begun.

ping modifications to the front face of 105 DR and H piles were major design accomplishments. Purchase requests have been issued for Panellit gauges, check valves and fittings. The Atomic Energy Commission is procuring materials for this project until approval in compliance with the Construction Rider to the Appropriations Act for Fiscal Year 1952 has been obtained.

The scope is being re-evaluated to establish production gains to be realized by changing pump discharge pressures for both front and rear face.

ii. Research and Development Studies

RDA-DC-5 - Design Development, Mechanization of the 300 Area Slug and Component Preparation Facilities

Design work was advanced 15% to a total of 30%; construction has not begun. A four-day meeting, February 12-15, was held in Richland between Hanford Works personnel and representatives of General Engineering Laboratories. The meeting was called to review with the Working Committee the basic ideas proposed by the Laboratory in mechanizing the canning and quench operations. Their proposal was based on the Design Criteria submitted by the Working Committee.

All other Research and Development studies are being reported by the Design Section. They are:

RDA-DC-3 - Engineering Development Studies to Improve Design Bases for Future 100 Area Production Facilities.

RDA-DC-4 - Engineering Development Studies to Improve Design for Future Separations Facilities.

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4. Research and Development Studies (Continued)

Being reported by Design Section (Continued)

- RDA-DC-6 - Process Water Cooling System Including Retention Basin Design Development
- RDA-DC-7 - Separations Process Engineering, Expansion and Improvement
- RDA-DC-9 - Product Purification and Metal Fabrication Equipment.

B. OTHER ASSIGNMENTS

C-187-E - Conversion of Unassigned Space for Radiochemistry Laboratory

Design had been completed previously; construction was advanced 2% to a total of 7%. Installation of temporary partition in the access hallways was completed. Extension of exhaust system ducts was begun by Minor Construction forces.

C-192 - Biology Laboratory 108-F

Completion status remains at design 98%, construction 88%. The revised project proposal has been approved and is awaiting approval by the Atomic Energy Commission.

C-204 - Extension to Existing Kadlec Hospital and Medical Arts Building

Design had been completed previously; construction was advanced 1% to a total of 91%. Construction was begun February 11, on the new six-room addition.

C-380-R - Electricity Metering - Village of Richland

Design had been completed previously; construction was advanced 1% to a total of 98%. Work is proceeding on the last few commercial installations.

C-404 - Primary Power Lines for Hanford Works Laboratory

Completion status remains at design 100%, construction 79%. A revised project proposal is being prepared. The underground feeder will be contracted with Project C-451 (300 Area Underground System).

C-410 - In-Pile Controlled Atmosphere Experiment

Design completion status remains at 95%; construction was advanced 5% to a total of 85%. The shop work on the gas circulating system has been completed; so the system is ready to be moved to the 105-DR Building. The extent of work to be done on the in-pile heater is being determined.

C-412 - P-10-X Extraction Facilities

Design was advanced 5% to completion; construction was advanced 2% to a total of 98%. The lead glass cave windows have not been delivered. Conferences are in progress regarding disposal of the second metal extraction line.

C-418 - Additional Waste Storage Facilities

Completion status remains at design 100%, construction 99.8%. This project is physically complete except for Minor Construction work orders and the drilling of test wells by the Atomic Energy Commission and the U.S. Geological Survey. Drilling is scheduled after present drilling at 241-S tank farm.

C-419 - Induction Heating Unit - Building 3732

Completion status remains at design 100%, construction 0%. Delivery of the 200 KW induction heating unit is promised for September 1952.

C-423 - Additional Waste Evaporation Facilities - 200-E

Completion status remains at design 100%, construction 98%. Field work is in progress on the remaining two tank farms.

C-424 - Water Quality Experimental Facilities

Design completion status remains at 95%; construction was advanced 2% to a total of 87%. Phase I, the installation of equipment in the 105-DR Laboratory, has been completed and the facilities have been turned over to the Pile Technology Unit. Work is progressing on Phase II, piping from the Flow Laboratory to the pile.

-430-R - Rev. 2, Improved Lighting - 703 Building

On Part I design had been completed previously; construction was advanced 65% to a total of 99%. On February 26 work was accepted with minor exceptions. On Revision 2, completion status remains at design 65%, construction 0%. This project for 85 additional rooms is awaiting Atomic Energy Commission approval.

C-432 - Air Raid Warning System, Richland and North Richland

Design was advanced 5% to completion; construction remains at 83%. The No. 1 tower is being moved to a new location. Other work is progressing.

C-434-R - New Bio-Assay Laboratory

Design was advanced 1% to a total of 91%; construction has not begun. Design rescoping is in progress.

C-441 - Solvent Building

Completion status remains at design 95%, construction 0%. The revised project proposal has been approved and is awaiting authorization from the Atomic Energy Commission.

C-442 - X-Ray Machine - 3745-A

Design completion status remains at 95%; construction was advanced 25% to a total of 85%. Some difficulties with the electrostatic generator have necessitated contacts with the High Voltage Engineering Corporation. Shielding tests for the generator unit are being conducted, and a project time extension has been requested to allow time for complete tests.

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C-445 - B-Y Telephone Exchange Additions and Changes

Design had been completed previously; construction completion status has been revised to 60%. The contract portion of the work has been completed and accepted. A revised project proposal is being prepared to request an extension of time to January 1, 1953.

C-447 - Portable Meteorological Mast

Design was advanced 5% to a total of 65%; fabrication of special instruments was advanced 5% to a total of 10%. Special instrumentation design and material procurement is progressing..

C-451 - Extension of 300 Area Underground Electrical Power Distribution System

Design completion status was revised to 98%; construction has not begun. Design revision was necessary to tie in the facility with design work being done in the vicinity of the 384 Building. Final designs and specifications are nearly complete.

C-452 - Meteorology Tower Elevator

Completion status remains at design 100%, construction 0%. Lump sum bid opening is scheduled for March 3.

C-454 - Spectrometer Shielding

Design was advanced 3% to a total of 95%; construction remains at 65%. Drawings on the new step plug and columnator are now being approved..

C-455 - Replace Two Elevated Water Tanks in 200-E Area

Design was advanced 20% to a total of 50%; construction has not begun. Work on the specifications has been stopped, pending clarification of the work scope.

C-456 - Additional 13-Quad Telephone Cable - BY to Point "I"

Design had been completed previously; construction was advanced 15% to a total of 84%. Revision 2, requesting extension of completion date to April 1, 1952, is awaiting Atomic Energy Commission approval.

C-457 - Pile Technology Office Building

Design had been completed previously; construction was advanced 35% to a total of 95%. Remaining work is chiefly ventilating equipment.

C-460 - Installation of Asbestos Siding and Painting Wood Trim - 272 E and W

Design had been completed previously; construction has not begun. Lump sum bids have been opened and a contract awarded. Construction is scheduled to begin in early March.

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J-461 - Maintenance Hot Machine Shop

Design was advanced 5% to completion; construction was begun and advanced to 15%. Construction work by Minor Construction Management Unit forces is progressing. However, a revised project completion date of July 1, 1952, has been requested because of delays in procurement of electrical equipment.

C-468 - Horizontal Rod Mock-Up Test Facilities - 189-D

Design had been completed previously; construction was advanced 15% to a total of 60%. All prototype equipment has been received at the job site. Significant alterations in 185-D Building are being made to provide sufficient steam for the mock-up heat exchanger. A project proposal has been initiated for extension of the physical completion date to June 1, 1952.

C-469 - Front Tube Corrosion Mock-Up

Design had been completed previously; construction was advanced 2% to a total of 97%. Several changes have been made in the piping system; so the flow is now 85% to 90% of that required. It is expected that with minor modifications the system will provide the designed flow.

C-470-R - 200-W Badge House Remodeling

Design work was advanced 20% to completion; construction has not begun. Lump sum bid assemblies are in preparation.

C-473-R - 100-B Automatic Dial Telephone Exchange

Completion status remains at design 75%; construction 0%. The project is awaiting Atomic Energy Commission approval.

C-474 - Relocation of Exponential Facilities

Design had been completed previously; construction was advanced 8% to a total of 98%. Construction is complete except for the installation of a small exhaust fan.

C-477 - Building 284-W - Fifth Boiler Addition

Design was advanced 3% to a total of 15%; construction has not begun. Bids were opened February 1, and the Atomic Energy Commission issued Notice of Approval to Award on February 15.

C-478 - Area Fence and Minor Repairs Excess Material Warehouse - North Richland

Design was advanced 20% to completion; construction has not begun. Lump sum bid assemblies are being prepared.

C-479 - Replacement of Docks and Outside Stairs - 700 Area Permanent Buildings

Design was advanced 75% to a total of 95%; construction has not begun. Other higher priority work is displacing work on specifications.

C-480 - Remodeling 722-C Building for Office Equipment Repair

Design was advanced 25% to a total of 95%; construction has not begun. Other higher priority work is displacing work on specifications.

C-483 - Downcomer Repairs in 100-B, D, DR and H and Replacement in 100-F

Design was advanced 20% to a total of 25%; construction has not begun. Material procurement has begun. An additional authorization of \$25,000 has been made to purchase material which must be advance ordered.

C-484 - 300 Area Administration Building

Completion status remains at design 10%, construction 0%. No further work has been accomplished, pending additional information from the Metal Preparation Section.

C-489 - Positive Ion Accelerator

Completion status remains at design 10%, construction 0%. The original project proposal dated November 21, 1951, for \$252,000 has been returned by the Atomic Energy Commission. A revised project proposal is being prepared on a rush basis for action in Washington, D.C. on March 17. The proposed installation of this unit is to be in Building 189-F at an estimated cost of \$212,000.

C-490 - Soil Science Laboratory

Completion status remains at design 10%, construction 0%. No further work has been requested by the User Department.

C-491 - Metallurgy Laboratory, 300 Area

Design was advanced 20% to a total of 25%; construction has not begun. Authorization of funds is awaiting Atomic Energy Commission approval. Final design and specifications are progressing.

Program "X"

To be reported by Design Section.

\* \* \* \* \*

The following studies and engineering requests, involving preparatory work and scoping of future projects, were active during the month:

ER-E-466 - Improved Lighting and Increased Electrical Capacity - Miscellaneous 700 Area Buildings

Project is in scoping stage, with design work 5% complete.

ER-E-474 - New Permanent Civil Defense Center

Neither design nor construction has begun. The Informal Request is being held by the A & B Committee pending a meeting with Civil Defense authorities.

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R-E-475, Lighting Study, 702 Building

Design work was advanced 60% to completion. Study was forwarded to Utilities and General Services Department.

ER-A-557 - New Substation Fences and Grounding of Existing Fences

Initial report is design 40%, construction 0%. Project proposal for remaining work on replacement of substation fences is being routed for signatures.

ER-A-661 - Central Distribution Headquarters

A preliminary floor plan has been approved by the Electric Distribution Section. Tentative project proposal submission is scheduled for July.

ER-A-662 - Reinforce and Increase Capacity of Cask Cars

The Separations Section has requested discontinuance of this work. The project proposal (Document HDC-2300) is available in Classified Files.

ER-A-663 - Pile Technology Test and Storage Building

The project proposal is being held pending developments within the Technical Section.

ER-A-666 - Insulation Floors and Ceilings - 700 Area Permanent Buildings

An estimate has been made and a project proposal is in preparation. Recommendations have been made.

ER-A-667 - Water Drainage Around 700 Area Buildings

Preliminary work is progressing; however, completion depends on plan for entire area.

ER-A-671 - Crushed Rock and Oil Covering, 700 Area

Preliminary work is progressing; however, completion depends on plan for entire area.

ER-A-673 - Floor Coverings - 700 Area Permanent Buildings

A project proposal is in preparation.

ER-A-681 - Roads and Walks - 700 Area

Preliminary work is progressing.

ER-A-682 - Underground Steam Line, 722-C and 707 Buildings

An estimate and preliminary sketch has been completed. Final action depends upon the overall plan for 700 Area steam supply.

ER-A-686 - Painting High Tanks - 105-B and 105-F

A project proposal is in preparation for painting of these four tanks.

ER-A-698 - Lubrication Pits, 100-D and 100-F Buildings

Sketches and an estimate have been completed.

ER-A-701 - White Bluffs Steam Plant, Automatic Firing

A project proposal, with an estimated total cost of \$25,000, has been prepared for the installation of automatic feed stokers.

ER-A-702 - Exhaust System Alteration, 716-1131 Buildings

An informal request, with an estimated total cost of \$13,300, has been prepared for installation of ductwork and larger fans.

ER-A-703, Sanitary Facilities - Surplus Sales Yard

Preliminary sketch and estimate are in preparation.

ER-A-704 - Addition to Kadlec Hospital

Preliminary floor plan has been approved by the Medical Department.

ER-A-705 - Rest Room Alterations, 700 Area Buildings

Preliminary survey and recommendations are being prepared for renovation of 700 Area rest rooms to conform to Building Code.

ER-A-706 - Area First Aid Buildings

Preliminary scoping and design work is being done for new First Aid buildings in 100-B, 100-D, 100-E, 200-E and 300 Areas.

ER-A-707, Fire Protection Buildings, 272 E and W

Preliminary scoping and design work is being done for installation of fire protection systems in the 272 E and W Shop buildings.

ER-A-708 - Temperature Recording Stations

Scoping is being done for three instrument shelters based on standard U.S. Weather Bureau design.

ER-A-709 - Replacement of Fire and Sanitary Water Tank, 100-D

Scoping is being done for replacement of the existing wood 100,000-gallon storage tank.

ER-A-710 - Spare Parts Warehouse, 100-200 Areas

Preliminary work is being done for installation of a permanent type spare parts warehouse in 100 and 200 Areas.

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SECRET

ER-A-1171. Earthquake Detector

Completion status remains at design 30%, construction 0%. Project proposal is being prepared for March meeting of the A & B Committee.

ER-A-1176 - Temperature Monitor Thermocouple Replacements, 100-B, D and F Areas

Project proposal was forwarded to the Atomic Energy Commission February 12.

ER-A-1177 - Additional Indication of Moderator Temperatures, 105-B,D,F, and DR

The project proposal is awaiting final decision on justification by the Manufacturing Department.

ER-A-1179 - High Pressure Water Supply to Front Face, 100-B,D,F,DR and H Areas

A cost estimate has been completed, and a project proposal is being prepared.

ER-A-1181 - Jacket Removal Facilities

Completion status is design 95%, construction 100%. The facilities have been fabricated and accepted with minor changes. Drawings have not been revised to cover the changes. A successful run has been made with the newly designed equipment.

ER-A-1182 - P-13 Pressure Assembly Removal

A rough draft of a project proposal has been prepared. Negotiations are being conducted with the Argonne National Laboratory to provide necessary funds for this work.

ER-A-1183 - Repair of 105 Effluent Line Junctions with 107-DE

Design was advanced to 10% complete; construction has not begun.

ER-A-1184 - Replacement of 100-D Reactor Effluent Line

Only preliminary investigation has been done.

ER-A-3094 - Building 313 Mechanization

Reported under RDA-DC-5.

ER-2596 - Remodel Former Laundry Building for Engineering Offices

Work has been postponed because of low priority.

ER-2710 - Start-Up Studies - RMA Line - 234-5 Building

Completion status remains at design 85%, construction 0%. No work is scheduled until actual operation of the line.

ER-2712 - Pile Technology Metallurgical Laboratory Alterations - 234-5 Building

Design was advanced 40% to a total of 90%; construction has not begun. The work release is being prepared.

ER-2713 - Ground Level to Roof Stairway, 224-U Building

Design is 15% complete; construction has not begun. Drawings have been requested of Design Section.

ER-2714 - Recuplex Installation, 234-5 Building

Design was advanced 5% to a total of 7%; construction has not begun. The project proposal for design and material procurement is scheduled for submittal to the A & B Committee in March.

ER-2715 - Corrosion Test Laboratories, 108-B

Design was advanced 13% to a total of 15%; construction has not begun. A project proposal is being prepared.

ER-2716 - Retirement of P-10 Facilities, 108-B

Design is 7% complete; construction has not begun.

ER-2717 - Conversion of 108-B to Corrosion and Material Studies

Scoping is scheduled to begin in late March.

ER-2718 - Fire Protection 200-E and W Spare Parts Warehouse

Design is 5% complete; construction has not begun. The rough draft of a project proposal has been prepared.

ER-6010 - Plant Manpower Forecast Including Program X

No work was done during February. The study has been held open for Program X.

ER-6011 (M-135) - 700 Area Steam Study

The study was advanced 25% to a total of 75%. Work has continued on the nine basic alternate methods of heating. Liaison is being maintained with the Washington State boiler inspector.

ER-6012 - Hanford Works Standards Evaluation

Study has begun on benefits and savings which have resulted from the Hanford Works Standards program.

ER-6013 - Piping Design Guides

The study is 70% complete, with 41 design guides being considered by the Mechanical Standards Committee.

**DECLASSIFIED**

ER-6014 - Evaluation of Utilities and General Services Department Landlord Properties

Information is being obtained for use in evaluating unit operating costs.

M-612 (IR-112) - Building 224 Waste Diversion, 224 E & W

Design work has been completed; construction has not begun, at the User's request.

M-713 (ER-A-1068) Vertical Safety Rod Corrective Designs, 105-B, D and F

Design is 62% complete on a new type flexible joint. A test model is being fabricated in the local machine shops. The model will be tested to destruction, to determine strength characteristics.

M-852 (IR-96) - Replacement of Air Lock Doors, 234-5 Building

Completion status remains at Design 100%, construction 0%. Material has been ordered or requisitioned.

IR-115 (E-29) - Radiation Monitoring Addition to 105-D

This 16' x 26' addition has been approved by the A & B Committee. The Atomic Energy Commission has requested that the proposed concrete block construction be changed to friable construction.

AEC-117 (O10) - Survey of Richland, Washington

Survey work is being done to establish boundaries of Richland. The work includes Control Monuments on these boundaries, a closed traverse to mark six major subdivisions within the village proper, and maps of the surveyed area.

C. RELATED SERVICES1. Design

The drafting work load continued steady with HDA-DC-3 and Program X being the largest jobs. Drafting production averaged 7.87 man days per drawing. Total production was 247 new drawings, 62 charts and graphs, and 245 revisions.

The Plant Engineering report on working conditions in the 760 Drafting Room was received February 27. It is being reviewed to determine what action can be taken on the nine recommendations.

As compared with January, reproduction output decreased substantially. Total square feet of prints decreased from 439,808 to 341,448 and the number of prints decreased by 19,000. Photostating and multilith production increased slightly. The largest single order was 6,687 prints for C-431-B.

Critical Materials Control group activities consisted of following the results of NPA Directives which have been issued and the justifying of requests for additional allotments of controlled materials. The regular quarterly forecast of selected materials was developed and submitted during the month.

ER-6014 - Evaluation of Utilities and General Services Department Landlord Properties

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**[REDACTED]**

1. Design (Continued)

Project Control group has been engaged in revision of the Construction Budget for Fiscal Year 1953, and preparation of the budget for Fiscal Year 1954.

Of the 100 estimates scheduled, 65 have been completed.

Five histories were completed and issued during the month.

2. Construction

The population of North Richland decreased by 120 during the month, leaving a total of 6,154, exclusive of Army personnel. There were 15 commercial facility operators in the Camp, with an estimated rent revenue of \$6,000.

Utility costs were gathered and distributed for billing to the Army and School District 400.

The Construction Safety Program was active during the month. Major and minor injuries increased; however, there was only a small loss of time for each individual.

Functions and personnel of the Office Services group were transferred to the Utilities and General Services Department. The Equipment Control and Construction Security groups were transferred to the Atomic Energy Commission.

Other transfers which affect Project Services Unit are: (1) The Office Services in 700 Area to the Utilities and General Services Department, and (2) the Design and Construction Classified Files to the Technical Section, Engineering Department.

D. CRAFT LABOR

Numerous labor disputes affected completion schedules. There was a jurisdictional dispute between machinists and millwrights in the 101 Shop which began January 30 and was partially settled on February 4. A flare-up occurred on February 5, but it was settled on February 7 when the machinists were given complete jurisdiction in the 101 Machine Shop. A one-day work stoppage by 11 ironworkers occurred February 27 on the BY tank farm in 200-E. A work stoppage by 10 laborers occurred February 4 in the 101 Building, when the laborers were ordered by their business agent to cease operating four-wheel carts until they were paid an increased rate.

Voluntary terminations of CPFF construction contractors' personnel increased sharply from 2.01% in January to 3.86% in February. The increase is attributed by construction contractors to the rumor of a five-day week in the near future and the normal early spring "exodus."

A net gain of 25 pipefitter-welders (still in critical supply) was made during the month. There remained 54 on requisition, including 31 welders.

An offer of \$2.62½ and \$2.12½ per day isolation pay (the amount recently granted to most other crafts) was made to the plumbers union in place of the 50-cents per day increase approved by the Construction Industry Stabilization Commission. This offer was rejected, at which time the 50 cents per day increase was offered to and accepted by the Electrician Wiremen.

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HW-23698

D. CRAFT LABOR (Continued)

Negotiations with the boilermakers' union continued, but with no progress. On February 15 the Davis Panel was requested by the main CPFF construction contractor and the Atomic Energy Commission to take jurisdiction over the dispute. The Panel took jurisdiction, and a hearing is scheduled for March 3 in New York.

As a result of the union continuing to withhold men, two lump sum subcontractors filed a grievance against the union under the Seven Western States Agreement. A meeting on this grievance was held in Portland, Oregon, on February 20, and it was attended by representatives of the employers and the union. On February 23 or 24 the boilermakers' national president ordered the local union to furnish men to the subcontractors. On the wage question, the local boilermakers' union refused to join the main CPFF construction contractor in seeking Wage Stabilization Board approval; so the contractor filed a unilateral request. On February 27 the new rate was approved by the Construction Industry Stabilization Commission and immediately placed into effect. Several men were dispatched to the job on February 27.

A recommendation for a rate of \$2.62½ for machinists retroactive to August 14, 1951 was received from the Davis Panel on February 28.

Negotiations with the Technical Engineers progressed to the signing of a Memorandum of Agreement stipulating a reduction of the negotiated \$5.00 minimum increase to the amount approvable (approximately \$3.93) under General Wage Regulations 6 and 8. The schedule of automatic increases was not changed, and the settlement is now before the Wage Stabilization Board for approval.

Negotiations with sheetmetal workers progressed when on February 14 the parties agreed to request an interpretation from the Davis Panel regarding the intent of the Memorandum of Settlement. This question hinges on the vacation and health and welfare plans.

The ironworkers and boilermakers refused to join the main CPFF construction contractor in seeking Wage Stabilization Board approval of a rate increase for plug welders from \$2.55 to \$2.80. The parties have agreed on a 20-cent differential over the boilermaker rate and to petition for \$2.88.

Final settlement of the cement masons' negotiations has been delayed pending a Wage Stabilization Board announcement of their revised policy for 1952.

The nine-cent wage increase for carpenters in the Seattle area is being considered for application east of the Cascades.

An unfair labor practice charge was filed with the National Labor Relations Board against an insulation subcontractor by an asbestos worker who alleged discrimination. The subcontractor contends: (1) that the man was denied employment because no vacancies existed at the time, and (2) 25 of his 47 craftsmen are non-union.

The shortage of craftsmen was helped during the month by transfers from the 200-W Area to the "C" Area.

III. ORGANIZATION AND PERSONNEL

Personnel data for Project Section, February 1952, was as follows:

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Net Change</u>
Employees on Payroll	852	631	-221
Technical Graduates - Rotational	22	4	- 18
Business Graduates - Rotational	2	0	- 2
Employees on Loan to Section	5	5	0

The end-of-month status involved these changes:

Payroll additions	1
Terminations	43
Transfers to Section	1
Transfers from Section	180
Transfers within Section	13

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MEDICAL DEPARTMENT

FEBRUARY 1952

General

Personnel Changes

The roll increased from 274 to 276.

Visits

Dr. K. Brockman attended the A.E.C. general information meeting for Medical and Laboratory Directors at Brookhaven, New York.

Public Health Section representatives attended a meeting on cerebral palsy in Yakima.

Dr. Harry Foreman from the University of California Laboratories, Los Alamos was a visitor to the Industrial Medical Section.

Mr. Warren Fitch and Mr. S. Artz of the State Health Department visited the Public Health Section in regard to the hearing program.

Industrial

Employee physical examinations increased from 1866 to 2024. Dispensary treatments increased from 10,792 to 11,371.

"Mental Health" was stressed at the safety health meetings.

No General Electric employees were treated for either sub-major injuries or major injuries. Contractor employees sustained 30 major injuries and 13 sub-major injuries.

The rate of sickness absenteeism for January was 1.91% as compared to 1.85% for December. The total absentee rate was 2.65%.

Dr. Harry Foreman, visitor from Los Alamos, discussed his work in elimination of plutonium deposited in the bodies of laboratory animals, by the use of various chemical agents.

Kadlec Hospital

The average daily census increased from 100.8 (91.8 adults, 9.0 newborns) to 110.1 (94.7 adults, 15.4 newborn). The census was 102.3 a year ago.

The occupancy rate for mixed services (all services except obstetrics was 90.9%.)

Nursing hours per patient day were 3.5 for the mixed services and 3.4 for obstetrics.

Kadlec Hospital was approved by the council on Medical Education and Hospitals of the A.M.A. for interne and residency training in general practice.

Public Health

Contagious diseases increased by about 100% to 254 reported cases due largely to an increase in German Measles. Blood studies showed that some Influenza "A" prime is present in Richland.

Costs (January)

Medical Department costs before assessments to other departments were as follows:

	<u>December</u>	<u>January</u>	<u>January Budget</u>
Industrial Medicine (Oper.)	\$33,514	\$36,029	\$37,705
Public Health (Oper.)	9,686	10,556	11,853
Kadlec Hospital (Net)	29,511	28,776	19,342
Hospital Expense Credits	2,815	3,081	2,180
Subtotal-Medical Dept. (Oper.)	75,526	74,442	71,080
Construction Medical (Industrial and Public Health)	17,304	18,152	18,517
Total Operations and Construction	92,830	92,594	89,597

MEDICAL DEPARTMENT

FEBRUARY 1952

General

Costs (Continued)

The net cost of operating the Medical Department before assessments to other departments was \$92,594, a decrease of \$236 but \$2997 over the budget.

Gross costs increased by \$14,823 and tended to offset increased revenue of \$15,197. Increased costs were due to allocating some December salary time to January and to increased hospital patient census and increased liquidation from Financial Department.

MEDICAL DEPARTMENT

FEBRUARY 1952

Industrial Medical Section

General

The number of examinations increased from 1866 to 2024. Dispensary visits also increased from 10,792 to 11,371. General Electric employees sustained no sub-major injuries; no major injuries. Contractor employees sustained 30 major injuries and 13 sub-major injuries. There was no change in first aid service location. The largest increase in volume of patients was at North Richland and 100C.

Dr. Brockman attended the AEC General Information Meeting for Medical and Laboratory directors at Brookhaven, New York.

At the Industrial Physicians' Scientific Meeting, Dr. Harry Foreman of Los Alamos discussed chelating experiments for plutonium displacement. Members of the Biology section were present and a general discussion of this subject followed.

The Chemical Hazards Meeting was on February 29th. The 100 C degreasing operation study is still underway and also the nitrous fume study on concentrations emanating from the 700 area stocks.

The Health Activities Committee met on February 21st and the Health Topic on Mental Health was presented. Material on this movie was prepared for distribution and discussion throughout the plant.

The combined sickness absenteeism for both weekly and monthly roll employees was 1.91 for the month of January.

The net cost of operations for January as compared with December showed an increase of \$1,642. Gross costs totaled \$36,953 as compared to \$34,477 in the month of December, an increase of \$2,476. These costs consist of the following items:

	January	December	Increase (Decrease)
Salaries	\$ 26,587	\$ 25,600	\$ 987
Continuity of Service	2,467	2,471	96
Laundry	338	293	45
Utilities, Transportation, Maintenance	3,578	3,600	(22)
Supply and Other Costs	3,883	2,513	1,370
Gross Operating Costs	36,953	34,477	2,476
Less: Revenue	924	963	(39)
Expense Credits	5,199	4,326	873
Net Cost of Operations	\$ 30,830	\$ 29,188	\$ 1,642

The increase of \$987 in salary costs results from the fact that December salaries were understated due to an under accrual of salary costs for the last day in December. All employees were paid for that day, but amount accrued was calculated on basis of Sunday schedule.

Supply and Other Costs increased \$1,370 due to (1) increased travel expense of \$350, (2) \$700 increase in supplies purchased primarily by the nursing and x-ray sections for drugs, x-ray films, etc. (3) \$300 increase in other miscellaneous supplies purchased.

MEDICAL DEPARTMENT

FEBRUARY 1952

Industrial Medical Section (Continued)

<u>Physical Examinations</u>	January	February	Year to Date
<u>Operations</u>			
Pre-employment . . . . .	115	84	199
Rehire . . . . .	8	12	20
Annual . . . . .	267	244	511
Interim . . . . .	74	94	168
A. E. C. . . . .	38	35	73
Re-examination and rechecks . . . . .	76	86	162
Termination . . . . .	140	178	318
Sub-total . . . . .	718	733	1451
<u>Contractors</u>			
Pre-employment . . . . .	207	227	434
Rehire . . . . .	248	231	479
Recheck . . . . .	80	79	159
Termination & Transfer . . . . .	602	748	1350
Interim . . . . .	11	6	17
Sub-total . . . . .	1148	1291	2439
Total Physical Examinations . . . . .	1866	2024	3890
<u>Laboratory Examinations</u>			
<u>Clinical Laboratory</u>			
Government . . . . .	132	134	266
Pre-employment, Termination, Transfer. . . . .	3565	3611	7176
Annual . . . . .	1699	1492	3191
Recheck (Area) . . . . .	544	555	1099
First Aid . . . . .	51	14	65
Clinic . . . . .	626	560	1186
Hospital . . . . .	5079	4648	9727
Public Health . . . . .	9	26	35
Total . . . . .	11705	11040	22745
<u>X-Ray</u>			
Government . . . . .	24	29	53
Pre-employment, Termination, Transfer. . . . .	586	548	1134
Annual . . . . .	276	260	536
First Aid . . . . .	305	260	565
Clinic . . . . .	411	303	714
Hospital . . . . .	395	336	731
Public Health . . . . .	0	4	4
Total . . . . .	1997	1740	3737
<u>Electrocardiographs</u>			
Industrial . . . . .	25	35	60
Clinic . . . . .	9	9	18
Hospital . . . . .	55	54	109
Total . . . . .	89	98	187



MEDICAL DEPARTMENT

FEBRUARY 1952

Industrial Medical Section (Continued)

<u>First Aid Treatments</u>	January	February	Year to Date
<u>Operations</u>			
New Occupational Cases . . . . .	433	384	817
Occupational Case Retreatments . . . . .	1570	1336	2906
Non-occupational Treatments . . . . .	2986	3309	6295
Sub-total . . . . .	4989	5029	10018
<u>Construction</u>			
New Occupational Cases . . . . .	893	940	1833
Occupational Case Retreatments . . . . .	3702	4008	7710
Non-occupational Treatments . . . . .	1172	1363	2535
Sub-total . . . . .	5767	6311	12078
Facility Operators . . . . .	36	31	67
Total First Aid Treatments . . . . .	10792	11371	22163
<u>Major Injuries</u>			
General Electric . . . . .	2	0	2
Contractors . . . . .	20	30	50
Total . . . . .	22	30	52
<u>Sub-major Injuries</u>			
General Electric . . . . .	2	0	2
Contractors . . . . .	15	13	28
Total . . . . .	17	13	30
<u>Absenteeism Investigation</u>			
Total No. calls requested . . . . .	31	13	44
Total No. calls made . . . . .	31	13	44
No. absent due to illness in family . . . . .	1	0	1
No. not at home when call was made . . . . .	6	0	6

MEDICAL DEPARTMENT

FEBRUARY 1951

Hospital Section

General

The average daily adult census increased from 91.8 to 94.7, as compared to 90.7 a year ago. This represents an occupancy percentage of 84.6% broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) 90.9%; Obstetrical Service 62.4%. The minimum and maximum daily census during the month ranged as follows:

	<u>Minimum</u>	<u>Maximum</u>
Mixed Service	66	94
Obstetrical Service	9	20
Total Adult	83	110

The average daily newborn census increased from 9.0 to 15.4, as compared to 11.6 a year ago.

Nursing hours per patient per day:

Medical, Surgical Pediatrics	3.5
Obstetrical	3.4
Newborn	2.3

The ratio of in-patient hospital employees to patient (excluding newborn) for the month of January was 1.78. When newborn infants are included the ratio is 1.53.

The net expense for the operation of Kadlec Hospital for January was \$24,776., as compared to \$29,511. for December 1951. Summary is as follows:

Kadlec Hospital net expense \$24,776.  
This is a decrease of \$4,735. as a result of a \$15,197 increase in revenue from higher patient census and increased rates, and a \$256. increase in expense credits which more than offset the \$10,728. increase in costs. These increased costs resulted primarily from caring for a higher patient census, an accrual of December 31 salary costs into January and increased liquidation of Finance Department expenses to Medical.

Work has commenced on the 6 room addition to the Medical Wing and is progressing well.

Kadlec Hospital has been approved by the Council on Medical Education and Hospitals of the American Medical Association for an internship and residency training program. Efforts are being made to secure such personnel to begin their training in July 1952.

MEDICAL DEPARTMENT

FEBRUARY 1952

Hospital Section (Continued)	January	February	Year to Date
<u>Kadlec Hospital</u>			
Average Daily Adult Census . . . . .	91.8	94.7	93.2
Medical . . . . .	30.4	31.0	30.7
Surgical . . . . .	36.3	33.9	35.1
Pediatrics . . . . .	14.0	14.2	14.1
Mixed . . . . .	80.7	79.1	79.9
Obstetrical . . . . .	11.1	15.6	13.3
Average Daily Newborn Census . . . . .	9.0	15.4	12.1
Maximum Daily Census:			
Mixed Services . . . . .	94	94	94
Obstetrical Service . . . . .	17	20	20
Total Adult Census . . . . .	107	110	110
Minimum Daily Census:			
Mixed Services . . . . .	60	66	60
Obstetrical Service . . . . .	7	9	7
Total Adult Census . . . . .	72	83	72
Admissions: Adults . . . . .	606	563	1169
Discharges: Adults . . . . .	580	566	1146
Newborn . . . . .	63	99	162
Patient Days: Adult . . . . .	2847	2746	5593
Newborn . . . . .	278	447	725
Total . . . . .	3125	3193	6318
Average Length of Stay: Adults . . . . .	4.9	4.9	4.9
Medical . . . . .	5.5	5.6	5.6
Surgical . . . . .	4.6	4.5	4.5
Pediatrics . . . . .	4.9	5.3	5.1
Mixed . . . . .	4.6	5.0	4.9
Obstetrical . . . . .	4.6	4.2	4.4
Newborn . . . . .	4.4	4.5	4.4
Occupancy Percentage: Adults . . . . .	82.0	84.6	83.2
Medical . . . . .	104.8	106.9	105.9
Surgical . . . . .	125.2	116.9	121.0
Pediatrics . . . . .	56.0	49.0	48.6
Mixed . . . . .	92.8	90.9	91.8
Obstetrical . . . . .	44.4	62.4	53.2
Newborn . . . . .	34.6	59.2	46.5
(Occupancy Percentage based on 112 adult beds and 26 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics . . . . .	3.16	3.5	3.33
Obstetrics . . . . .	4.50	3.4	3.9
Newborn . . . . .	4.00	2.3	3.2
Avg. No. Employees per Patient (excluding newborn)	1.78		
Operations: Major . . . . .	91	84	175
Minor . . . . .	107	95	202
E.E.N.T. . . . .	84	75	159
Dental . . . . .	2	1	3
Births: Live . . . . .	65	97	162
Still . . . . .	2	1	3

MEDICAL DEPARTMENT

FEBRUARY 1952

<u>Kadlec Hospital (Continued)</u>	January	February	Year to Date
Deaths . . . . .	5	7	12
Hospital Net Death Rate . . . . .	.62	.15	.38
Net Autopsy Rate . . . . .	80.	42.9	50.9
Discharged against advise . . . . .	0	0	0
One Day Cases . . . . .	121	132	253
<b>Admission Sources:</b>			
Richland . . . . .	74.8	76.7	75.7
North Richland . . . . .	14.0	10.7	12.4
Other . . . . .	11.2	12.6	11.9
<b>Admissions by Employment:</b>			
General Electric . . . . .	67.3	71.8	69.5
Government . . . . .	2.3	2.5	2.4
Facility . . . . .	7.1	6.6	6.8
Contractors . . . . .	15.0	14.0	14.5
Schools . . . . .	3.1	.9	2.0
Military . . . . .	1.6	.9	1.3
Others . . . . .	3.6	3.3	3.5
Hospital Outpatients Treated . . . . .	399	494	893
<b>Physical Therapy Treatments</b>			
Clinic . . . . .	206	222	428
Hospital . . . . .	56	184	240
Industrial: Plant . . . . .	268	221	489
Personal . . . . .	9	8	17
Total . . . . .	539	635	1174
<b>Pharmacy</b>			
No. of Prescriptions Filled . . . . .	3447	3233	6680
No. of Store Orders Filled . . . . .	843	692	1535
<b>Patient Meals</b>			
Regulars . . . . .	4336	4660	8996
Children under 8 . . . . .	692	472	1164
Specials . . . . .	1517	1396	2913
Lights . . . . .	0	0	0
Softs . . . . .	981	927	1908
Tonsils . . . . .	164	145	309
Liquids . . . . .	278	124	402
Surgical Liquids . . . . .	90	84	174
Total . . . . .	8058	7808	15866
<b>Cafeteria Meals</b>			
Noon . . . . .	1847	1761	3608
Night . . . . .	286	255	541
Total . . . . .	2133	2016	4149

MEDICAL DEPARTMENT

FEBRUARY 1952

Public Health Section

General

With the continuation of the epidemic of German Measles, communicable diseases reported show approximately a 100% increase. Mumps also showed a mild increase. Influenza titer reports made of random blood samples taken from Richland residents indicates that there is influenza "A" prime present in the community. This is somewhat substantiated by the clinical reports from practicing physicians, and also noted in the increase of morbidity calls by the nurses.

Due to the rise in communicable diseases and morbidity, public health nurses have increased their home nursing visits by 50%.

Mr. Warren Fitch and Mr. S. Artz of the State Health Department visited the section about the hearing program. Consultations were held with several hard of hearing cases in the community.

Conferences were held with Mr. Kenneth Grimm to instigate an analysis of public health activities. Mr. Ronald Pulfer was assigned to make a detailed analysis and compare this with cost and activities of other health departments.

Miss Lydia Hopfinger was hired as Public Health Nursing Supervisor to fill a vacancy which we have had for the past ten months. Mrs. Clarice Hickey replaced Mrs. Carol Baird, Stenographer, who resigned to join her husband at an off-area site.

A meeting was attended in Yakima in relation to cerebral palsy held by Dr. Meyer Perlstein of Chicago.

The quality of the milk supply continues to be satisfactory. 115 raw milk samples and 12 pasteurized samples were analysed with satisfactory results. 49 producer farms were inspected. Two producers were approved for the shipping of Grade "A" milk. One milk producer was degraded for continued violations of the sanitation code.

Meat markets and grocery stores were inspected. Results indicated most to be in satisfactory condition. However, insanitary conditions were found to exist in some of the meat markets.

Continual stress is being placed on proper food handling in the restaurants. All restaurants are inspected on a monthly basis. The establishments in North Richland are inspected jointly by the Sanitation Officer from Camp Hanford and a sanitarian from the local Health Department.

School cafeterias were inspected. All were in excellent condition insofar as sanitation is concerned.

Bacteriological results of water and sewage samples were satisfactory. Rodent control, which consisted of poisoning, was carried on in two of the areas and in uptown shopping area. Bait was supplied and poisoning supervised by this department.

MEDICAL DEPARTMENT

FEBRUARY 1952

Public Health Section (Continued)

Representatives from the U. S. Public Health Service and State Health Department visited the office in regard to establishing a mosquito control district in this area. It is hoped that U. S. Army Engineers will carry on a program adjacent to the areas we now cover.

Mosquito control equipment is being serviced for use. Burning will be commenced in the near future.

During February the social service counselors had requests from teachers in all of the elementary schools for consultant services. In some instances children who were either in difficulty socially or were not making adequate academic progress were referred for direct therapy; in other instances the teachers were interested in receiving help which would improve their techniques of handling the children in the class room.

MEDICAL DEPARTMENT

FEBRUARY 1952

<u>Public Health Section (Continued)</u>	January	February	Year to Date
<u>Education</u>			
Pamphlets distributed . . . . .	9215	10,000	19215
News Releases . . . . .	0	3	3
Staff Meetings . . . . .	1	1	2
Classes . . . . .	1	17	18
Attendance . . . . .	18	529	547
Lectures & Talks . . . . .	10	11	21
Attendance . . . . .	276	473	749
Films Shown . . . . .	33	37	70
Attendance . . . . .	3118	1987	5105
Community Conferences . . . . .	14	24	38
Radio Broadcasts . . . . .	0	3	3
<u>Immunizations</u>			
Diphtheria . . . . .	33	16	49
Diphtheria Booster . . . . .	134	243	377
Tetanus . . . . .	75	59	134
Tetanus Booster . . . . .	83	278	361
Pertussis . . . . .	5	2	7
Pertussis Booster . . . . .	4	1	5
Smallpox . . . . .	15	41	56
Smallpox Revaccination . . . . .	319	351	670
Tuberculin Test . . . . .	5	0	5
Immune Globulin . . . . .	0	8	8
<u>Social Service</u>			
Cases carried over . . . . .	70	67	137
Cases admitted . . . . .	21	18	39
Cases Closed . . . . .	24	13	37
Remaining case load . . . . .	67	72	139
Activities:			
Home Visits . . . . .	11	1	12
Office Interviews . . . . .	160	227	387
Conferences . . . . .	78	74	152
Meetings . . . . .	7	9	16
<u>Sanitation</u>			
Inspections made . . . . .	65	146	211
Conferences held . . . . .	20	28	48
<u>Bacteriological Laboratory</u>			
Treated Water Samples . . . . .	161	173	334
Milk samples (inc. cream & ice cream) . . . . .	12	12	24
Other bacteriological tests . . . . .	267	266	533
Total . . . . .	440	451	891

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MEDICAL DEPARTMENT

FEBRUARY 1959

Public Health Section (Continued)	January	February	Year to Date
<u>Communicable diseases</u>			
Amoebic Dysentary . . . . .	0	4	4
Chickenpox . . . . .	20	16	36
Erysipelas . . . . .	0	1	1
German Measles . . . . .	80	168	248
Gonorrhoea . . . . .	1	2	3
Measles . . . . .	2	0	2
Mumps . . . . .	3	34	37
Pediculosis . . . . .	0	1	1
Pinkeye . . . . .	1	12	13
Rheumatic Fever . . . . .	0	1	1
Ringworm . . . . .	4	2	6
Scabies . . . . .	0	1	1
Scarlet Fever . . . . .	9	10	19
Thrush . . . . .	0	1	1
Tuberculosis . . . . .	0	1	1
Total . . . . .	120	254	374
Total No. Nursing Field Visits . . . . .	793	1166	1959
Total No. Nursing Office Visits . . . . .	185	276	461

MEDICAL DEPARTMENT PERSONNEL SUMMARY

February 29, 1952

	Physicians	Nurses	Anesthetists	Nurse Aides	Orderly & Am. Dr.	Technicians - Cln. Laboratory	Tech. - X-Ray	Tech. - Bac. 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
Department Admin.	2									2	1	3	4									1	2	1	18.0	
Industrial	3			1							2	1		6.975							4.4				2.4	
Hospital	2	3	25	6	6.4	4	1	1	1		3	5	11	19.5	4	2	5	11	2	2	1	8		7	10.9	
Public Health	1			1							2			1.125								.8				18.7
Industrial	2.7					2	1				1			8.4								.7				12.5
Public Health																						.3				11.5
H.J.-4																										2.0
100-B	.1					.4								.250												1.8
100-C	.1					.4								.250												1.2
100-F	.1													.250												1.3
100-H	.1													.250												1.4
101														.333												1.0
200-E	.2													.333												1.5
200-J	.3													.333												1.8
300	.2					.8								.333												2.0
100-C	.2												1.													3.5
White Bluffs	.2																									5.2
TOTAL	12	113	27	6	10	5	1	1	1	2	9	1	3	31	4	2	5	11	2	2	1	14	1	2	8	276

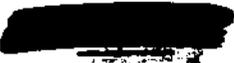
\* One working nurse on roll as technician

\*\* Four part-time nurses included

Number of employees on roll:  
 Beginning of month 274  
 End of month 276  
 Net increase 2

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Radiological Sciences Department

  
**DECLASSIFIED**RADIOLOGICAL SCIENCES DEPARTMENTFEBRUARY 1952Summary

One Class II and seven Class I radiation hazards incident investigations were reported. The level of exposure in all cases was such as to cause no real concern.

Research activities in Biology and Biophysics proceeded satisfactorily without unusual findings.

Personnel and environmental hazards monitoring results showed no significant deviation from the normal pattern.

Radiological Sciences Department

RADIOLOGICAL SCIENCES DEPARTMENT

FEBRUARY 1952

Organization

The composition and distribution of the force as of 2/29/52 was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-E</u>	<u>200-W</u>	<u>300</u>	<u>700</u>	<u>P.G.</u>	<u>Total</u>
Supervisors	0	0	4	0	1	6	11	5	0	27
Engineers *	1	0	35	0	4	23	17	3	0	85
Clerical	0	0	5	0	1	2	4	4	0	16
Others	14	4	46	3	35	63	36	9	5	237
Total	15	4	90	3	41	96	88	23	5	365

\* includes chemists, biologists, etc.

<u>Number of employees on Payroll</u>	<u>February 1952</u>
Beginning of month	367
End of month	<u>365</u>
Net decrease	2

Added to the roll were 3 personnel meters clerks, 5 technical graduates, 1 secretary, and 1 reproduction and photographic assistant. Removals included 2 personnel meters clerks, 4 technical graduates, 1 secretary, 3 laboratory assistants, 1 inspector, and 1 reproduction and photographic assistant.

General

Iodine ( $I^{131}$ ) activity in the environs was essentially the same as reported last month, with a slight increase noted in residential areas.

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EW-23698

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The following trips were reported:

- R. Borasky - University of Washington, Seattle, Wn.
- P.L. Eisenacher - GE Radiation Instruments Committee Meeting, Boston, Mass.
- C.C. Gamertsfelder - Laboratory Directors Meeting, B.N.L., and Fission Utilization Meeting, New York City
- H.A. Kornberg - Laboratory Directors Meeting, B.N.L.
- W.A. McAdams - Civil Defense Meeting, Seattle, Wn.
- H.M. Parker - Business conference, Seattle, Wn.
- R.C. Thompson, Jr. - Laboratory Directors Meeting, B.N.L.
- L.C. Schwendiman - Recruiting trip for Technical Personnel Office

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.

<u>Inventor</u>	<u>Title</u>
None	None

The two discoveries reported as inventions (one in December 1951 and one in January 1952 monthly reports) were subsequently determined to have insufficient inventive novelty to be reported as such. Accordingly, they have been withdrawn and no invention report will be submitted. These were:

- Vegetation Cutter - George R. Quimby
- Aspirator for separating liquid layers - George R. Quimby



HW-23698

Radiological Sciences Department

RADIOLOGICAL RECORDS AND STANDARDS SECTION

1. Radioactive Material Samples

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Radiological Sciences Department

2. Standards

One Class II incident, and seven Class I incidents occurred during February. The Class II incident (#30) involved an exposure of 690 mrep to a Radiation Monitoring inspector in the 105-F rear face when he was exposed to high level airborne and surface contamination from an open tube containing a ruptured slug. General skin contamination was successfully cleaned.

Among the Class I incidents, an addendum to #190 covered the secondary spread of contamination from the 105-IX waste tank, described above. Personnel was exposed to air highly contaminated with fission products in portions of the 202-S Building (#191). Significant internal exposure to tritium resulted from the 108-B Building glass line break (#192) described above. Personnel was subjected to brief high level exposure to irradiated slugs in the 105-DR rear face during ruptured slug removal work (#193), but no overexposure was indicated. A transfer line leak (#194) in the piping from 118-IX tank to the Waste Evaporator, resulted in the spillage on the ground of not more than 1000 gallons of first cycle supernate, containing an estimated 2 mg Pu and 600 mc F.P. Alpha skin contamination on a 234 Building employee (#195) could not be traced to a source at his work location. Survey of his dormitory room revealed the source to be radium salts on the luminous dial of a personally-owned compass. Laboratory analysis of contamination removed from his person confirmed the presence of radium and the absence of plutonium. A supervisor in 202-S Building inspected an open canyon cell without self-monitoring (#196), experiencing an exposure-rate of 400 mr/hr, but no overexposure was indicated.

3. Exposure Records

(a) Personnel Meters, and Records and Photometry

Pencils

Area	Single Readings 100-280 mr	Paired Readings 100-280 mr	Single Readings Over 280 mr	Paired Readings Over 280 mr	Lost Readings	Pencils Read
100-B	86	1	54	1	4	15,898
100-D	88	0	72	0	3	15,866
100-F	55	0	25	0	6	12,206
100-H	17	0	12	0	3	8,906
200-EM	124	1	85	2	0	31,156
200W Const.	92	0	66	0	3	17,236
200-W	208	1	142	0	2	36,482
Redox	138	1	102	0	3	23,026
300	138	1	76	0	0	27,332
Total	946	5	634	3	24	188,108
Year to date 1935		12	1092	9	35	357,450

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Of the eight significant pencil readings, one was confirmed by badge result and did not constitute an overexposure. Of the 24 lost pencil readings, the badge result showed no significant exposure in 17 cases. In the remaining 7 instances, the badge reading was also lost, but investigations completed on 5 cases showed low probability of significant exposure; and investigation is still in progress in the 2 remaining cases.

Badges

Area	Number Readings				Lost Readings	Badges Processed
	100-300 mrep	300-500-mrep	500-1000 mrep	Over 1000 mrep		
100-B	17	1	1	0	0	2,932
100-D	32	1	0	0	3	3,115
100-F & F11	11	0	0	0	1	2,603
100-H	429	0	0	0	3	2,471
200-E	19	0	0	0	1	2,655
200N & RRT	0	0	0	0	0	550
200-W	69	4	0	0	2	5,301
Redox	25	2	0	0	2	2,517
300	145	6	0	0	1	7,335
224-U	0	0	0	0	0	2,083
<b>Total</b>	<b>747</b>	<b>14</b>	<b>1</b>	<b>0</b>	<b>13</b>	<b>31,562</b>
<b>Year to date</b>	<b>1072</b>	<b>20</b>	<b>1</b>	<b>0</b>	<b>30</b>	<b>70,644</b>

Of the 15 readings above 300 mrep, 2 were overexposures occurring in Class II incident #29. Investigation of the other 13 readings indicated that no exposure exceeding the weekly permissible limit occurred. Review of the 13 instances of lost badge result shows:

- 5 cases, pencils also lost, investigation indicates low probability of significant exposure.
- 1 case, pencil results and investigation indicates low probability of significant exposure.
- 1 case, pencils not issued, investigation indicates low probability of significant exposure.
- 5 cases, pencils show no significant gamma exposure, investigation in progress.
- 1 case, pencils not issued, investigation in progress.

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In addition to the lost badge results, the identity of 425 film packets issued in the 100-E Area covering the period of February 5 through February 18, 1952, was lost due to a process error, caused by improper operation of the X-ray machine used to mark the payroll numbers on the film. This error did not interfere with reading the radiation dosage shown by the film, and 384 of the films showed zero exposure; 40 showed 35 to 70 mrep; and 1 film showed 125 mrep. Investigation showed that 94 of the personnel involved had not entered the 100-E Area during this period, and accordingly a zero exposure was entered on their exposure record. The exposure records of the other 331 personnel involved were charged with the maximum possible exposure of 125 mrep.

### Badge Resume - Construction Areas

Area	Number Readings				Lost Readings	Badges Processed
	100- 300 mrep	300- 500 mrep	500- 1000 mrep	Over 1000 mrep		
100-C	0	0	0	0	1	2,179
200-E	6	2	0	0	2	4,473
200-W	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>4,157</u>
Total	27	2	0	0	4	10,809
Year to date	48	3	0	0	14	22,064

### Lost Readings

<u>Operations</u>		<u>Construction</u>	
Badge lost in Area	- 5	Badge lost in Area	- 2
Packet lost in Area	- 3	Not packaged	- 1
Lost in processing	- 1	Exposed to I-ray	- $\frac{1}{4}$
Stuck film	- 1	Total	- $\frac{1}{4}$
Faulty film	- 1		
Badge dropped in water	- 1		
Light struck	- $\frac{1}{13}$		
Total	- 13		

Total badges processed 1952,	Operation	-	70,644
	Construction	-	22,064
	Total	-	<u>92,708</u>

In addition to the badge program, a total of 1,079 items of a non-routine nature was processed during the month.

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HW-23698

**Radiological Sciences Department**

Slow Neutron Pencil Summary

	<u>100-B</u>	<u>100-D</u>	<u>100-DR</u>	<u>100-F</u>	<u>100-H</u>	<u>Total</u>	<u>Year to date</u>
Pairs issued	34	63	50	17	296	460	835
Significant readings	9	2	1	0	23	35	89
Significant readings- above 50 mrem	0	0	0	0	0	0	0

Neutron Film

<u>Badges Processed</u>	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>	<u>Year to date</u>
Personnel	16	106	15	101	62	0	300	802
Special	0	0	0	0	7	0	7	22

(b) Bioassay

1) Plutonium analyses:

	<u>January</u>	<u>February</u>	<u>Year to date</u>
Samples assayed	466	708	1174
Control samples	68	74	142
Results over detection limit	1	5	6
Maximum d/m/sample	0.50	1.10	
Resamples of previous months	1	1	2
Maximum d/m/resample	(still in process)	BDL*	

\*below detection limit.

2) Fission Product Analyses:

Samples assayed	455	816	1271
Control samples	66	103	169
Results over 10 c/m/sample	0	0	0

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HW-23698

Radiological Sciences Department

3) Uranium Analyses:

Results of 441 samples were as follows:

METAL PREPARATION - 300 AREA

<u>Job description</u>	<u>End of 4th Day Exposure</u>			<u>After 1 Exposure-free Day</u>		
	<u>Maximum</u>	<u>Average</u>	<u>Number Samples</u>	<u>Maximum</u>	<u>Average</u>	<u>Number Samples</u>
Canning	38	6	43	6	2	30
Machining	59	13	54	130	11	36
Malt Plant	90	14	43	18	8	29
Material Handling	250	23	24	37	9	19
Testing	12	6	14	10	5	6
305 Building	3	3	1	3	3	1
Clerical	5	3	2	2	1	2
Coverage	17	8	8	12	6	6
Radiation Monitoring	-	-	0	6	5	2
Car unloading	8	<u>After Job</u> 4	17	2	<u>Before Job</u> 1	19

<u>224-U BUILDING, 200-W</u>	<u>ng/liter</u>		<u>Number Samples</u>
	<u>Maximum</u>	<u>Average</u>	
UO <sub>3</sub> Conversion Operations	15	1	83

4) Tritium Analyses:

	<u>Activity Density (mc/cc x 10<sup>3</sup>)</u>							<u>Total Samples</u>
	<u>&lt; 2</u>	<u>2-5</u>	<u>5-10</u>	<u>10-20</u>	<u>20-35</u>	<u>35-65</u>	<u>&gt;65</u>	
No. Samples-Operating Personnel	604	213	142	32	9	9	7	1016
No. personnel involved	100	34	19	8	3	3	2	169
No. Samples-Construction Personnel	17	0	0	0	0	0	0	17
No. personnel involved	8	0	0	0	0	0	0	8

Radiological Sciences Department

Thyroid Checks

All thyroid checks were below the warning level.

Hand Score Summary

There were 57,320 alpha and 75,526 beta hand scores reported. About 0.07% of the alpha scores, and 0.05% of the beta scores were over the warning levels. Decontamination was successful in all cases of high scores.

4. Calibrations

	<u>Number of Routine Calibrations</u>		<u>Year to date</u>
	<u>January</u>	<u>February</u>	
Fixed Instruments (Gamma)	152	256	408
Portable Instruments			
Alpha	195	305	500
Beta	409	545	954
Gamma (Radium)	997	1235	2232
I-ray	0	16	16
Neutron	6	15	21
Total	<u>1,607</u>	<u>2,116</u>	<u>3,723</u>
Personnel Meters			
Beta	868	933	1801
Gamma (Radium)	6752	6720	13472
I-ray	6969	6811	13780
Neutron	179	95	274
Total	<u>14,768</u>	<u>14,559</u>	<u>29,327</u>
Grand Total .....	16,527	16,931	33,458

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BIOPHYSICS SECTION

CONTROL UNIT

Regional Survey

The general findings are summarized in the following table:

<u>SAMPLE TYPE AND LOCATIONS</u>	<u>Activity Type</u>	<u>Average Activity Density µc/cc</u>
<u>Drinking Water</u>		
Benton City Water Co. Well	alpha	$1.3 \times 10^{-8}$
Richland, N. Richland, Benton City Wells	alpha	$0.5-1.3 \times 10^{-8}$
100 Areas	beta	$3.5 \times 10^{-7}$
Pasco, Kennewick, McNary Dam	beta	$< 0.5-2.5 \times 10^{-7}$
Backwash Solids-Pasco Filter Plant	beta	$1.2 \times 10^{-2} (\mu\text{c/gm})$
Backwash Liquids-Pasco Filter Plant	beta	$1.0 \times 10^{-6} (\mu\text{c/gm})$
Sand Filter -Pasco Filter Plant	beta	$1.2 \times 10^{-5} (\mu\text{c/gm})$
Anthracite Filter-Pasco Filter Plant	beta	$6.4 \times 10^{-5} (\mu\text{c/gm})$
<u>Other Waters</u>		
300 Area Wells #1, 2, 3	alpha	$1.2-7.8 \times 10^{-8}$
300 Area Well #4	alpha	$2.1 \times 10^{-7}$
Well #4 measured as Uranium	U	$2.0 \times 10^{-7}$
48 Wells on the reservation	beta	$< 5.0 \times 10^{-8}$
Columbia River-Hanford Ferry (South Bank)	beta	$5.9 \times 10^{-6}$
Columbia River-Patterson to McNary	beta	$4.7 \times 10^{-7}$
Columbia River-Shore Mad	beta	$0.2-1.0 \times 10^{-4} (\mu\text{c/gm})$
Raw water-Operating areas	beta	$0.4-1.1 \times 10^{-6} (\mu\text{c/gm})$
Pile Effluent retention Basins	beta	$1.0-1.8 \times 10^{-3}$
Pile Effluent retention basins	alpha	$< 5.0 \times 10^{-9}$
I131 in farm wastes	I131	$8.2 \times 10^{-6}$
I131 in Columbia River-Hanford	I131	$2.8 \times 10^{-7}$
<u>Atmospheric Pollution</u>		
Gross alpha emitters	alpha	$< 0.4-1.3 \times 10^{-14}$
Gross dose rate -Separations areas	beta-gamma	$0.5-1.8 \text{ mrep/day}$
Gross dose rate -Residential areas	beta-gamma	$0.5-1.2 \text{ mrep/day}$
Filterable Beta -Separations areas	beta	$1.0-5.6 \times 10^{-12}$
I131 -Separations areas	I131	$1.0-7.0 \times 10^{-12}$
I131 from Separations stacks	I131	$1.4 \text{ C/day}$
Active Particles -Wash., Idaho, Ore., Mont.	--	$5 \times 10^{-3} \text{ ptls/meter}^3$
Active Particles -Hanford Works	--	$0.01-0.1 \text{ ptls/meter}^3$
Tritium (as oxides) -Riverland to Hanford	T	$< 4 \times 10^{-9}$
Tritium (as oxides) -Reactor stacks	T	$0.6-4.6 \times 10^{-8}$

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HW-23698

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Regional Survey - Continued

SAMPLE TYPE AND LOCATIONS

Activity Type

Average Activity Density  
nc/cm

Vegetation

Environments of Separations areas	I131	1 - 20 x 10 <sup>-4</sup>
Residential areas	I131	3 to 7 x 10 <sup>-5</sup>
Eastern Wash. and Oregon	I131	<3 to 18 x 10 <sup>-6</sup>
Non-volatile beta emitters -Wash. & Ore.	beta	1 to 6 x 10 <sup>-5</sup>
Alpha emitters -Separations areas	alpha	Trace to 6 x 10 <sup>-7</sup>
Alpha emitters -300 Area	alpha	3 x 10 <sup>-6</sup>

Analytical Control Laboratory

Routine analyses were carried out as follows:

Laboratory

<u>Type Sample</u>	<u>Analyses Completed</u>	
	<u>February</u>	<u>Year to Date</u>
Vegetation	1252	3072
Water	2288	4410
Solids	308	706
Air samples	601	1128
Fluorophotometer	496	935
Special survey samples (RMD)	31	67
Dow background study (water total alpha)	57	107
<b>Total</b>	<b>5033</b>	<b>10425</b>

Counting Room

Beta measurements (recounts included)	5624	11635
Alpha measurements (recounts included)	3347	6973
Control points (beta and alpha)	2615	5776
Decay curve points	3322	6372
Absorption curve points	403	439
<b>Total</b>	<b>15311</b>	<b>31195</b>

Ten samples of water from the 107 waste effluent basins were analyzed for short half-life emitters.

The Bioassay analytical work for the P-10 program was transferred to the 108-B laboratory during the month.

Control Services

The general equations for the building of fission products during irradiation and the equations for their subsequent decay after irradiation were computed.

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Theoretical decay curves were calculated for the isotopes found in 107 water, and these curves were compared with the decay functions of total beta activity in the water-as-measured experimentally. The computation of statistical control limits for spike checks was completed based upon the 99.7% probability level. A study of the reproducibility of vegetation sampling was completed, and a study of activity absorption by depth in a soil column was started.

Synoptic Meteorology

<u>Forecasts</u>	<u>Number made</u>	<u>February</u>	
		<u>Number made</u>	<u>Percent Reliability</u>
Production	87		79.3
24-hour	58		84.8
Special	16		75.0

Temperatures were considerably above normal during the first 11 days, considerably below normal from the 17th to the 24th, and near normal during the remaining periods. The overall monthly average of 36.7°F was 1.2°F above normal. The monthly high, 55°, occurred on 3 of the first 4 days. The monthly low, 16°, occurred on the 20th.

Precipitation totalled 0.50 inch; 0.13 inch below normal. Snowfall, practically all of which occurred on the 19th, totalled 3.1 inches; bringing the winter's total to 15.5 inches, close to the seasonal normal.

There was a notable lack of both fog and wind during the month. Light fog occurred only during brief periods on the 1st, 3rd, and 4th. The overall monthly average wind speed was 5.5 mph at 50 feet, and 8.5 mph at 400 feet, representing respective departures from normal of -1.9 and -2.8 mph.

ENVIRONMENTAL HAZARDS AND GENERAL STUDIES UNIT

1. Experimental Meteorology

The computations of trajectories of hypothetical emission clouds were continued. The analysis of data from the outlying meteorological stations was also continued. Approval has been obtained from the FCC which will permit the radiotelemetering of data from these stations.

2. Geology-Hydrology

Ground water contamination zones beneath the 200 Areas remained at previously established levels. Continued studies of the nitrate ion concentrations indicate a very good correlation with the radioactive contamination in the 361-T Area.

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HW-23698

## Radiological Sciences Department

Well 224-T-9, located about 100 feet southwest of the 241-T second cycle crib, was sealed at the bottom and perforated at depths where the ground contamination was greatest. A fission product analysis of liquid from this well indicated that about 96% of the activity was due to  $Rn^{106}$ , with the remainder spread between the rare earths, and yttrium, strontium and cesium.

The beta activity in the 108-B Area wells increased by a factor of about 8 since last month, which emphasizes the possibility of a leak either in the retention basin or the effluent line. No detectable tritium was found in any of these samples.

The 300 Area wells remained at previously established levels except for increases in the wells near the old retention pond which is again being used.

### 3. Soil Science

Particle size distribution analyses of soil samples from the 303-13 well, located west of the 300 Area, indicated that the strata between the 66 foot and 84 foot levels and the 174 foot and 192 foot levels contained from 20% to 40% silt, and from 13% to 36% clay. The rest of the strata are made up of sands and gravel, with less than 10% of silt and clay combined.

### 4. Industrial Hygiene

A study is being made to correlate the air sampling results obtained in the Metal Preparations Area by Industrial Hygiene with those which have been obtained by Radiological Monitoring. Also being studied are the relationships between the operator's actual exposure and the results of excretion data obtained by Bioassay.

Studies of non-radioactive hazards were made on: (1) the oxides of nitrogen discharged from the 200 Area process stacks; (2) trichloroethylene degreasers in the 105-C Building; and (3) irritating gases encountered in the process tank in the 321 Building.

### 5. Methods

The installation of facilities for sampling of the T Plant stack effluent has been practically completed, and preliminary tests indicate satisfactory operation. The equipment for  $I^{131}$  constant monitoring is completed and ready for installation. The Kanne Chamber for  $Xe^{133}$  monitoring has been in operation during the entire month. The background does not appear to be increasing

## Radiological Sciences Department

beyond 1% to 2% of the maximum reading recorded during dissolving. Some work is being started on the calibration of the Kanne Chamber.

The final portion of the third survey of the Columbia River has been completed, and the results are being correlated for interpretation. A study of the correlation between river flow and velocity is being studied for use in analysis of the data obtained in the survey. Results available at present are insufficient to completely define the characteristics of this pattern. Further revision of the empirical diffusion analysis in the Columbia River has indicated factors which complicate the present method of attack. Further studies of methods used by other investigators are now in progress.

Testing of the ether extraction procedure developed for the Control laboratory indicated that satisfactory results are obtained with soil and 500 milliliter water samples for both plutonium and uranium. Low, variable yields were obtained with vegetation and 3-gallon water samples.

Procedures for the separation of ruthenium from vegetation have been unsatisfactory due to high blanks and low, uncertain yields. Further work on the basic chemistry of the ruthenium and methods of separation from organic residues is planned.

The study of noble gases in the pile effluent water was devoted to the design and installation of a constant monitoring unit which scrubs the gases from the water with a counting gas mixture and measures the activity on a proportional counter. Good results were obtained with this equipment in the laboratory, and an installation is now being made at the 100-DR Area. It is believed that the increase in these noble gases due to a ruptured slug will be sufficient to provide a significant increase above normal background.

#### 6. Radiochemical Standards

The ionization current measurements undertaken last month to establish whether adsorption is significant in internal tritium counting were discontinued. Wall effects in the 1-inch diameter tube for pressures from 60 cm. to 5 cm. were shown to be highly significant in experiments in which the ion current from a constant amount of tritium was measured as a function of total hydrogen pressure. Since adsorption and wall effects result in qualitatively similar ion current changes, no conclusions were reached as to the importance of adsorption at low pressures.

An apparatus is being prepared for diluting pure tritium samples for direct counting and burning to obtain water for tritium regeneration and counting.

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HW-23698

Radiological Sciences Department

The study of mounting and counting techniques for  $I^{131}$  samples was continued using the standardized U.S.B.S.  $I^{131}$  solution. Aliquots mounted as point sources with 0.02 to 0.1 mg NaOH and KI gave disintegration rates within  $\pm 2\%$  of the quoted value of the U.S.B.S. Sources mounted as spread sources checked the U.S.B.S. value to  $\pm 4\%$ .

Experiments with the simultaneous alpha-beta counter were continued to determine the effect of alpha channel sensitivity on the performance of the unit. At low sensitivities, an appreciable fraction of alpha pulses were recorded in the beta channel. At high sensitivities, pure beta emitters gave pulses which recorded in the alpha channel. At optimum settings, some beta particles were still recorded in the alpha channel, and some alphas in the beta channel.

Additional data were obtained for thin mica window tubes for correcting beta counting rates for backscatter, absorption, and geometry. Preliminary data were obtained for determining the efficiency of counting a sample cell for noble gases on thin mica window tubes.

RADIATION MEASUREMENTS

1. Physics

A counter specifically designed for measuring the I-rays from plutonium is being constructed. The sensitivity should be considerably better than that of the counter reported on last month.

The outer can was removed from the Po Be neutron source so that checks could be made on the effect of the heavy end pieces on the asymmetry in its emission. Considerable Po contamination was found on the inner wall of the can and on the source, but no reason was found for thinking that this was due to leakage from the inside of the can.

The neutron extrapolation chamber design was changed somewhat because of troubles with the collection of ionization from other than the intended collecting volume.

Some attempts have been made to increase the sensitivity of the fast neutron scintillation counter by using different concentrations of zinc sulfide in the hydrogenous material. There is some increase in sensitivity by using smaller concentrations. The apparent sensitivity of any one sample seems to decrease with time.

The tests on the changes in geiger counter characteristics during life tests are continuing.

## Radiological Sciences Department

2. Instrument Development

Studies are being conducted in an attempt to get a counting mixture for the Dewitt (air-methane proportional counter for detection of airborne tritium) which will not be inflammable. So far, there is some promise that a mixture of helium with iso-butane with the air will be useable, although the counting rates are only about 37% of normal. Experiments with helium-air mixtures indicate they might work with the use of a special quench circuit, but it requires about 4000 volts on the counter which is somewhat excessive.

Some improvements have been made on the alpha pulse height analyzer so that drift and noise troubles are almost completely eliminated and the resolution of the system is about 40 Kev at half amplitude for pulse generator signals.

The scintillation needle probe now operates with a 3 mm. diameter crystal on the end of a 3.5 cm. needle. Efficiency has not been determined exactly, but it is quite low. An attempt is being made to get some needle type GM tubes for comparison. Special scintillation counters for measuring gamma radiations have been built for: (1) river monitoring; and (2) for the Biology laboratory. The laboratory counter has a 20% efficiency for Cs<sup>137</sup> gamma rays.

An improved light shield has been devised for alpha scintillation survey probes which makes use of several layers of aluminum foil glued together with collodion. One such screen has been in operation for 1.5 months without failure.

A simple electrometer circuit was installed in the GE vapor proof survey meter. Circuit response was quite slow because of built-in capacitance of the chamber electrode.

An experimental air monitor which records the data from two separate collector systems, alternately connected to an air pump, has been started on initial test runs. The data are printed on an L & N Micromax recorder on a pseudo-logarithmic scale arranged so that the low counting rates are indicated on a linear scale while the less likely higher rates are available but compressed on the scale.

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Radiological Sciences Department

BIOLOGY SECTIONAQUATIC BIOLOGY UNITBiological Chains1. Algae-Trou Relationships

Due to continued low temperatures of 5% pile effluent and associated low metabolic rate, the fish have practically ceased to feed. Consequently, activity densities of the fish receiving contaminated algae in their diet are not different from the controls.

2. Retention Basin Algae Control

With the exception of the Navy formulation, patches of anti-fouling paint applied to a wall of the 107-F Basin last November appear to be withstanding test conditions satisfactorily. The former, applied over a priming coat of red lead, is blistering badly. The Rudd Paint Company products have given satisfactory performance on the metal base, thus far.

Ecology1. Survey of the Columbia River

In the vicinity of Hanford, substantial increases in activity densities of plankton and bottom algae were observed, while the activity of the invertebrates and fish declined to about half that of last month. Average values obtained were: plankton,  $2.4 \times 10^{-3}$   $\mu\text{c/g}$  (a new record high); bottom algae,  $2.7 \times 10^{-3}$   $\mu\text{c/g}$ ; caddis fly larvae,  $1.0 \times 10^{-3}$   $\mu\text{c/g}$ ; and small fish,  $0.13 \times 10^{-3}$   $\mu\text{c/g}$ . One adult squawfish was caught which had a maximum activity density of  $1.6 \times 10^{-5}$  in the kidney; activity in the flesh amounted to only  $6 \times 10^{-6}$   $\mu\text{c/g}$ .

Effluent Monitoring1. Effect of Pile Effluent on Silver Salmon

In the routine effluent monitoring, all of the silver salmon eggs completed hatching early in the month. Mortalities of 32% and 13%, respectively, occurred in the 10% and 5% concentrations of the effluent, and were significantly greater than the 11% mortality in the controls. No significance is presently attached to the higher mortality rate in the lower concentrations.

Radiological Sciences Department

2. Effect of Pile Effluent Retention Time on Activity Densities of Aquatic Organisms

Comparative activity densities of organisms subjected to pile effluent water with and without the normal retention period were determined. The difference in level in healthy algae, caddis fly larvae, and snails was slight, and of doubtful significance. Preliminary observations indicated that activity densities of carp in the two environments were about the same.

BIOLOGICAL SERVICES UNIT

Biological Monitoring

1. Waterfowl

Tissue activity densities of ducks exposed to fission products at 200-North Area for 260 days indicate a tendency toward equilibrium. Maximum density detected during the month was  $2.2 \times 10^{-2}$   $\mu\text{c/g}$  in sternum, followed closely by that in an ovarian follicle.

Wild waterfowl sampled during the month exhibited no tissue activity density exceeding the chronic MPC of  $\text{P}^{32}$  in man; however, an average density of  $2.0 \times 10^{-4}$   $\mu\text{c/g}$  was noted in all tissues (other than thyroid) of one bird. This is the greatest average value yet observed in wild waterfowl.

2. Upland Wildlife

A decrease in thyroid activity densities from last month was noted in jack rabbits taken in the vicinity of the Prosser barricade and the Meteorology Tower, while those near 200-East Area remained stable.

<u>Locality</u>	<u>Specimen</u>	<u>Maximum (<math>\mu\text{c/g}</math>)</u>	<u>Average (<math>\mu\text{c/g}</math>)</u>
Meteorology Tower	Jack rabbit (5)	0.045	0.032
200-East Area	Jack rabbit (5)	0.025	0.019
Prosser Barricade	Jack rabbit (5)	0.024	0.015

Clinical Laboratory

Nine hundred and sixty-three determinations.

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HW-23698

Radiological Sciences Department

Microscopy

1. Histology

Routine histological preparations.

2. Electron Microscopy

Calibration of the instrument was begun, and a metal evaporator for shadow-graphing was transferred from Industrial Hygiene to this laboratory.

Radiochemistry Laboratory

1. Radioactivity in Carcasses

No report.

2. Analytical Services

Analytical services to other units included 84 other extractions, 92 TTA determinations of Pu in biological samples, the preparation of 45 isotope solutions, and approximately 6,000 alpha and beta counts.

3. Analytical Techniques

A second hydrogen counter for tritium arrived from the Radiation Measurements Unit of the Biophysics Section. Initial tests indicated very satisfactory operation with improvement in ease of maintenance in contrast to the older instrument.

Efficiency of the windowless GM flow counter was compared with a standard mica window counter using sources of Cs, Co, and S. Its geometry ranged from 43% to 54%.

METABOLISM UNIT

Animal Metabolism

1. Low-Level Chronic Plutonium Absorption and Deposition in the Rat

Soft tissue analyses for rats which were on the lowest plutonium feeding level were completed. Based on an average of 84% recovery from spiked samples, soft tissue plutonium content ranged from 0 to 7.7 d/m per carcass. Only skeleton analyses remain to be completed for this group. Some difficulty with analytical procedures, as evidenced by low spike recoveries, is being experienced with these skeleton samples.

Radiological Sciences Department

2. Percutaneous Absorption of Plutonium

One hundred lambda of 4 N HNO<sub>3</sub> containing  $7 \times 10^7$  d/m of Pu (IV) were placed on an area of 1.1 cm<sup>2</sup> of the shaved thigh of 3 rats for each of the time intervals, 15, 30 and 60 minutes. Analyses of the livers, taken from these animals immediately following exposure, showed the following average activity densities:

15 minute exposure	-	0.06 d/m/gm
30 minute exposure	-	0.43 d/m/gm
60 minute exposure	-	7.22 d/m/gm

3. Distribution and Retention of Tritium in the Rat. II. Compound Separation

Analyses were completed on the pelt fractions from the group of rats sacrificed approximately 4 months after injection of 0.1 curie tritium oxide per rat. Results are tabulated below (all figures are per 100 g fresh weight of pelt):

<u>Protein Fractions</u>	<u>Weight of Fraction (g)</u>	<u>Total T (nc)</u>	<u>T (nc/g)</u>
Water soluble	0.89	0.33	0.37
0.9% saline soluble	0.56	0.39	0.70
6.0% saline soluble	1.15	1.90	1.65
Hot water soluble	8.10	11.90	1.47
Insoluble in above	4.70	11.20	
Supernatants	4.28	3.70	
Total protein detd.	19.68	29.40	
<u>Fat Fractions</u>			
Phospholipids	0.48	0.15	0.31
Non-saponifiable	0.17	0.06	0.35
Satd. fatty acids	6.92	3.92	0.57
Unsatd. fatty acids	3.78	1.29	0.34
Total fats detd.	11.35	5.42	

4. Distribution and Retention of Tritium in Sheep

Bound tritium activity in the red-cell protein has remained fairly constant over the interval from 30 to 70 days following tritium oxide administration. Globulin activity was lost with an apparent biological half-life of 20 days, and albumin with a half-life of 30 days.

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HW-23698

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Radiological Sciences Department

### 5. Percutaneous Absorption of Tritium Oxide

The effect of water vapor pressure on the percutaneous absorption of tritium oxide was studied, using methods previously described except that the water solution through which the air was passed contained sodium hydroxide at a concentration sufficient to lower the vapor pressure to the desired value. The results obtained have not yet been statistically analyzed, but it seems apparent that the percutaneous absorption of tritium oxide is directly proportional to the concentration of tritium oxide in the atmosphere, and is independent of the total water vapor pressure.

### Microbiology

#### 1. Determination of RBE's by Microbiological Methods

Dose measurements of the radiation from T, S<sup>35</sup>, and P<sup>32</sup>, by phenol production were compared with radiation dosage calculated from activity density measurements. Excellent agreement was found in the case of T and S<sup>35</sup>. For P<sup>32</sup>, the calculation was somewhat higher than the measurement, which was to be expected since the calculation did not include a correction for the absorption of energy by the test tube walls.

Using the dose rates determined from phenol production, and the isotope inhibition of L. casei growth, the relative biological effectiveness of the isotopes was observed to be in the ratio P<sup>32</sup>: S<sup>35</sup>: H<sup>3</sup> = 1.0:1.1:1.3. These values were obtained from one test and should be confirmed by others before acceptance.

Experiments were performed to correlate the optical density of L. casei cultures with actual bacterial population. Direct proportionality was observed for non-irradiated cultures. For heavily irradiated cultures (50 mR/ul), clumping and apparent fusion of cells prevented significant comparisons. Samples of bacteria from control and irradiated cultures have been fixed for study by optical and electron microscopy.

### Plant Nutrition

#### 1. Absorption and Translocation of Fission Product and Pile Effluent Radionuclides

Absorption and translocation of cesium by bean plants was studied over a period of 32 days. The presence of 1.0 p.p.m. cesium in nutrient solution caused a

## Radiological Sciences Department

small but significant decrease in total dry weight of plants as compared to controls. No other toxic effect was visible. The maximum concentration of cesium, about 100  $\mu\text{g/g}$  dry tissue, was attained in the older leaves. This represents a concentration factor of approximately 10 over the concentration in the nutrient environment. The tendency for redistribution of cesium in the plant tissues was remarkably slight, considering the solubility of the ion.

## 2. $I^{131}$ Vapor Absorption and Translocation

A new exposure apparatus was completed during the month. Four experiments with red kidney bean plants were performed.

## 3. Absorption and Metabolism of Tritium Oxide and Tritium Gas by Vascular Plants

The uptake of tritium oxide from nutrient solution and the fixation of tritium in the tissues of bean plants are not greatly affected by changes in pH of the nutrient environment. All processes seem to be somewhat faster at lower pH values.

### Plant Metabolism

#### 1. Radiation Damage to Plants. I. Algae

Previously reported observations on the effect of  $\text{Sr}^{90}$  and  $\text{Y}^{90}$  have been confirmed. The optical density of algae cultures up to values of 6 or 7 was shown to be directly proportional to cell mass but not proportional to cell number, the size of the cells decreasing with age of the culture. Sulfur content of algae cells was found to be relatively unaffected by concentration of sulfur in the medium. Calcium content of the cells was found to be proportional to the calcium content of the medium.

#### 2. Metabolism of Tritium Oxide by Algae

Previous observation indicating isotopic fractionation of protium and tritium was confirmed and extended.

### TOXICOLOGY UNIT

#### Experimental Animal Tests (Toxicology of $I^{131}$ )

##### 1. Low-level Chronic Effects

Two sets of twins and two single lambs were born to four ewes that formerly

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HW-23698

Radiological Sciences Department

received 480  $\mu\text{c}/\text{day}$  for 450 days. One single lamb and one member of a set of twins was stillborn. The viable lambs appeared normal although their birth-weights were considerably lower than observed in control animals. Two of the three ewes with lambs have failed in lactation. A 45  $\mu\text{c}$  tracer dose of  $\text{I}^{131}$  was administered to these ewes prior to parturition. The lambs exhibited considerable thyroïdal uptake.

The first two losses of original ewes in the 5  $\mu\text{c}$  level group occurred during this period. ~~Peracute pneumonia~~ was the immediate cause of death.

## 2. Thyroid Regeneration

The ewes formerly fed 240  $\mu\text{c}/\text{day}$  for 450 days were given a 45  $\mu\text{c}$  tracer dose of  $\text{I}^{131}$ . All of the six animals exhibited a thyroïdal uptake of less than 1  $\mu\text{c}$ .

Eight rams were started on a regimen of 480  $\mu\text{c}$   $\text{I}^{131}$  on February 1, 1952. The maximum thyroïdal concentration as revealed by external count varied from 580-1400  $\mu\text{c}$ . Four of the rams have been sacrificed to date. Histological examination of the thyroïd glands will await physical decay of the  $\text{I}^{131}$  burden.

## 3. Effects of Inert Iodine and Desiccated Thyroid

The third and last lamb of the trio that received 480  $\mu\text{c}/\text{day}$  without augmentation for 27 days (last August) expired. The symptoms previously described for athyroidism were seen.

## 4. Effect of Route of Administration on Thyroid Metabolism

No progress.

## 5. Effect on Gonadal Function in the Ram

No progress.

## Physiology

### 1. Toxicology of Active Particles

No progress.

Radiological Sciences Department

## 2. Plutonium Toxicology

In a preliminary study on the general problem of comparative toxicity of plutonium in vertebrates, squawfish were analyzed after periods of from one hour to two weeks after plutonium administration. Results indicate that only a very small amount of solution will leak from the wound at the time of IP administration, and that total retention of the material is very high.

## 3. Therapeutics in Plutonium Poisoning

Pilot studies were started to define the toxicity of zirconium citrate. One adult and three young animals received from 515-665 mg/kg of zirconium intravenously in about one hour. All but one animal appeared to be fully recovered on the following day. The one death may have been prevented by immediate injection of calcium gluconate and oxygen administration.

Unfavorable reactions that occurred during and after administration included hematuria, hemorrhage in the nose and mouth, hematoma at injection site, and muscular twitching. The latter reaction which appeared after administration of 6-8 g citrate was relieved by calcium gluconate injections.

The 2.5% zirconium solution was used rather than the more dilute 0.625% solution used by Schubert.

FINANCIAL DEPARTMENT MONTHLY REPORT  
FEBRUARY, 1952

Work continued on the preparation of data for review by the Appropriations and Budget Committee and submission to the Atomic Energy Commission, for the Budget for FY 1954 and Revision of Budget for FY 1953. During the month the Committee reviewed preliminary estimates by department managers of the numbers of personnel at the beginning and close of each of the quarters of FY 1953 and at December 31, 1953 and June 30, 1954.

Work continued on the preparation of a draft of a proposed Appendix C to the prime contract, covering General Electric Company's payroll payment practices, benefit plans, etc.

A summary of cash disbursements and receipts (excluding advances from AEC) for the months of February and January, 1952 is shown below:

<u>Disbursements</u>	<u>February</u>	<u>January</u>
Material and Freight	\$ 2 900 917	\$ 2 995 567
Payrolls	2 822 661	2 406 245
Payment to General Electric Pension Trust of the Nucleonics Division portion of the Company's pension cost for calendar year 1951	1 381 532	-0-
Payroll Tax	703 548	486 682
U. S. Savings Bonds	170 180	252 412
Payments to Subcontractors	117 697	196 253
Other	548 071	221 143
Total	<u>8 644 606</u>	<u>6 558 302</u>
 <u>Receipts</u>		
Sales to AEC Cost-Type Contractors	172 337	68 211
Rents	142 908	171 440
Refund of Advance from Subcontractor	50 000	-0-
Hospital	47 516	68 298
Scrap Sales	19 768	2 926
Telephone	19 373	22 273
Bus Fares	10 904	13 078
Refunds from Vendors	4 388	77 670
Other	10 057	75 722
Total	<u>477 251</u>	<u>499 618</u>
 <u>Net Disbursements</u>	 <u>\$ 8 167 355</u>	 <u>\$ 6 058 684</u>

Advances from AEC aggregated \$3,000,000 as of January 31 and February 29, 1952 and may be summarized as follows:

	<u>February 29</u>	<u>January 31</u>
Cash in Bank - Contract Accounts	\$ 2 357 645	\$ 1 966 316
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	217 355	558 684
Advances to Subcontractors	250 000	300 000
Travel Advance Funds	<u>125 000</u>	<u>125 000</u>
Total	<u>\$ 3 000 000</u>	<u>\$ 3 000 000</u>

A summary of personnel changes in the Financial Department during the month of February is shown below:

Personnel at January 31, 1952	406
Acquisitions	9
Transfer of Engineering Accounting personnel to AEC-HOO, in connection with the transfer of accounting functions	(9)
Terminations and other transfers out	(15)
Personnel at February 29, 1952	<u>391</u>

The monthly reports of the four sections of the Financial Department, as listed below are shown on the following pages.

General Accounting Section  
 Manufacturing Accounting Section  
 Engineering Accounting Section  
 Community Accounting Section

GENERAL ACCOUNTING SECTION  
MONTHLY REPORT

February, 1952

Work in connection with preparation of budget estimates for FY 1954 and revision of previously prepared estimates for FY 1953 continued during the month. Estimates of salary costs are being based on personnel estimates furnished by department managers and approved by the Appropriations and Budget Committee. Previously established dates with respect to completion of the various phases of budget preparation are expected to be met.

As a means of better control of expenditures against appropriations requests, all such expenditures relating to appropriation requests originating with Utilities and General Services and Staff Departments are being cleared through the Construction Work in Progress account, effective February 1, 1952.

Methods for accruing for depreciation were revised this month. Previously, accruals were based on the previous month's asset balance. Revised procedure calls for basing the accrual for each succeeding six months on the balance at June 30 and December 31 of each year, with adjustments made only for major changes. A savings of forty man-hours per month resulted from this change.

Draft of Organization and Policy Guide, Plant Investment Accounting, was completed in February.

Washington's Birthday, Friday February 22, 1952, was an observed holiday at Hanford Works. Weekly salary checks for employees in the outer areas were delivered between the hours of 3:00 p. m. and 11:00 p. m. on Wednesday, February 20, 1952, and those for employees located in 700, 1100, and 3000 areas were delivered at 8:00 a. m. on Thursday, February 21, 1952.

The Office of Salary Stabilization has given approval to pay time and one-half for planned overtime worked by exempt personnel on the first \$7,500 of annual base salary. Atomic Energy Commission approval is being secured so payments can be made.

The Wage Stabilization Board has been presented for their approval General Electric's revised vacation plan. Employees would be granted three weeks of vacation after fifteen years or more of continuous service. As yet, the company has not been advised of any action on the part of the board.

Preparation for the transition to the IBM system of payroll operations is progressing satisfactorily. Checks, Earning Statements, Payroll Register, and Clock Cards to be used under the IBM payroll methods have been ordered. An IBM test run for week ended January 13, 1952, is being made to obtain sample report, etc., and to test IBM procedures.

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General Accounting Section

STATISTICS

Employees and Payroll

	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	9 093	2 093	7 000
Additions and transfers in	96	4	92
Removals and transfers out	(176)	(36)	(140)
Transfers from weekly to monthly payroll	-0-	21	(21)
Transfers from monthly to weekly payroll	-0-	-0-	-0-
Employees on payroll at end of month	<u>9 013</u>	<u>2 082</u>	<u>6 931</u>

Number of Employees

	February	January
Bargaining group - HAMTC	3 500	3 523
Bargaining group - Building Services	70	68
- Two Platoon Firemen	56	56
- Hanford Guards	612	616
Other weekly - non-bargaining	2 749	2 793
Executive, administrative and operating	1 498	1 502
Professional	506	511
Other monthly	22	24
Total	<u>9 013</u>	<u>9 093</u>

Number of Employees

Engineering	1 733	1 804
Manufacturing	3 192	3 200
Utilities & General Services	2 340	2 341
Community	204	209
Real Estate & Services	331	333
Financial	391	406
Employee & Public Relations	113	113
Radiological Sciences	365	368
Medical Services	276	274
General	25	25
Law	7	9
Accountability	22	21
Technical Personnel	14	11
Total	<u>9 013</u>	<u>9 093</u>

Overtime Payments

Weekly paid employees	\$129 885	\$119 968
Monthly paid employees	32 190 (1)	42 348 (
Total	<u>\$162 075</u>	<u>\$162 316</u>

- (1) Payments cover period February 1 through February 29, 1952, except in the case of patrolmen in the Plant Security & Services Section of the Utilities & General Services Department who were paid for period January 1 through January 31, 1952.
- (2) Payments cover period January 1 through January 31, 1952, except in the case of patrolmen in the Plant Security & Services Section of the Utilities & General Services Department who were paid for period December 1 through December 31, 1952.

General Accounting Section

Number of Changes in Salary Rates  
and Job Classifications

February  
1 117

January  
1 117

Gross Amount of Payroll

Engineering	\$ 816 838	\$ 752 817
Manufacturing	1 503 519	1 261 683
Utilities and General Services	973 592	806 460
Community Real Estate and Services	223 545	196 870
Other	498 872	432 229
Total	<u>\$4 016 166(1)</u>	<u>\$3 450 059</u>

Annual Going Rate of Payroll

Base	\$39 615 484	\$39 704 280
Overtime	1 730 259	2 110 516
Isolation Pay	1 285 195	1 286 110
Shift Differential	505 646	504 219
Other	40 073	46 739
Total	<u>\$43 176 657</u>	<u>\$43 711 864</u>

Average Hourly Base Rates

Bargaining group - HAMTC	\$2.019	\$2.005
- Building Services	1.565	1.564
- Two Platoon Firemen	1.985	1.977
- Hanford Guards	1.756	1.751
Other weekly - non-bargaining	1.715	1.704
Executive, administrative and operating	2.916	2.927
Professional	2.941	2.934
Other monthly	2.333	2.321
Total	<u>\$2.106</u>	<u>\$2.097</u>

Average Earnings Rate Per Hour (3)

	February			January		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	\$1.847	\$2.946	\$2.290	\$1.826	\$2.950	\$2.256
Manufacturing	2.207	2.983	2.340	2.185	2.983	2.324
Utilities and General Services	1.911	2.696	2.015	1.913	2.704	2.017
Community Real Estate and Services	1.981	2.478	2.152	1.975	2.472	2.142
Other	1.742	3.075	2.038	1.725	3.080	2.018
Total	<u>\$1.994</u>	<u>\$2.890</u>	<u>\$2.194</u>	<u>\$1.977</u>	<u>\$2.897</u>	<u>\$2.180</u>

% Absenteeism

	February	January
Weekly - Men	2.71	2.62
Weekly - Women	3.64	4.34
Total Weekly	2.94	3.08
Monthly	1.66	1.48
Grand Total	<u>2.65</u>	<u>2.65</u>

- (1) Includes payments for five-week period ended February 24, 1952 in the case of weekly paid employees. Excludes \$845 retroactive payments to construction workers for periods of employment between September 1, 1946 and September 30, 1951.
- (2) Includes payments for four-week period ended January 20, 1952 in the case of weekly paid employees. Excludes \$41,085 retroactive payments to construction workers for periods of employment between September 1, 1946 and September 30, 1951.
- (3) Includes shift differential and isolation pay. Excludes overtime premiums, commissions, suggestion awards, etc.

General Accounting Section

Employee Benefit Plans

Pension Plan

	<u>February</u>	<u>January</u>
Number participating at beginning of month	6 542	6 477
New participants and transfers in	100	123
Removals and transfers out	(39)	(58)
Number participating at end of month	<u>6 603</u>	<u>6 542</u>
% of eligible employees participating	94.5%	95.1%

Employees Retired

	<u>February</u>	<u>Total to Date</u>
Number	3	194
Aggregate Annual Pensions Including Supplemental Payments	\$4 396	\$47 311
Amount contributed by employees retired	\$3 300	\$40 951
(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.		

	<u>February</u>	<u>January</u>
Number who became eligible for participation	147	95
Number who applied for participation	96	( )
Number who elected not to participate	51	20

Insurance Plan (1)

Personal Coverage

	<u>February</u>	<u>January</u>
Number participating at beginning of month	9 082	9 100
New participants and transfers in	67	98
Cancellations	(15)	(25)
Removals and transfers out	(85)	(21)
Number participating at end of month	<u>9 049</u>	<u>9 082</u>
% of eligible employees participating	98.2%	98.2%

Dependent Coverage

	<u>February</u>	<u>January</u>
Number participating at beginning of month	5 573	5 550
Additions and transfers in	51	70
Cancellations	(7)	(6)
Removals and transfers out	(41)	(41)
Number participating at end of month	<u>5 576</u>	<u>5 573</u>

(1) The new Insurance Plan was made effective on December 1, 1950.

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General Accounting Section

Employee Benefits Plans (Continued)

Claims - Disability Benefits (1)

Number of claims paid by insurance company:

	<u>February</u>	<u>January</u>
Employee Benefits		
Weekly Sickness and Accident	174	157
Daily Hospital Expense Benefits	121	138
Special Hospital Services	155	161
Surgical Operations Benefits	135	121
Dependent Benefits		
Daily Hospital Expense Benefits	191	179
Special Hospital Services	229	260
Surgical Operations Benefits	137	163
Amount of claims paid by insurance company:		
Employee Benefits	\$19,870	\$31,451
Dependent Benefits	22,963	29,541
Total	<u>\$42,833</u>	<u>\$61,000</u>

Number of Disability Claims Forwarded to Insurance Company

Hospital Benefits		
Kadlec Hospital	139	138
Other Hospitals	116	136
	<u>255</u>	<u>274</u>
Weekly Sickness and Accident Benefits	150	152
Total	<u>405</u>	<u>426</u>

Claims - Death Benefits (2)

	<u>February</u>	<u>Total to Date</u>
Number	79	79
Amount	\$27,000	\$440,000

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of February 29, 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.

- (1) Statistics cover only claims paid and not all claims incurred during the month.
- (2) Total to date includes all claims under the old and new Insurance Plans and three deaths on which accidental death benefits were paid.

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General Accounting Section

Employee Benefit Plans (continued)

Vacation Plan

Number of employees granted permission to defer one week of their 1952 vacation to 1953

	February			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	5	1	6	7	3	10
Manufacturing	16	8	24	23	8	31
Utilities and General Services	34	1	35	112	8	130
Community Real Estate and Services	5	3	8	10	4	14
Financial	8	0	8	9	0	9
Employee and Public Relations	0	0	0	0	0	0
Radiological Sciences	1	0	1	1	1	2
Medical	2	0	2	2	0	2
General	0	0	0	0	0	0
<b>Total</b>	<u>71</u>	<u>13</u>	<u>84</u>	<u>174</u>	<u>24</u>	<u>198</u>

U. S. Savings Bonds	Engineering	Mfg.	Community			Total
			Utilities and General Services	Real Estate and Services	Other	
Number participating at beginning of month	938	1 526	1 034	280	592	4 370
New authorizations	8	19	16	4	13	60
Voluntary cancellations	(11)	(25)	(17)	(3)	(4)	(60)
Removals and transfers out	(20)	(7)	(8)	(4)	(3)	(42)
Transfers in	4	10	14	-0-	5	33
Number participating at end of month	<u>919</u>	<u>1 523</u>	<u>1 039</u>	<u>277</u>	<u>603</u>	<u>4 361</u>
Percentage of Participation						
G.E. Employees Savings and Stock Bonus Plan	52.1%	42.5%	53.6%	45.8%	27.3%	43.1%
G.E. Savings Plan	8.5%	11.2%	14.2%	11.8%	5.9%	10.2%
Both Plans	56.5%	47.7%	62.0%	51.8%	30.4%	48.4%
Bonds issued						
Maturity value	\$52 050	\$97 450	\$61 375	\$14 700	\$33 550	\$259 125
Number	936	1 778	1 184	266	634	4 798
Refunds issued	20	33	23	3	16	95
Revisions in authorizations	12	15	10	3	8	48
Annual going rate of deductions						
G.E. Employees Savings and Stock Bonus Plan	\$353 369	\$625 181	\$391 408	\$ 92 423	\$226 899	\$1 689 280
G.E. Savings Plan	69 516	188 093	122 089	27 838	51 627	459 163
<b>Total</b>	<u>\$422 885</u>	<u>\$813 274</u>	<u>\$513 497</u>	<u>\$120 261</u>	<u>\$278 526</u>	<u>\$2 148 443</u>

General Accounting Section

Employee Benefit Plans (continued)

Withdrawal of U. S. Savings Bonds from G. E.

Employees Savings and Stock Bonus Plan  
 Number of participants withdrawing Bonds  
 Maturity value of U. S. Savings Bonds  
 withdrawn

<u>February</u>	<u>Year to Date</u>
159	249
\$53 950	\$85 175

Check-off of Union Dues

Hanford Atomic Metal Trades Council

International Chemical Workers Union, 369  
 Instrument Craftsmen's Guild  
 International Brotherhood of Electrical Workers,  
 Local 77-111  
 International Association of Machinists, Local 1951  
 International Union of Operating Engineers,  
 Stationary Local 280  
 International Brotherhood of Teamsters, Warehousemen,  
 Garage Employees & Helpers, Local 839  
 United Association of Journeymen & Apprentices of  
 the Plumbing & Pipe Fitting Industry of the  
 United States & Canada, Local 598  
 International Brotherhood of Electrical Workers,  
 Local 77-139  
 Hanford Industrial Firemen Union, Local 37  
 International Association of Fire Fighter, Local 1052

Number of  
 New Payroll Deduction  
 Authorizations Submitted  
in February

Total submitted by H.A.M.T.C.	58
Hanford Guards Union, Local 21, of the International Guards Union of America	10
Building Service Employees International Union, Local 201 (Medical Department Employees)	1
<b>Grand Total</b>	<b><u>69</u></b>

Number of Payroll Deduction

Authorizations in Effect

	<u>1-31-52</u>	<u>Additions</u>	<u>Cancellations              And Terminations</u>	<u>2-29-52</u>
Hanford Atomic Metal Trades Council	1 097	58	13	1 142
Building Service Employees International Union, Local 201 (Medical Department Employees)	25	1	1	25
Hanford Guards Union, Local 21, of the International Guards Union of America	192	10	-0-	202
<b>Total</b>	<b><u>1 314</u></b>	<b><u>69</u></b>	<b><u>14</u></b>	<b><u>1 369</u></b>

General Accounting Section

Employees Who Have Entered Military Service

	Total to Date		
	Called to Duty	Volunteered for Duty	Total
Reserve Officers	19	3	22
Enlisted Reserve	51	6	57
National Guard	6	-0-	6
Selective Service	44	-0-	44
Voluntary Enlistments	-0-	78	78
<b>Total</b>	<b>120</b>	<b>87</b>	<b>207</b>

Number of Rent, Telephone and Hospital

Deductions from Salaries

	February	January
House Rent	5 167	5 200
Dormitory Rent	871	903
Barracks Rent	194	215
Trailer Space Rent	148	152
Telephone Accounts	3 382	3 716
Hospital Accounts	577	499
<b>Total</b>	<b>10,839</b>	<b>10 685</b>

Security Certificates (For duPont Service)

	February	Total to Date
Number issued	-0-	83

Suggestion Awards

Number of awards	50	1 336
Total amount of awards	\$1 510	\$25 525

Employee Sales Plan

	February		Total
	Major Appliances	Traffic Appliances	
Certificates issued	25-	333	358
Certificates voided	-0-	15	15

Salary Checks Deposited

	February		January	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle-First National Bank	772	864	774	873
North Richland Area Office - Seattle-First National Bank	10	6	11	6
Richland Branch - National Bank of Commerce	445	280	420	271
Out of state banks (Schenectady Staff)	-0-	1	-0-	1
<b>Total</b>	<b>1 227*</b>	<b>1 151</b>	<b>1 205**</b>	<b>1 151</b>

\*Week ended 2-17-52

\*\*Week ended 1-20-52

General Accounting Section

Special Absence Allowance Requests  
Number submitted to Pension Board

February  
5

January  
5

PERSONNEL AND ORGANIZATION

Number of Employees

On payroll at beginning of month	250	261
Removals and transfers out	(11)	(15)
Additions and transfers in	7	4
Number at end of month	<u>246</u>	<u>250</u>
Not increase (or decrease) during month	(4)	(11)
% of terminations and transfers out	4.1%	5.7%
% of absenteeism	3.9%	3.9%

Changes by unit in number of Accounting Section employees during February were as follows:

Name

General: Increase of one employee  
One transfer from Monthly Payroll

Margaret F. Thompson

Accounts Payable: No Change

Cost: No Change

General Accounts: Decrease of two employees

One reactivation  
Two resignations

Ann C. Hardin  
Frances G. Atkinson  
Ruth H. Wenzel  
Howard A. Nisle

One transfer to Rotational Training Program

Plant Accounting: No Change

One new hire  
One transfer to Engineering Department

Geraldine P. Little  
Florence S. Stoughton

Weekly Payroll: Increase of two employees

One reactivation  
One resignation  
One deactivation  
Three transfers from Special Assignments

Faye D. Russ  
Juanita H. Higby  
Edith J. Smith  
Letitia V. F. Lamberson  
June R. Schilling  
Arlene C. Kennedy

Monthly Payroll: No Change

One reactivation  
One transfer to Radiological Sciences Department  
One transfer to General  
One transfer from Special Assignments

Marjorie J. Hoschouer  
Marjorie J. George  
Margaret F. Thompson  
Sandra E. Hittman

General Accounting Section

PERSONNEL AND ORGANIZATION (continued)

Special Assignments: Decrease of eight employees  
Three transfers to Weekly Payroll

One transfer to Monthly Payroll  
One resignation  
Two transfers to Engineering Department

One transfer to Rotational Training Program

Budgets: No Change

Internal Audit: No Change

Rotational Training Program: Increase of four employees

One transfer from Engineering Department  
One transfer from Financial General  
One transfer from General Accounts  
One transfer from Special Assignments

Medical Accounting: Decrease of eight employees  
Eight transfers to Accounts Receivable

Accounts Receivable: Increase of seven employees

One new hire  
Eight transfers from Medical Accounting

One transfer to Medical Department  
One resignation

Name

Letitia V. F. Lamberson  
June R. Schilling  
Arlene C. Kennedy  
Sandra E. Hittman  
Sharleen DeVine  
Marjory E. Thiel  
Cleta M. McDaniel  
W. L. Brown

H. A. Brown  
S. A. Spohr  
H. A. Nisle  
W. L. Brown

J. R. Woodhead  
Marjorie Vinyard  
Mildred Reed  
Maryn Crawford  
Hazel Weiland  
Marilyn Kolbeson  
Bettye Bamesbergen  
Vada L. Lamb

Gertrude P. Hansen  
J. R. Woodhead  
Marjorie Vinyard  
Mildred Reed  
Maryn Crawford  
Hazel Weiland  
Marilyn Kolbeson  
Bettye Bamesbergen  
Vada L. Lamb  
Vada L. Lamb  
Marilyn Kolbeson

General Accounting Section

PERSONNEL AND ORGANIZATION (continued)

Number of Accounting Section employees as of February 29, 1952 were as follows:

	Number of Employees		
	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Total</u>
General	4	7	11
Accounts Payable	23	2	25
Cost	16	3	19
General Accounts	20	1	21
Plant Accounting	24	2	26
Weekly Payroll	69	5	74
Monthly Payroll	19	2	21
Special Assignments	1	3	4
Budgets	3	1	4
Internal Audit	5	7	12
Rotational Training Program	7	-0-	7
Medical Accounting	2	1	3
Accounts Receivable	16	3	19
Total	<u>209</u>	<u>37</u>	<u>246</u>

Non-exempt employees may be summarized as follows:

	Number as of	
	<u>2-29-52</u>	<u>1-31-52</u>
Accounting A	4	1
Accounting B	3	3
Accounting C	6	6
Accounting D	10	10
Business Graduate	19	21
Clerical Working Leader	9	9
Cost Clerk A	2	2
Cost Clerk B	1	1
Cost Clerk C	4	4
Cost Clerk D	5	4
Field Clerk A	3	-0-
Field Clerk C	4	4
General Clerk A	26	27
General Clerk B	52	53
General Clerk C	21	26
General Clerk D	7	5
General Clerk E	2	2
Office Machine Operator A	10	10
Office Machine Operator B	6	6
Secretary B	1	1
Secretary C	-0-	1
Steno-Typist A	3	3
Steno-Typist B	7	5
Steno-Typist C	4	6
Steno-Typist D	-0-	3
Total	<u>209</u>	<u>213</u>

General Accounting Section

PERSONNEL AND ORGANIZATION (continued)

Open employment requests as of February 29, 1952 were as follows:

Steno-Typist B 1

<u>Inquiries</u>	<u>February</u>	<u>January</u>
Major	-0-	-0-
Sub-major	-0-	-0-
Minor	1	1

General Accounting Section

	<u>DEBIT</u>	<u>CREDIT</u>
<u>Accounts Payable</u>		
Balance at Beginning of Month	\$ 295 831	\$ 240 907
Vouchers Entered	3 676 759	1 675 273
Cash Disbursements	3 666 222 DR	1 631 776 DR
Cash Receipts	<u>413</u>	<u>1 427</u>
Balance at End of Month	<u>\$ 296 781</u>	<u>\$ 285 831</u>
Number of Vouchers Entered	2 757	3 315
Number of Checks Issued	1 652	1 769
Number of Freight Bills Paid	1 430	1 277
Amount of Freight Bills Paid	\$ 344 428	\$ 307 334
Number of Purchase Orders Received	1 312	1 635
Value of Purchase Orders Received	\$ 557 024	\$ 917 325
<u>Cash Disbursements</u>		
Engineering	\$1 985 543	\$2 267 868
General	<u>6 659 063</u>	<u>4 290 434</u>
Total	<u>\$8 644 606</u>	<u>\$6 558 302</u>
Material and Freight	\$2 900 917	\$2 995 567
Lump Sum and Unit Price Subcontracts	34 154	6 208
CPFF Subcontracts		
Labor	54 623	138 436
Others	28 920	51 609
Payrolls (Net)	2 822 661	2 406 245
Payroll Taxes	703 548	486 682
U. S. Savings Bonds	170 180	252 412
Pension Plan - Employer's Portion	1 331 532	-0-
All Other	<u>548 071</u>	<u>221 143</u>
Total	<u>\$8 644 606</u>	<u>\$6 558 302</u>
<u>Number of Checks Written</u>		
Engineering	1 067	1 195
General	<u>1 652</u>	<u>1 769</u>
Total	<u>2 719</u>	<u>2 964</u>

General Accounting Section

	<u>1947</u>	<u>1948</u>
<u>Cash Receipts</u>		
Engineering	\$ 112 533	\$ 157 429
General	<u>8 923 401</u>	<u>5 332 898</u>
Total	<u>\$9 035 934</u>	<u>\$5 490 327</u>

Detail of Cash Receipts

Advances From AEC	\$8 558 684	\$4 990 690
Rents	142 908	171 440
Hospital	47 516	68 298
Telephone	19 373	22 273
Scrap Sales	19 768	2 926
Bus Fares	10 904	13 078
Miscellaneous Accounts Receivable	5 327	14 491
Sales to AEC Cost-Type Contractors	172 337	68 211
Refunds from Vendors	4 388	77 670
Employee Sales	453	708
Educational Program	1 204	804
Rental Received from Railroads	-0-	50 652
Utilities	-0-	6 058
Refund of Advances to Sub-contractors	50 000	-0-
All Other	<u>3 067</u>	<u>2 938</u>
Total	<u>\$9 035 934</u>	<u>\$5 490 327</u>

Bank Balances at End of Month

Chemical Bank & Trust Company - New York		
Contract Account	\$ 364 184	\$ 719 049
Seattle First National Bank - Richland		
Contract Account	1 360 409	631 365
U. S. Savings Bond Account	239 690	202 142
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	52 344	52 165
Seattle First National Bank - Seattle		
Escrow Account	5 875	31 685
National Bank of Commerce - Richland		
Contract Account	<u>633 053</u>	<u>565 903</u>
Total	<u>\$2 705 555</u>	<u>\$2 302 309</u>

Travel Advances and Expense Accounts

Cash Advance Balance at End of Month (1)	\$ 27 653	\$ 26 927
Cash Advance Balance Outstanding Over One Month (1)	3 518	2 676
Traveling and Living Expenses - All Departments		
Paid Employees	33 178	33 938
Billed to Government	29 963	31 664
Balance in Variation Account at End of Month	21 879 DR	18 664 DR

General Accounting Section

	<u>February</u>	<u>January</u>
<u>Accounts Receivable</u>		
AEC Cost-type Contractors	\$ 685 805	\$ 359 027
Hospital	158 862	139 646
Rents	75 774	76 087
Equipment Sales to Facilities	45 125	45 736
Miscellaneous Services	21 349	16 529
Telephone	12 320	11 876
Utilities	6 564	3 361
Safety Shoes	885	635
Subtotal	<u>1 006 744</u>	<u>652 947</u>
Reserve for Bad Debts	42 027 CR	42 301 CR
	<u>\$ 963 717</u>	<u>\$ 610 646</u>
<u>General Ledger Balance</u>		
<u>Hospital</u>		
Out-Patient Invoices Issued	2 136	2 256
Operating Revenue	\$ 70 811	\$ 72 763
<u>Houses</u>		
New Leases	52	217
Lease Modifications	19	8
Lease Cancellations	46	121
Total Active Leases	6 057	6 062
Operating Revenue:		
Basic Rent	\$ 216 067	\$ 217 441
Electricity	51 197	51 450
Water	8 571	8 616
	<u>\$ 275 835</u>	<u>\$ 277 507</u>
<u>Dormitories</u>		
New Assignments	84	79
Removals	86	71
Total Occupancy	1,088	1 090
Operating Revenue	\$ 15 195	\$ 15 200
<u>Facilities</u>		
Total Facilities	119	119
Operating Revenue	\$ 50 577	\$ 68 121
<u>Telephones</u>		
Working Telephones	5 425	5 334
Telephone Work Orders Processed	291	318
Operating Revenue	\$ 20 660	\$ 20 365
<u>Other</u>		
Invoices Issued	227	402
Operating Revenue	\$ 483 887	\$ 236 315

Note: Operating Revenue represents amount charged to Accounts Receivable and credited to Operating Costs.

General Accounting Section - As of 2-29-52

	<u>Number</u>	<u>Amount</u>
Accounts Forwarded to Collection Agencies	334	\$ 36 988
Accounts Returned as Uncollectible	72	10 879
Collections	<u>127 *</u>	<u>6 218</u>
Balance at Collection Agencies	<u>167</u>	<u>\$ 19 891</u>

\* Includes 90 accounts collected in full and 23 accounts partially collected.

	<u>February</u>	<u>Total to Date</u>
<u>Scrap Sales</u>		
Number of Sales	<u>13</u>	<u>452</u>
Revenue (excluding Sales Tax):		
Scrap Sales	\$ 17 151	\$ 425 192
Tract House Sales		
Revenue to AEC	-0-	33 449
Revenue to GE	<u>-0-</u>	<u>14 498</u>
Total	<u>\$ 17 151</u>	<u>\$ 473 139</u>

General Accounting Section

ACCOUNTS PAYABLE

Accounts payable vouchers recorded in February continued at a normal rate of 2 756, amounting to \$3,676,759, as compared with the unusually high number last month of 3,314, amounting to \$1,675,273. The large dollar increase this month represents, primarily, cost of the Pension Plan and other employee benefits for year 1951.

Number of freight bills paid in February was 1,430, totaling \$344,428, representing an increase of 12 per cent over the 1,277, amounting to \$307,334, in January.

The final audit of 3,100 completed purchase orders during the month advanced this program very nearly to a current basis. Before being transferred to Records Center for permanent storage, all accounting documents contained in each purchase order folder are reviewed to verify correctness of billing, evidence for receipt of material, correct treatment of transportation charges, and proper procurement authority for all payments.

As of February 29, there were only 18 accounts payable vouchers, amounting to \$41,332, which were paid over sixty days ago and which were not fully supported for approval for reimbursement by the Atomic Energy Commission.

Resulting from a recent study to determine effectiveness of existing return order procedures, a new follow-up control was developed and adopted to further assure appropriate accounting action within a reasonable period for all reverse shipments of material to vendors whether returned for credit, replacement, or repair.

As of February 29, 1952, outstanding deposits paid for returnable containers amounted to \$32,483. Segregation of these payments by year is summarized below:

1947	\$ 200
1948	200
1949	842
1950	2 121
1951	24 081
1952	<u>5 039</u>
Total	<u>\$32 483</u>

During the month credits received for deposits on containers returned amounted to \$4,021, and payments of new deposits totaled \$2,274. The account was thereby reduced from the January 31 balance of \$34,230 to \$32,483 as of February 29.

ACCOUNTS RECEIVABLE

Accounts Receivable booked for residences, dormitories, telephones, and miscellaneous services rendered to Richland residents during the month of February numbered approximately 13,000. Employees have authorized payroll deductions for approximately 9,900 of these accounts and the balance are to be paid in cash. Payroll deductions in

General Accounting Section

ACCOUNTS RECEIVABLE (CONTINUED)

February applicable to these accounts totaled \$271,905 and cash receipts were \$63,203, for a Grand Total of \$335,108.

Total accounts receivable outstanding at February 29, 1952, was \$1,006,744. Of this amount, sales to other cost-type contractors amounted to \$685,805. Other accounts receivable at February 29, 1952, reflect little change from balances at January 31, 1952.

Uncollectible accounts at collection agencies at January 31, 1952, numbered 171 and totaled \$19,867. Seven accounts, totaling \$145, were turned over to our collection agents in February. One account in the amount of \$8 was deemed uncollectible by our credit agents and was returned to General Electric. Ten accounts, amounting to \$113, were collected in February through efforts of credit agencies. At February 29, 1952, credit agencies had 167 accounts in the total amount of \$19,891.

Kadlec Hospital out-patient invoices numbered 2,136 and totaled \$9,324, as compared to 2,256 invoices totaling \$10,167 in January. In-patient revenue decreased \$1,109 in February as compared to January. Although the adult patient-day census increased from 91.8 in January to 94.7 in February, the decrease in in-patient revenue is principally due to the shorter month.

During the night of February 13, 1952, funds totaling \$618.95 were stolen from the vault at Kadlec Hospital. Of the total amount stolen, \$568.50 represented Cashier's working funds and \$50.45 represented cash receipts for the day. Other cash receipts totaling \$1,804.39, which were also in the vault, were not taken. The robbery is being actively investigated by Patrol.

BUDGETS

Work for the month of February was concentrated on preparation of the budget for FY 1954 and revision of the budget for FY 1953.

Estimated personnel requirements, submitted by department managers, were reviewed by the Appropriations and Budget Committee. These approved estimates, together with other cost data based on going rates are being used in connection with budget computation. During the month a close working arrangement was maintained with department representatives, and cooperation received has greatly facilitated budget preparation.

At the close of the month, work was progressing satisfactorily on all phases of the budget, and it is indicated that previously established deadlines will be met.

COST

Cost reports for Utilities and General Services Department and Staff Departments for the month of January were issued on February 15, 1952.

General Accounting Section

COST (CONTINUED)

Summaries of Operating Costs for the Nucleonics Division were issued to plant management on February 15. A letter was prepared for the Manager - Finance addressed to the General Manager detailing Product Cost for the months of January and December, and affording a comparison of year-to-date costs with budgeted amounts as revised in the Midyear Budget Review. A summarization of Research and Development expenditures was also included. Points of major variance in Product Cost from December to January were explained.

Actual cost summaries for the fiscal year-to-date, together with cost bogeys through June, 1952, were issued to plant management on February 27.

For information purposes, letters were issued to department and section managers analyzing costs incurred during January and reviewing in detail major variations from similar costs incurred in the previous month.

Cost reports and analyses were prepared for the first time for the recently organized Statistical and Computing Services Section. Costs were liquidated primarily direct to customers however costs in connection with consulting and advising prospective customers of the section were allocated as General and Administrative Expense.

Effective February 1, 1952, all expenditures against active Appropriation Requests for which Utilities and General Services Department and Staff Departments are responsible are being charged first to Construction Work in Progress Account and subsequently transferred to appropriate Plant, Expense, or Inventory accounts. This will result in closer control over such expenditures and permit more accurate reporting of applicable costs.

A new basis for liquidating Printing and Duplicating cost to customers is being developed. Industry-wide schedules of prices charged by commercial printing establishments, as set forth in the Franklin Pricing Catalog, are being used to develop new price schedules for liquidating Printing and Duplicating costs to customer departments.

New rates for liquidating Office Machine Repair costs were also adopted, based on a study of rates charged for similar work by Remington Rand, Friden, National Cash Register, and other commercial concerns.

GENERAL ACCOUNTS

Advances from the Atomic Energy Commission at February 29, 1952, amounted to \$3,000,000 the same amount as at the end of last month. The amount advanced has been applied in the following manner:

Cash in Bank - Contract Accounts	\$2 357 645
Cash in Bank - Salary Accounts	50 000
Cash in Transit	217 355
Advances to Subcontractors	250 000
Travel Advance Funds	125 000
Total	<u>\$3 000 000</u>

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ral Accounting Section

GENERAL ACCOUNTS (CONTINUED)

A revised report on Government Cost Transfers was issued this month. This report shows current month's activity in costs transferred to and from the Atomic Energy Commission and indicated the accounts affected, i. e., Cost, Inventories, Plant and Equipment, Construction Work in Progress, or Other. In addition, the above information is further detailed on schedules showing the nature of service or material transferred.

The "Completed Projects" report was issued this month showing the status of all completed projects at December 31, 1952

Substantial progress was made this month on improving certain internal procedures. These changes in procedure increased the efficiency of the unit as a result of reducing the number of journal entries drawn, facilitating the reconciliation of employees' travel advance accounts during the month, and reducing posting time.

Disbursements were \$2,086,304 greater in February as compared to January. This difference results from a payment to Schenectady in February of \$1,381,532 for employer's contribution to the Pension Fund for 1951, payment of one more weekly salary roll in February, and increased payroll taxes.

Current month charges to the Travel and Living Expense Variation Account, including Engineering Department, totaled \$3,215, an increase of \$941 from January. These charges represented entertainment expense of \$1,827 and the excess of amount reimbursed employees over amount billed to the Atomic Energy Commission of \$1,388.

INTERNAL AUDITS

Audits were begun in Weekly Payroll to verify payroll records and to appraise procedures of the General Electric Insurance Plan.

A graphite inventory taken by Reactor Projects Unit, Projects Section, was reviewed to check pricing of reclassified graphite and to prepare adjustments to bring the ledger balance into agreement with the physical inventory.

A report analyzing the expenses of the Technical Information Groups for the period July 1, 1951, to December 31, 1951, was prepared in conjunction with a study requested by management.

A review of ten reports on process material published by the Manufacturing Department, the Manufacturing Accounting Section, and the Purchasing and Stores Section resulted in the discontinuance of four reports. One report to be prepared by Manufacturing Accounting Section replaces two reports published by Purchasing and Stores and two by Manufacturing Accounting Section.

Other studies completed were (1) the propriety of a suggestion award, (2) special time study of an area employee, and (3) review of a facility operator's Letter of Agreement connection with a telephone refund and adjustment of rental charges.

General Accounting Section

INTERNAL AUDITS (CONTINUED)

Follow-up was made of the work being done by Procedures Analysis on (1) the recommendations previously made for improvements in the termination procedure and (2) the establishment of controls for personal type supplies and equipment and for small tools.

Several audit programs were prepared including an audit of Employee Savings Plans and one of the Distribution and Control of Checks.

PLANT ACCOUNTS

Effective February 1, 1952, the method for accruing monthly depreciation expense was revised. Prior to this time, monthly depreciation accruals were based on the prior month's balance in plant accounts. In the future, standard monthly accruals based on June 30 and December 31 balances will be used for the succeeding six-month period. Adjustments to the monthly accruals will be made only for major addition or retirement of a process or facility and for substantial changes in composite depreciation rates.

During the month, studies of the composite depreciation rate applicable to "Experimental Research Equipment" was completed and approval received from the Atomic Energy Commission to revise the annual rate from  $3\frac{1}{2}$  per cent to 10 per cent.

A complete inventory of the buildings and equipment utilized by the P-10 Program was completed during the month. Data obtained during the inventory will be used to expedite issuance of project completion reports relating to the construction of the P-10 Facility and for control of equipment removed from the facility upon completion of the P-10 Program.

Graphite Fabrication Equipment - 101 Area, was transferred from account "Major Construction Program Equipment" to "Major Construction Program Facilities." The Atomic Energy Commission requested this transfer since they do not wish to treat depreciation expense applicable to the Graphite Fabrication Facilities as undistributed construction costs.

During the month all work orders in progress were screened by Plant Accounts for possible erroneous charges. Work orders are screened currently by cost and only those affecting investment are forwarded to Plant Accounts for action. Work orders not forwarded to Plant Accounts are reviewed once every three months, as indicated above.

General Accounting Section

FINALS

During the month of February, 96 employees were added to the payroll which included 11 employees whose wages were withheld from the payroll during the month totaling 176 which included 4 leaves of absence, 30 removals due to illness and 14 for lack of work. These additions and removals resulted in a net decrease of 80 employees for the month. At February 29, 1952 there were 9,013 employees on the payroll.

Washington's Birthday, Friday, February 22, 1952, was an observed holiday at Hanford Works. Weekly salary checks covering the week ended February 17, 1952 for employees in the outer areas were delivered to patrolmen at the area gate houses between the hours of 8:00 a.m. and 11:00 p.m. on Wednesday, February 20, 1952. Salary checks for employees located in Richland, North Richland and Isada were available to authorized representatives of the departments at 8:00 a.m. on Thursday, February 21, 1952.

Authorizations for payroll deductions for the cost of safety shoes were received from 170 employees during February. There were 85 open payroll deduction accounts at February 29, 1952.

Preferential rates were eliminated in 10 cases of weekly paid employees during February due to transfer or reclassification. As of February 29, 1952, there were approximately 900 weekly paid employees having preferential rates.

A total of 176 weekly paid employees were scheduled to begin their 1952 vacations in February.

During February, 705 claims were processed and forwarded to Metropolitan Life Insurance Company. A total of 923 checks in the amount of \$54,833.80 covering 720 claims were received from the insurance company and forwarded to employees, hospitals, and surgeons during February. Since December 1, 1950, the effective date of the new insurance plan, employees of the Nucleonics Division have received \$773,327 in benefits under the terms of the health insurance portion of the plan. During the month of February, the first claim, under the accident and dismemberment clause of the new insurance plan, was paid to an employee.

In February, 136 employees who became eligible were canvassed for participation in the General Electric Pension Plan. Of these, 90 employees elected to participate and 46 employees elected not to participate. Applications for normal retirement pension were prepared during the month for 3 employees.

A total of 738 checks were distributed directly to employees by Payroll. Of these, 450 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 employee's supervision. Termination checks, suggestion awards, etc. accounted for 247 checks and the remaining 41 checks were mailed to employees who have been removed from the roll for various reasons. In addition, 100 salary checks were picked up by a representative of Employee and Public Relations for delivery to employees absent due to illness.

A total of 6 garnishments were received in February, of which 1 was released without payment to the court. As of February 29, 1952, 8 garnishments are pending, including 1 received in January, 1952. One Notice of Levy was received on which payment was made to the Collector of Internal Revenue.

General Accounting Section

DETAILS (Continued)

Thirteen checks were reported lost during February. Of these, eight were replaced. At February 29, 1952, ten lost check cases were pending; five from January, 1952, and five from February, 1952.

Checks were prepared for commission payments to doctors in the amount of \$1,380.10 during February.

As a result of the new contract between the International Association of Fire Fighters, Local 1052, and the General Electric Company, union dues in the amount of \$75.00 were deducted from the salaries of 50 members of the union.

One patent award for \$25.00 was paid during February.

In compliance with the revised holiday payment practices for exempt employees, payments of premium for time worked by exempt personnel on observed holidays during December, 1951 and January, 1952 was made during February. The premium payment for Christmas Day amounted to \$3,127 and for New Years Day \$3,153.

No military duty allowances were paid during the month of February, 1952. As of February 29, 1952, 207 employees of the Nucleonics Division had entered Military Service.

During February two more Payroll employees were trained as IBM key punch operators and present plans call for training of other Payroll employees as soon as opportunities develop. To date a total of 4 employees have been given training as IBM key punch operators. Also, one employee is attending reproducer class held by Central Tabulating Unit.

The Addressograph equipment and office was moved from its former location to Building 722 on February 29.

During February 160 overtime hours were worked by employees of the Payroll Section. Due to the observed holiday, February 22, twenty (20) Payroll employees worked overtime on Saturday, February 16 in order to insure delivery of checks to the area gate houses on Wednesday evening, February 20.

The Office of Salary Stabilization has given approval to pay time and one-half on the first \$7,500 of annual base salary for planned overtime worked by exempt personnel. A request for Reimbursement Authorization is being prepared and will be forwarded to AEC for approval.

Request for approval to pay three weeks of vacation to employees having fifteen years or more of continuous service has been presented to the Wage Stabilization Board. As yet, the company has not been advised of any action on the part of the Board. Request for Reimbursement Authorization has been submitted to AEC and tentative approval has been given pending approval of the W.S.B.

Arrangements for IBM system of payroll operations is progressing satisfactorily. Checks, Earnings Statements, Payroll Register and Clock Cards to be used under the IBM payroll methods have been ordered. Present Payroll forms and procedures are being reviewed with the aim of preventing duplication of work between Employment and Payroll Sections with respect to the master files, which contains personal data on each employee. An IBM payroll test run, of clock cards supporting payments made for week ended January 13, 1952, is being made to obtain sample reports, etc. and to test IBM procedures.

1214700

General Accounting Section

ROLLS (Continued)

The preparation of material for a revised draft of Appendix C to the prime contract was accelerated in February and five meetings were held by representatives of the interested departments with the Law Department to complete the revision of certain sections of the appendix. Approximately 150 man hours were expended in the work during the month of February.

Work in connection with the retroactive payment to General Electric employees performing construction work at Hanford Works for the period September 1, 1946 through September 30, 1951 was completed in February except for statistical information required by management. Calculation of the retroactive payment was completed in approximately seven months. The total gross payment as of February 29, 1952 amounted to \$128,624.96 for 1,093 employees excluding 64 checks in the total gross amount of \$3,055.56 which are being held by Payroll because addresses of these former employees are not available and 4 checks totaling \$2,189.95 for deceased employees which have not been prepared due to legal requirements. Total retroactive gross payment after the remaining 68 checks are disbursed will be \$133,870.47 for 1,161 employees. As of February 25, 1952, there were 156 checks outstanding in the net amount of \$7,631.71.

Bank reconciliations completed in February were:

Weekly Salary through #285, week ended February 10, 1952.  
Weekly Salary Vacation through #285, week ended February 10, 1952.  
Bond Account - January, 1952.  
Monthly Payroll #65, January, 1952.

Payrolls reimbursed were as follows:

Weekly Salary through February 24, 1952.  
Monthly Salary through February, 1952.

MANUFACTURING ACCOUNTING  
FEBRUARY, 1952

BUDGETS

Work was completed during the month on the third and fourth quarter revision adjusting the details of the FY 1952 operating budget to the manpower ceiling totals, as specified by the Appropriation and Budget Committee.

The preparation and consolidation of the budgets for FY 1954 and the revision of budgets for FY 1953 is progressing satisfactorily. Every effort is being made to supply complete operating budget information to Section Managers by March 14th to assist them in correlating their narrative justifications with projected expenditure patterns.

The consolidation of budgeted personnel for the Manufacturing Department was completed and presented to the Appropriations and Budget Committee on February 6th. The personnel figures, as revised, were agreed upon and the final personnel forecast for FY 1954 and the revision for FY 1953 was completed.

SPECIAL REQUESTS

A summary of the cost of Special Request work was prepared for the month of January and will be utilized for analyses of this type of service that will be made in future months. A new report of Special Request work which will compare cost to date and current estimate on individual jobs is being made up. This will provide a means of cost control and will assist in allocating all applicable costs to the specific requests.

MAINTENANCE AND PLANT IMPROVEMENT

Preliminary work on the Manufacturing Department Plant Improvement Budget for FY 1954 and the revision for FY 1953 indicates a considerable increase in activity for this program in the future.

The revised work order authorization list was issued to personnel in all departments and the Atomic Energy Commission.

Progress is being made in the correlation of the Revised Methods and Procedure Manual for the Manufacturing Cost Section.

The accumulation and allocation of costs to be used in each area has been reviewed and considerable effort will be expended during March to complete our responsibility in connection with the Organization and Policy Guide regarding Landlord Responsibility.

REPORTS AND RECORDS —

In cooperation with the Internal Audit Unit, a new Essential Material Statement is being inaugurated, beginning with the March statements. This revised statement will eliminate all other reports on essential materials issued by Manufacturing Accounting, and the two reports issued by Purchasing and Stores Section. This should result in a saving in clerical effort in addition to improving the presentation. The new statement will indicate performance against bogies, based on a three month forecast of material consumption, as set up by the Manufacturing Department.

1214702

## Manufacturing Accounting

### REPORTS AND RECORDS (Continued)

The special report for each unit of the Separations Section for the month of January was prepared at the request of the Section Manager. This report provides a breakdown of each item of indirect expense into number of units of automotive equipment assigned, telephones used, electrical consumption, etc. This report will be reviewed in the future to determine that the benefits derived are commensurate with the great amount of clerical effort expended in its preparation.

The operating report form was revised to provide a detailed distribution of cost to other than Manufacturing Units. This appears on the reverse side of the report form and will be used for the February report.

A suggestion award for improving the method of report presentation was received by an employee of the section during the month.

A consolidation of power codes in Separations Section was made to be effective March 1st. This consolidation resulted in the elimination of seven unit codes and related reports.

### PRODUCTION COST ACCOUNTING

The statement for the month of January will be issued early in March. Henceforth, the statement will be issued monthly before the end of the following month.

Recommendations were made by Manufacturing Accounting of subjects to be included in the agenda of a meeting to be held with A.E.C and Cost-Type Contractors.

### ANALYSIS AND STUDIES

Unit Cost comparisons for the five pile areas of the Reactor Section were made during the month for the Manager - Production. This comparison included a breakdown of direct labor, direct material, etc.

The Operating Reports for January were analyzed and assistance given in explaining major variances in operating costs.

### ORGANIZATION AND PERSONNEL

Beginning of Month	35
Acquisitions	5
Terminations or Transfers out	(3)
Personnel at 2/29/52	<u>37</u>

Offices were established in each of the Manufacturing Departments Sections to provide area financial assistance on cost and budgets for the Section Managers. One level of supervision was eliminated from the Manufacturing Cost group. Reports and Analysis, and Budgets will now report direct to the Supervisor of Cost.

1214703

ENGINEERING ACCOUNTING SECTION  
MONTHLY REPORT FOR FEBRUARY, 1952

The function of auditing billings for the Atomic Energy Commission received from Atkinson-Jones since October 1951 was concluded February 29, 1952.

Since the inception of the Subcontract with Atkinson-Jones on July 25, 1947 through February 29, 1952 there has been paid to Atkinson-Jones \$191,112,390 represented by one subcontract, 69 sub-subcontracts, 34,851 purchase orders and an estimated 105,000 individual invoices.

On February 12, the final shipment of stainless steel was made from our leased warehouse in Pittsburgh. Total receipts into the warehouse were \$2,134,033, and the inventory variance after the Atomic Energy Commission announced the prices on the final shipment was \$4,773 or less than 1/4 of 1%. With Atomic Energy Commission approval this variance was charged to the projects for which the material was procured and at month end the Pittsburgh warehouse account had been closed.

The balance in the inventory account Inventories On Consignment - Fabrication Orders was transferred to Construction Work In Progress on the applicable projects. These costs, however, will not be allocated to detailed property accounts until the orders have been completed.

Total disbursements for the month are summarized below:

Material and Freight	\$ 1 850 894
CFFF Labor	54 623
Lump Sum Subcontracts	34 154
CFFF Others	28 920
Miscellaneous	<u>16 952</u>
	<u>\$ 1 985 543</u>

Accounts payable vouchers recorded during February numbered 1,560 in the value of \$2,011 972.

In addition to the above, invoices audited for the Atomic Energy Commission amounted to \$4,298,177.

The following is a detail of Cash Advances for the month of February as compared with January, 1952:

	February		January	
	No. of Accts.	Amount	No. of Accts.	Amount
Beginning Balance	85	\$27 244	76	\$21 982
Cash Advances made		13 428		23 689
Cash Receipts & Expense Reports processed		17 548 Cr.		18 970 Cr.
Transferred Accounts		<u>          </u>		<u>544</u>
Balance at end of month	80	<u>\$23 124</u>	85	<u>\$27 245</u>
Travel expenses billed to A.E.C. during February amounted to		1214704 9 025		

ENGINEERING ACCOUNTING SECTION  
MONTHLY REPORT FOR FEBRUARY, 1952

-2-

Detail of Cash Advances, continued

	<u>February</u>		<u>January</u>	
	<u>No. of Accts.</u>	<u>Amount</u>	<u>No. of Accts.</u>	<u>Amount</u>
Actual amount paid employees		\$ 9 082		
Charges to Travel & Living Variation account			57	

Of the above balance of \$23,124 accounts over 30 days old amounted to \$9,464.

SUBCONTRACTOR PAYROLL STATISTICS

<u>PAYROLLS</u>	<u>FEBRUARY</u>	<u>JANUARY</u>
Average number of employees reported by CPFF Construction Subcontractors (Including Minor Construction)	6 797	6 785
CPFF Construction Subcontractors Payrolls (Including Minor Construction)	\$ 3 437 481	\$ 3 148 262
CPFF Architect Engineer Payrolls	<u>126 623</u>	<u>134 685</u>
Total CPFF Payrolls	\$ 3 564 104	\$ 3 282 947
Average per week (excluding Architect Engineer Payrolls)	859 370	787 066
Average Weekly Earnings (excluding Architect Engineer Payrolls)	\$126.41	\$116.00

FORCES

The number of workers employed on projects in February as compared with the number on a similar date in January is as follows:

	<u>February 21</u>	<u>January 17</u>
Atkinson-Jones		
C-187-D Redox Production	38	11
C-187-E Redox Laboratory	4	0
C-361 Metal Conversion	47	9
C-362 TBP	1 454	1 565
C-413 Expansion 234-5	145	111
C-431 New Production Facility	3 256	3 144

231

1214705

ENGINEERING ACCOUNTING SECTION  
MONTHLY REPORT FOR FEBRUARY, 1952

-3-

FORCES, continued

	<u>February 21</u>	<u>January 17</u>
101 Area	140	290
Minor Construction	<u>761</u>	<u>672</u>
Total Direct	5 845	5 802
Atkinson-Jones Indirect	490	610
Minor Construction Indirect	3	3
(1) General Electric Design	<u>640</u>	<u>881</u>
Total Indirect	1 133	1 494
Total number of workers	<u>6 978</u>	<u>7 296</u>

(1) Figures in both cases are as of March 1, and February 1, respectively.

Lump Sum and Fixed Price Subcontractor Forces are not included herein.

Fifteen projects which were transferred to the Atomic Energy Commission were recast on the basis of source of cost during the month. Financial Closing Statements were issued on five projects.

Utilization was started on the projects in account Major Construction Program Facilities. This utilization is being performed in order to transfer the facilities to the Atomic Energy Commission.

During February, Engineering Accounting personnel decreased to 81 as compared with 94 at the end of January. This decrease resulted from removals of nine employees to accept work with the Atomic Energy Commission, one for illness and three transferred to other Sections of the Financial Department.

1214706

232

COMMUNITY REAL ESTATE AND SERVICES  
ACCOUNTING SECTION  
MONTHLY REPORT FOR FEBRUARY, 1952

ORGANIZATION

Employees Beginning of Month	19	Exempt	4	Male	5
Transfers In	0	Non-Exempt	<u>15</u>	Female	<u>14</u>
Transfers Out	0		<u>19</u>		<u>19</u>
New Hires	0				
Termination	<u>0</u>				
Total End of Month	<u>19</u>				

COST

The January Operating Report was issued February 18, 1952.

The landlord responsibility report for the Community Real Estate and Services Department has been more than sixty percent completed.

One project was unitized and forwarded to Plant Accounting.

Work Orders processed were as follows:

	<u>December</u>	<u>January</u>	<u>February</u>
Active Routine	223	225	213
Active Normal	<u>1,056</u>	<u>1,097</u>	<u>1,082</u>
	<u>1,279</u>	<u>1,322</u>	<u>1,289</u>
W/O Received	1,032	945	1,092
W/O Completed	<u>1,789</u>	<u>902</u>	<u>1,125</u>
	<u>757</u>	<u>43</u>	<u>33</u>

Subcontracts:

SUBCONTRACTS INCOMPLETE-ASSIGNED TO AEC  
COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT  
FEBRUARY 29, 1952

<u>Subcontractors</u>	<u>Project No.</u>	<u>Subcontract Number</u>	<u>Amount Awarded</u>	<u>Booked For Payment This Month</u>	<u>Cost to Date</u>
Associated Engrs., Inc.	C-425 C-408 L-262 K-357	AT-608 (45-1-608)	\$124,562.20	\$13,294.75	\$ 13,294.75
Edmund P. Erven	C-357	G-334	16,775.00	1,575.00 (1)	16,775.00
D & H Paving Company	K-611 C-426	G-390	224,854.88	-0-	234,867.26 (2)

- (1) Final Payment  
(2) Awaiting Modification to Subcontract

BUDGET

Budget for FY 1954 and Revision of Budget for FY 1953 is progressing favorably and all effort is being made to meet the established review dates.

1214707

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - FEBRUARY 1952

SUMMARY

There were no major injuries during the month. The major injury frequency rate for the year to date is 0.67 compared to 0.39 for the same period in 1951.

There were only four industrial fire alarms during the month with a loss of \$15.00.

There was a continued increase in process laundry volume handled. Amount of rewash handled was reduced to 11% of total volume compared to 21% in January. This reduction was accomplished by a revision of procedures in processing laundry from known sources of higher-than-average contamination.

Forms control and procedures analysis activities resulted in savings of \$7,578 of which \$6,637 will be on an annually recurring basis.

PLANT SECURITY AND SERVICES SECTION  
FEBRUARY 1952

Number of reports sent to other departments - 1  
Number of reports sent to other departments - 1  
Number of reports sent to other departments - 1  
Number of reports sent to other departments - 1  
Number of reports sent to other departments - 1

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Number of reports sent to other departments - 1  
Number of reports sent to other departments - 1

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT -FEBRUARY 1952

ORGANIZATION AND PERSONNEL:

Number of employees on payroll:

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Increase</u>	<u>Decrease</u>
Staff	6	6		
Patrol and Security	659	660	1 (a)	
Safety and Fire Protection	150	149		1 (b)
Office Services (Laundry and Building Service, Clerical Services, Records Control and Procedures Analysis)	311	327	16 (c)	
TOTALS	1,126	1,142	17	1

NET INCREASE: 16

(a) - Patrol and Security

- 2 - Reactivated
- 8 - Transferred from other Departments
- 2 - Deactivated
- 1 - Transferred to other Departments
- 6 - Terminations

(b) - Safety and Fire Protection

- 2 - New Hires
- 3 - Terminations

(c) - Laundry and Building Service

- 6 - New Hire
- 4 - Transferred from other Departments
- 3 - Deactivated
- 2 - Terminations

Clerical Services

- 10 - New Hires
- 13 - Transferred from another Department
- 2 - Deactivated
- 7 - Transferred to other Departments
- 3 - Terminations

Records Control

- 1 - New Hire
- 1 - Termination

1214709

225  
133

SAFETY AND FIRE PROTECTION

Injury Statistics

	JANUARY	FEBRUARY	YEAR TO DATE	COMPARATIVE PERIOD-1951
Major Injuries	2	0	2	1
Sub-Major Injuries	2	0	2	1
Minor Injuries	392	357	749	546
Exposure Hours	1,578,179	1,408,843	2,987,022	2,550,980
Major Injury F/R	1.27	0.00	0.67	0.39
Major Injury S/R	0.008	0.003	0.006	0.118
Penalty Days	0	0	0	300
Actual Days Lost	13	4	17	411
Minor Injury F/R	2.48	2.53	2.51	2.14
Estimated Medical Treatment Time Required	1,584 hours	1,428 hours	3,012 hours	2,192 hours

Industrial Fires

Department	Area	No. of Fires	Cause	Loss
Radiological Sciences	200-E	1	Overheating flammable liquid	None
Manufacturing	200-W	1	Overloaded transformer	None
*Engineering	300	1	Careless handling of chemicals	\$15.00
Manufacturing	300	1	Overheating flammable liquids	None

\* Fire occurred in January too late for monthly report.

Safety and Fire Activities

No major fires occurred during the month. A \$15 loss was caused by a small fire in the 3706 laboratory building, 300 Area.

Fire protection surveys were completed on Buildings 105-D, 105-DR, 234-5, Spare Parts Warehouses in 200-E and 200-W, and the Chemical Warehouse in S Plant.

A request has been submitted for an additional water supply on an emergency basis for a warehouse in the 200-W Area containing materials valued in excess of \$600,000.00.

Six fire alarm boxes were installed in the 100-C construction area on a temporary basis.

A fire detector system and an additional fire hydrant were recommended for the spare parts warehouse in 100-B Area.

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SAFETY AND FIRE PROTECTION DIVISION  
 REPORT FOR THE MONTH OF FEBRUARY 1952

As a result of the 234-5 Building survey, recommendations were made to improve the fire safety of the building. The most important of these were the removal of scrap and all unnecessary combustible materials from the building, and the installation of a fire detector system.

Recommendations for first aid fire fighting equipment were given to the Hot Semi-Works Contact Engineer.

Fire fighting procedures for all buildings in the 300 Area have been reviewed and brought up to date.

All sprinkler systems in the 300 Area were tested.

Safety rules and regulations are being set up in the Hot Semi-Works, including the development and approval for use of portable respiratory supply equipment.

OFFICE SERVICES

<u>Plant Laundry (200-W)</u>	<u>January</u>	<u>February</u>
Pounds Delivered	207,238	233,254
Pounds Rewash	55,407	29,541
<b>Total Dry Weight</b>	<b>262,645</b>	<b>262,795</b>
<u>Richland Laundry (700)</u>		
Flatwork - Pounds	63,123	60,754
Rough Dry - "	38,920	37,360
Finished - "	2,912	2,872
<b>Estimated Pieces</b>	<b>137,491</b>	<b>132,292</b>
<b>Total Dry Weight - Pounds</b>	<b>104,955</b>	<b>100,986</b>
<u>Monitoring Section (Plant Laundry)</u>		
Poppy Check - Pieces	179,445	189,610
Scaler Check - "	191,745	200,710
<b>Total Pieces</b>	<b>371,190</b>	<b>390,320</b>

Clerical Services

The transfer of seventeen employees from the Engineering Department to Clerical Services was effective February 4, 1952. These employees were handling Office Services for the Engineering Department and will continue for the time being in this same capacity.

Central Mail

A new 703 Building directory was issued the latter part of the month. A study of the 700 Area mail runs after taking over the mail room in 760 Building indicated much duplicated effort. This was eliminated and one truck and employee

removed from these runs for transfer to Hanford High School where a new area mail run has been placed in operation, giving twice daily deliveries to an isolated group whose previous mail service was very poor.

Types and Pieces of Mail Handled:	February	January
Internal	715,116	954,801
Postal	62,610	80,391
Registered	1,380	1,550
Insured	347	392
Special Delivery	236	208
<b>Total Mail Handled</b>	<b>779,689</b>	<b>1,037,342</b>
<b>Total Postage Used</b>	<b>\$2,303.54</b>	<b>\$2,700.36</b>
<b>Total Teletypes Handled</b>	<b>4,969</b>	<b>5,773</b>
<b>Total Store Orders Handled</b>	<b>331</b>	<b>422</b>

Office Equipment

The appropriation request for additional project requirements as indicated by the midyear budget review was approved by the A & B Committee on February 12, 1952, subject to certain exceptions which were made. Forms were prepared and forwarded to department managers for listing FY 1953 furniture requirements.

Several shipments of machines and furniture were received this month and are being checked out and delivered as rapidly as possible.

A new type tag for office machines was designed and has been placed in use to indicate worth and condition of any machine declared excess.

Traffic and demand for furniture has been very heavy this month. Responsibility for office moves in the 700 Area was transferred to the 700 Area landlord function to permit better control of space assignment.

<u>Machine Repair</u>	February	January
Office Machines repaired in shop	444	183
Office Machine service calls	193	591
<b>Total Machines Serviced</b>	<b>637</b>	<b>774</b>

Furniture and Moves

Office Moves	31	74
Pickups for Records Center	63	87
Store Orders filled	368	567
Pieces of furniture delivered	658	900
Property transfers completed	43	26

### Central Printing

Production in Central Printing continues to show a steady increase, with backlog work reduced to a bare minimum and the average completion time for orders showing considerable improvement.

<u>Work Completed</u>	<u>February</u>	<u>January</u>
Orders received	283	417
Plates made (zinc)	277	Not recorded
Offset orders completed	281	" "
Offset copies	1,284,685	937,000
Letter press completed	43	Not recorded
Letter press copies	12,870	" "
Xerox plates made	75	" "
Photo copy prepared	10	" "
Negatives processed	251	" "
Cancelled orders	2	" "
Orders on hand at end of month	43	" "

### Stenographic Services

The Plant Organization Directory and several large departmental budgets for FY 1953 were prepared during February.

The caliber of stenographers has improved appreciably during the last month, thus making available some high type personnel for responsible job assignments.

<u>Breakdown of Hours</u>	<u>February</u>	<u>January</u>
Dictation and Transcription	.0	7.0
Machine Transcription	66.0	.0
Letters	82.0	118.0
Rough Drafts	79.0	152.2
Stencils, Dittos, Duplimats	485.0	420.5
Miscellaneous	537.5	640.5
Meeting Time	25.0	3.0
Training Time	401.0	485.8
Absentee Time	16.0	.0
Holiday and Vacation	136.0	.0
Unassigned Time	80.0	46.0
<hr/>	<hr/>	<hr/>
Total	1,907.5	1,873.0
Employees loaned other departments	796.5	1,022.0
<hr/>	<hr/>	<hr/>
Total Hours Available	2,704.0	2,895.0

### Area Mail and Duplicating Services

A great deal of time was spent during the month in meetings with others to discuss mail and duplicating services and to bring about acceptance of centralized control of these activities.

The Area Duplicating Program is in full swing for the first time and much effort has been directed toward educating employees in the proper preparation of copy of duplicating. The new rates are effective for the entire month and a profit will be shown for the month of February based on comparable commercial prices.

Mail schedules are being tested for establishing a plantwide system by April 1, 1952.

Area Duplicating Statistics

February

Orders received	2,304
Orders completed	2,248
Orders on hand	79
Offset plates	3,470
Offset copies	282,547
Xerox plates	1,142
Number of Stencils	1,608
Number of Copies	181,360
Number of Ditto Masters	3,937
Number of Copies	120,296
Collated Orders	48
Collated Copies	45,066

Area Mail Statistics

Pieces of Mail Handled	120,717
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Records Control

Quantity of records received, processed and stored:

Community Real Estate and Services Department	9	Standard Storage Cartons
Engineering Department	163	" " "
Employee & Public Relations Department	8	" " "
Financial Department	143	" " "
General Administrative Department	2	" " "
Manufacturing Department	18	" " "
Radiological Sciences Department	10	" " "
Utilities & General Services Department	82	" " "

435 Standard Storage Cartons

Persons provided records service: 673

Records cartons issued: 393

Records destroyed: 168 cartons.

Percentage of the Records Service Center Vault occupied by records is 89.5%, excluding Civilian Defense portion.

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Form filing was established in thirty offices. Twelve additional contacts were made with offices in which uniform filing has previously been installed.

Twenty requests for file cabinets were received. Twenty-four requests were filled and five requests were cancelled. Sixteen combination locked cabinets were replaced with key lock cabinets. Fifty-nine unserviceable wood file cabinets were replaced with metal key lock cabinets. Six other exchanges were made involving other types of cabinets.

A survey was conducted in the Medical Records Section of Kadlec Hospital to determine the type and quantity of file equipment that should be used to eliminate the critical filing and space situation that now exists.

Records disposal schedules were prepared and subsequent internal approvals obtained for five records during the month. The schedules for disposal of forty-seven records are now ready for the approval of the Assistant General Manager.

Two meetings were held during the month with the Atomic Energy Commission pertaining to the procedure to be used in the transmittal of Records Disposal Schedules to the Atomic Energy Commission.

Assistance was given to the Project Section in determining the disposition of records covering the functions of work transferred to the Atomic Energy Commission.

#### Procedures Analysis

	<u>January</u>	<u>February</u>
Printing orders received	448	377
Printing orders rejected	14	14
New numbers assigned	79	98
Forms designed	55	72
Suggestions processed	7	4

An analysis was made of two forms, Request for Quotation, D-283-DS, and Continuation Sheet, D-776-DS. The five-part precarboned form, Request for Quotation, was redesigned with spaces for four addresses. The carbons will have strip carbon sections so that one address will appear on each carbon copy. These copies will be mailed to prospective vendors, and the original copy retained. The Continuation Sheet, D-776-DS, was similarly designed. The total annual recurring savings resulting from this analysis was \$1,709.

An approved list of 120 forms for duplication in the 100 Areas has been compiled and forwarded to the duplicating operators and their supervision. This list contains all of the approved forms that have been ordered in quantities of 500 or less. The maximum quantity of forms that can be economically duplicated on one order has been set at 500, as this appears to be the limitation of the existing equipment.

The Housing and Dormitory Analysis has been progressing as scheduled. Report P.A. 26, "Housing Survey - Report on the Move Program", contains a solution to the existing move list problems which has resulted in an annual saving of \$3,000 in clerical effort and material.

A new analysis has been started in the 200-W Area. Preliminary scoping of the "S" plant (Redox) of the Separations Section began 2-17-52. This analysis ties in with similar analyses now in progress with the Separations Section. As soon as the Housing and Dormitory Analysis is complete, an analyst will be put in full time in "S" plant.

The first indoctrination meeting was held 2-19-52. Two films, "Easier Way", motion study, 15 minutes, and "Process Flow Charting", 30 minutes, were shown to the Procedures Analysis group. An additional meeting was held for supervision, Industrial Engineering, Tabulating and Statistics group, and a few other interested personnel.

Additional services have been requested for adapting the Auto-typist machine for use in the Technical Personnel Office. Approximately 2,500 letters per year can be placed on this equipment. On the basis of previous analysis, this will result in an annual savings of \$1,000. During certain seasons a great many telegrams are dispatched to "hold the fort" until a letter can be sent out. Additional savings in telegram expense will amount to approximately \$500 annually, giving a total annual savings of \$1,500.

The final report of the security survey has been completed and a discussion meeting was held with Security supervision on 2-26-52. Recommendations were approved and additional requests were made for new analyses. The first request was for Process Flow Analysis of all Security Patrol area badge houses. This request will be handled as a separate analysis. The second request was made to incorporate in the original analysis a work distribution study. This analysis is complete except for additional work as mentioned above. The estimated annual savings resulting will be approximately \$10,000, however, it will be included in the March monthly report as there will be a possibility of additional savings after the work distribution phase is complete.

<u>Savings Realized for February</u>	<u>One Time</u>	<u>Annual Recurring</u>
Forms Control	\$ 941	\$ 428
Analysis	---	6,209
	<hr/>	<hr/>
	\$ 941	\$6,637

Total savings for February: \$7,578  
 Accumulated Savings from 1-1-52: \$47,980

SECURITY AND PATROL

Number of technical and scientific documents reported unaccounted for February 1, 1952:	408
Documents (technical and scientific) reported unaccounted for during February 1952:	17
Documents (technical and scientific) reported found during February 1952:	16
Number of technical and scientific documents unaccounted for February 29, 1952:	409
Number of non-technical documents unaccounted for February 1, 1952:	66
Documents (non-technical) reported unaccounted for during February 1952:   2   4   7   1   6	6

ments (non-technical) reported found during  
February 1952: 18

Number of non-technical documents unaccounted for  
February 29, 1952: 54

Total number of technical and scientific and non-technical  
documents unaccounted for February 29, 1952: 463

**Non-Technical Document Review Board Activities:**

- 105 documents were reviewed of which
- 48 were declassified
- 30 were downgraded to "Restricted"
- 2 were downgraded to "Official Use Only"
- 16 had classification retained and
- 9 were not within the scope of the Board

There were 23 security violations committed by General Electric Company personnel involving unattended classified material.

Security Education

There were 211 security meetings held during February and attended by 3,150 General Electric employees.

Four security items appeared in the Works NEWS during the month.

A representative of the Security Unit showed the following security films at security meetings, which had an average attendance of fifteen employees per meeting:

"Fitting 'U' Into Security" at one meeting.

"On Guard" at four meetings, with total attendance of sixty people.

"Sabotage" at one meeting.

"The Case of the Smokeless Chimney" at one meeting.

"The Man on the Left" at twelve meetings, with a total attendance of 180 employees.

G.E. Security Bulletin No. 64 was issued February 5 stating that Area Patrol would resume issuing pencil meters at the Main Badge Houses beginning at 12:01 A.M. February 11, 1952.

Three thousand "A-B-C" security bulletins were issued February 5 with the slogan "Guard Classified Information".

Five hundred posters were posted throughout the plant and business establishments in the community of Richland proper. The slogan "Loose Talk Tells the Enemy Where to Strike" was inscribed on the posters.

Sixty-five employees of the General Electric Company received a "Q" security orientation talk from either a representative of the Security Unit or the Area Security Patrol Captain during the month of February.

There were 2,247 badge transactions during the month of February by the Security Unit.

One name was submitted by the Security Office to the Atomic Energy Commission for an emergency clearance during the month of February.

### General

Effective February 4, 1952, Security Patrol assumed responsibility for the operation of the Reception Desks in the 760 and 761 Buildings and the 101 Building in the 3000 Area.

The 105-C Badge House, 100-B Area, was placed in operation February 6, 1952 at the start of the No. 2 shift. Also, a construction gate is being operated in the 105-C Exclusion Area.

Arrangements were made February 8, 1952 for the installation of a hutment in the 234-Area, 200-W, for the storage of contaminated waste. Recoverable amounts of material will accumulate, necessitating the alarming of the door to the ADT system and operating on restricted entry system.

On February 11, 1952, door 303 between rooms 232 and 224, 234-5 Building, was placed on the indicator board originally installed at corridors 5 and 6. This is to control this door when it becomes necessary to make it available as an emergency exit.

The 101 Area Boiler House was fenced back into the 101 Exclusion Area proper on February 11, 1952, thus requiring all operating engineers to have a "Q" security clearance.

On February 11, 1952, all classified material, including file cabinets, was removed from the F-11 Area. Patrol coverage on the No. 2 shift will continue until all work within the area is completed (possibly ten days).

Arrangements were made February 14 to permit relocation of the Top Secret barrier in the RM Line to allow construction forces sufficient room to install an additional hood in the construction zone.

The door 303 alarm to the patrol post in corridors 5 and 6 went into operation at 12:00 noon, February 26, 1952. Patrol escort will be necessary for each opening of this door. Patrol post orders were revised to handle these situations.

Training courses at the Patrol Training School were given to 321 Security Patrolmen during February, 1952, as follows:

Pistol	1 1/4 hours
Sub Machine Gun	1 1/2 hours
Safety	1/2 hour
Security	2 1/2 hours
Operations Classes	2 1/4 hours

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Security Field Inspection activities were as follows:

Contacts made for unaccounted for documents:	23
Searches conducted for unaccounted for documents:	14
Documents located:	34
Combinations changed on combination lock file cabinets:	16
Searches conducted for classified material charged to employees at the time of their termination of employment.	9

Statistical Report of Security Patrol activities:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-E</u>	<u>200-W</u>	<u>300</u>
Pat searches	87	87	87	51	79	137	11
Escorts	33	7	16	62	134	223	62
Ambulance runs	3	3	2	1	2	7	7
Passes issued:							
One day temporary	7	7	9	2	10	93	42
Travel	0	0	0	0	0	0	53
Red Tag	180	146	185	55	47	889	180
Telephonic	0	10	0	0	0	0	21
Supervisors' post contacts	466	434	343	343	423	1,683	871

Other Security Patrol activities:

Buildings and doors opened:	234
Railroad gates opened:	144
Master system keys issued:	178
Operation gas pumps:	85

Arrest Report:

<u>Violation</u>	<u>Number of Violations</u>	<u>Cont. Cases from Jan. '52</u>	<u>Cases Cleared</u>	<u>Pending</u>	<u>Fined</u>
Speeding	0	1	0	1	0
Negligent Operation	1	0	1	0	1
	1	1	1	1	1

Citation Tickets issued: 1  
 Warning Tickets issued: 7  
 Verbal Warnings: 4



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HANFORD WORKS  
General Electric Company  
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING FEBRUARY 29, 1952

Restricted Data  
Class. Uniclass Area

Departure

Arrival

Person Contacted

Purpose of Visit

Name - Organization

MEDICAL DEPARTMENT

I. Visits to other Installations

X. G. Brockman  
to: Brookhaven National Lab.  
Upton, Long Island, New York

Dr. C. L. Dunham

2-13-52

2-15-52

X

Attend ABC meeting of  
Directors of Biology  
and Medicine

ENGINEERING DESIGN SECTION

I. Visitors to this Works

A. A. Patze  
General Engineering Laboratory  
Schenectady, New York

W. P. Ingalls

4-2-51

X

200-W 234, 235  
234-5 Const.

W. C. Bellows  
General Engineering Laboratory  
Schenectady, New York

W. P. Ingalls

9-7-51

X

200-W 234, 235  
234-5 Const.

J. E. Brown, Jr.  
General Engineering Laboratory  
Schenectady, New York

W. P. Ingalls

1-14-52

X

200-W 234, 235  
234-5 Const.

F. J. Champlin, Jr.  
General Engineering Laboratory  
Schenectady, New York

W. P. Ingalls

1-14-52

X

200-W 234, 235  
234-5 Const.

J. C. Coons  
General Engineering Laboratory  
Schenectady, New York

W. P. Ingalls

2-19-52

X

200-W 234, 235  
234-5 Const.

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class.</u>	<u>Unclass Areas</u>
E. P. Diehl General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	11-5-51	7-1-52	X	200-W 234, 235 234-5 Const.
C. W. George General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-12-52	7-1-52	X	200-W 234, 235 234-5 Const.
K. E. Gilbert General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-12-52	7-1-52	X	200-W 234, 235 234-5 Const.
H. A. Hadley H. A. Hadley Associates Burlington, Vermont	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-19-52	3-1-52	X	200-W 234, 235 234-5 Const.
E. J. Hatfield, Jr. General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-21-52	4-1-52	X	200-W 234, 235 234-5 Const.
E. Long General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	6-26-51	7-1-52	X	200-W 234, 235 234-5 Const.
J. L. Matrone General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-12-52	7-1-52	X	200-W 234, 235 234-5 Const.
R. N. Poole General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	10-1-51	7-1-52	X	200-W 234, 235 234-5 Const.
G. P. Sherman General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	10-17-51	7-1-52	X	200-W 234, 235 234-5 Const.
R. Sifter General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	10-1-51	7-1-52	X	200-W 234, 235 234-5 Const.

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass. Areas</u>
L. D. Singleton H. A. Hadley Associates Burlington, Vermont	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-12-52	2-23-52	X	200-W 234, 235 234-5 Const.
R. W. Stanhouse General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	1-14-52	7-1-52	X	200-W 234, 235 234-5 Const.
W. M. Wheeler General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	2-26-52	7-1-52	X	200-W 234, 235 234-5 Const.
G. W. Lees General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	12-1-51	7-1-52	X	200-W 234, 235 234-5 Const.
J. C. Dyson Puget Sound Navy Shipyard Bremerton, Washington	Review fabrication work performed by PSNY and discuss additional fab. jobs that Hanford proposes	V. D. Nixon C. W. Harrison L. Pihlfeldt	2-12-52	2-12-52	X	105-C
B. L. Allison Puget Sound Navy Shipyard Bremerton, Washington	Review fabrication work performed by PSNY and discuss additional fab. jobs that Hanford proposes	V. D. Nixon C. W. Harrison L. Pihlfeldt	2-12-52	2-12-52	X	105-C
W. J. G. Haves Puget Sound Navy Shipyard Bremerton, Washington	Review fabrication work performed by PSNY and discuss additional fab. jobs that Hanford proposes	V. D. Nixon C. W. Harrison L. Pihlfeldt	2-12-52	2-12-52	X	105-C
A. J. Brayman Charles T. Main, Inc. Boston, Massachusetts	Consultation on tentative future production facility	V. D. Nixon J. R. Wolcott G. L. Locke	1-23-52	2-8-52	X	100-B 105, 108

Person tacted

Purpose of Visit

Name - Organization

C. H. Bright  
Charles T. Main, Inc.  
Boston, Massachusetts

C. J. Christy  
Charles T. Main, Inc.  
Boston, Massachusetts

A. J. Curtis  
Charles T. Main, Inc.  
Boston, Massachusetts

W. C. Dishrow  
Charles T. Main, Inc.  
Boston, Massachusetts

F. F. Hall  
Charles T. Main, Inc.  
Boston, Massachusetts

D. E. Johnson  
Charles T. Main Inc.  
Boston, Massachusetts

E. G. Macky  
Charles T. Main, Inc.  
Boston, Massachusetts

R. K. Paynterson  
Charles T. Main, Inc.  
Boston, Massachusetts

C. C. Starratt  
Charles T. Main, Inc.  
Boston, Massachusetts

S. Stoller  
Vitro Corporation  
New York, New York

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

V. D. Nixon

J. R. Wolcott

G. L. Locke

W. B. Webster

Discuss progress on  
sep plant work on contract



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- 5 -

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class.</u>	<u>Unclass. Areas</u>
1 - J. I. Thomas Vitro Corporation New York, New York	Discuss progress on sep. plant work on contract	W. B. Webster	2-11-52	2-15-52	X	
2 - R. Long Vitro Corporation New York, New York	Discuss progress on sep. plant work on contract	W. B. Webster	2-18-52	2-21-52	X	
3 - C. J. Judson Bumstead-Wolford Seattle, Washington	Inspection of equipment for contractor of 300 Area Steam Plant addition	C. D. Berkeley	2-5-52	2-5-52	X	300 III
4 - L. D. Shilling Minnis & Shilling Eugene, Oregon	Inspection of equipment for contractor of 300 Area Steam Plant addition	C. D. Berkeley	2-5-52	2-5-52	X	300 III
5 - R. H. Wells Minnis & Shilling Eugene, Oregon	Inspection of equipment for contractor of 300 Area Steam Plant addition	C. D. Berkeley	2-5-52	2-5-5-2	X	300 III
6 - O. W. George General Engineering Laboratory Schenectady, New York	Consultation 313 mechanization Measurement of slugs	P. J. O'Neil H. P. Shaw	2-12-52 2-13-52	2-15-52 2-13-52	X X	300 303 100-F III
7 - K. E. Gilbert General Engineering Laboratory Schenectady, New York	Consultation 313 mechanization Measurement of slugs	P. J. O'Neil H. P. Shaw	2-12-52 2-13-52	2-15-52 2-13-52	X X	300 303 100-F III
8 - J. L. Matrone General Engineering Laboratory Schenectady, New York	Consultation 313 mechanization Measurement of slugs	P. J. O'Neil H. P. Shaw	2-12-52 2-13-52	2-15-52 2-13-52	X X	300 303 100-F III
9 - J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Consultation 313 mechanization	P. J. O'Neil	2-12-52	2-15-52	X	300 303
10 - F. J. Champlin, Jr. General Engineering Laboratory Schenectady, New York	Consultation mechanization	P. J. O'Neil	2-12-52	2-15-52	X	300 303

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>
<b>II. Visits to other Installations</b>					
G. S. Cochrane to: General Engineering Lab. Schenectady, New York	Liaison work with connection of 234-5 expansion program	C. W. George	2-25-52	3-15-52	X
W. R. Felts to: General Engineering Lab. Schenectady, New York	Inspect and discuss P-10 equipment (project C-412)	C. W. George	2-4-52	2-8-52	X
G. L. Locke to: Charles T. Main, Inc. Boston, Massachusetts	Consultation on water plant	R. K. Patterson	2-18-52	2-20-52	X
J. O. Ludlow to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation on concentration and fractionation of unit operation processes	D. O. Darby K. Jackson	2-7-52	2-8-52	X
J. O. Ludlow to: Catalytic Const. Company Philadelphia, Pennsylvania	Consultation on concentration and fractionation of unit operation processes	Mr. Weinrick	2-11-52	2-12-52	X
J. O. Ludlow to: Argonne National Lab. Chicago, Illinois	Consultation on concentration and fractionation of unit operation processes	Mr. Poss	2-5-52	2-5-52	X
R. C. Mann to: Knolls Atomic Power Lab. Schenectady, New York	Instrument engineering consultation	C. A. Hansen, Jr.	2-25-52	2-26-52	X
R. C. Mann to: E. I. du Pont de Nemours & Co. Wilmington, Delaware	Engineering consultation with reference to flow control	Mr. Trapnell	2-18-52	2-22-52	X
R. C. Mann to: Savannah River Ordnance Works Augusta, Georgia	Engineering consultation with reference to flow control	Mr. Bowman	2-19-52	2-21-52	X

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Restricted Data  
Class Unclass  
Areas

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class</u>	<u>Unclass</u>	<u>Areas</u>
J. H. Snyder to: Charles T. Main, Inc. Boston, Massachusetts	Conference on 100 Area water plant improvement study	R. K. Patterson	2-18-52	2-20-52	X		
J. W. Conley to: Worthington Pump & Mach. Harrison, New Jersey	Inspection of material on order for G-431-A Project	Mr. Heyman	2-11-52	2-12-52		X	
J. W. Conley to: Gleason Gear Rochester, New York	Inspection of material on order for G-431-A Project	Mr. Anderson	2-14-52	2-14-52		X	
R. C. Hollingshead to: Standard Steel Corp. Los Angeles, California	Design consultation regarding heat exchanger tube bundle damaged in heat treatment	Mr. Barnhart	2-4-52	2-8-52		X	
<b>RADIOLOGICAL SCIENCES DEPARTMENT</b>							
I. Visits to other Installations							
R. Borasky to: University of Washington Seattle, Washington	Electron microscopy consultation	- -	2-7-52	2-10-52			X
P. L. Eisenacher to: General Electric Co. West Lynn, Massachusetts	Radiation Instruments Committee meeting	J. P. Thompson	2-7-52	2-9-52		X	
C. O. Gamertsfelder to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on health physics program at KAPL	L. L. Gerwan	2-11-52	2-12-52		X	
C. C. Gamertsfelder to: Brookhaven National Lab. Schenectady, New York	Attend meeting of Biology- Medical Directors	L. E. Farr S. Warren	2-14-52	2-16-52		X	
H. A. Kornberg to: Brookhaven National Lab. Schenectady, New York	Attend meeting of Biology- Medical Directors	L. E. Farr Schenectady, New York	2-14-52	2-16-52		X	

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Class.</u>	<u>Unclass.</u>	<u>Areas</u>
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R. C. Thompson  
to: Brookhaven National Lab.  
Upton, Long Island, New York

Attend meeting of Biology  
and Medical Directors L. E. Farr  
C. L. Dunham

2-14-52 2-16-52 X

#### MANUFACTURING DEPARTMENT

##### I. Visitors to this Works

U. Vynne  
Cascade Distributors  
Seattle, Washington

Demonstration of Remset G. E. Cooper  
gun

2-18-52 2-18-52 X 200-W III

R. W. Courtwell  
Westinghouse Electric Co.  
Sunnyvale, California

Inspection of motor H. A. Carlberg  
that failed

2-13-52 2-13-52 X 200-E III

J. M. Shulman  
Westinghouse Electric Co.  
Sunnyvale, California

Inspection of motor H. A. Carlberg  
that failed

2-13-52 2-13-52 X 200-E III

##### II. Visits to other Installations

K. K. Campbell  
to: Knolls Atomic Power Lab.  
Schenectady, New York

Discussion of personnel D. E. Irwin  
and technical problems

2-19-52 2-22-52 X

J. A. Cowan  
to: Mallinckrodt Chemical Wks.  
St. Louis, Missouri

Discuss specifications W. H. Keller  
and quality for raw  
materials in metal  
fabrication process

2-14-52 2-15-52 X

A. R. Maguire  
to: Knolls Atomic Power Lab.  
Schenectady, New York

Consultation on operating D. E. Irwin  
procedures and equipment

2-4-52 2-6-52 X

A. R. Maguire  
to: Mallinckrodt Chemical Wks.  
Schenectady, New York

Consultation on operating W. H. Keller  
procedures and equipment

2-6-52 2-8-52 X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class.</u>	<u>Unclass Areas</u>
E. W. O'Rourke to: Argonne National Lab. Chicago, Illinois	Discuss specifications and quality of raw materials for metal fabrication process	S. McLain	2-11-52	2-13-52	X	
E. W. O'Rourke to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Discuss specifications and quality for raw materials in metal fabrication process	W. H. Keller	2-14-52	2-15-52	X	
K. T. Perkins to: Charles T. Main, Inc. Boston, Massachusetts	Consultation on water plant design	R. K. Patterson	2-18-52	2-20-52	X	
K. K. Campbell to: Knolls Atomic Power Lab. Schenectady, New York	Discuss personnel and technical problems	D. E. Irwin	2-19-52	2-22-52	X	
R. O. Mehan to: University of Minnesota Minneapolis, Minnesota	Recruit technical personnel	- -	2-1-52	2-8-52	X	
<b>MANAGEMENT</b>						
<b>I. Visitors to this Works</b>						
E. S. Baker Nucleonics Division General Electric Company Schenectady, New York	Discuss classified work under way at Hanford by GEL	G. R. Prout J. S. Parker W. I. Patnode W. P. Ingalls	2-19-52	2-21-52	X	200-W 234, 235 234-5 Const.
H. W. Huntley Nucleonics Division General Electric Company Schenectady, New York	Inspection of 234-5 Buildings	W. E. Johnson W. K. MacCreedy J. S. Parker	2-11-52	2-14-52	X	Redox 200-W 234, 235 234-5 Const
T. M. Linville General Electric Company Schenectady, New York	Planning Management Development Activity	G. R. Prout J. E. Malder, Jr.	2-27-52	2-29-52	X	300 303; 100-D 105; 200-W 221-T, 234; Redox, 700

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Restricted Data  
Class. Unclass Areas

Name of Organization      Purpose of Visit      Person Contacted      Arrival      Departure

II. Visits to other Installations

A. B. Greninger  
to: Knolls Atomic Power Lab.  
Schenectady, New York      Program discussions      K. H. Kingdon      2-11-52      2-11-52      I

A. B. Greninger  
to: U. S. Atomic Energy Comm.  
Washington, D. C.      Program discussions      W. J. Williams      2-12-52      2-13-52      I

F. E. Baker  
to: U. S. Atomic Energy Comm.  
Washington, D. C.      Discuss. procurement  
of materials for HW      H. F. Mattiesen      2-5-52      2-5-52      I

PLANT SECURITY AND SERVICES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT

I. Visits to other Installations

E. W. Slusher  
to: Oak Ridge National Lab.  
Oak Ridge, Tennessee      Observe Receiving,  
Stores and Purchasing  
Operations      Mr. McKay, AEC Finance      2-5-52      2-6-52      I

STATISTICAL AND COMPUTING SERVICES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT

I. Visits to other Installations

L. G. Waters  
to: Mallinckrodt Chemical Wks.  
St. Louis, Missouri      Set up a uranium lot  
identification system  
that can be maintained  
throughout      W. H. Keller      2-14-52      2-15-52      I

PURCHASING AND STORES SECTION-UTILITIES AND GENERAL SERVICES DEPARTMENT

I. Visitors to this Works

A. Schuman  
United Truck Lines  
Kennewick, Washington      Deliver load of material      W. H. Sutton      2-1-52      2-1-52      I 300 III



**DECLASSIFIED**

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass Areas</u>
G. Hixon Inland Motor Freight Kennewick, Washington	Deliver material on order HW 87755M Deliver material on order HW 87755M Deliver material on	W. H. Sutton W. H. Sutton W. H. Sutton	2-4-52 2-5-52 2-28-52	2-4-52 2-5-52 2-28-52	X X X	200-W 275 Bldg 275-UR Bldg. 100-D 105-D 100-F 105-F
F. Colbert United Truck Lines Kennewick, Washington	Deliver material on order - 628 tin pigs	W. H. Sutton	2-4-52	2-4-52	X	300 303-J
A. Schuman United Truck Lines Kennewick, Washington	Deliver material on order AEC 58447 Deliver material on order HW 94192-M	W. H. Sutton W. H. Sutton	2-4-52 2-25-52	2-4-52 2-25-52	X X	300 3734 200-W 234
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order HW 90853-M Deliver material on order HW 90853-M Deliver material on order HW 83029 Deliver material on order HW 83029 Deliver material on order HW 90853-M Deliver material on order HW 90853-M Deliver material on order HW 90853-M	W. H. Sutton W. H. Sutton	2-5-52 2-8-52 2-14-52 2-15-52 2-19-52 2-26-52 2-27-52	2-5-52 2-8-52 2-14-52 2-15-52 2-19-52 2-26-52 2-27-52	X X X X X X X	100-D 105-D 100-D 105-D 100-F 105-F 100-D 189-D 100-D 105-D 100-B 105-B 100-D 105;105-1 100-D 105-D 100-B 105
F. F. Smith Inland Motor Freight Kennewick, Washington	Deliver material on orders 87743 and 92027	W. H. Sutton	2-5-52	2-5-52	X	300 303-J
R. L. Bagby West Coast Fast Freight Kennewick, Washington	Deliver material on order HW 93277-M	W. H. Sutton	2-6-52	2-6-52	X	300 303-J

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<u>Name of Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Class.</u>	<u>Unclass Areas</u>
H. Woody Lee and Estes Kennewick, Washington	Deliver material on order HMC 18249	W. H. Sutton	2-7-52	2-7-52	X	300 321 Bldg
S. Jackson Consolidated Freightways Kennewick, Washington	Deliver material on order 93029 Deliver material on order 93029	W. H. Sutton	2-13-52 2-14-52	2-13-52 2-14-52	X	300 303-J 100-B 189
A. Wiggins Consolidate Freightways Kennewick, Washington	Deliver material on order 93029	W. H. Sutton	2-14-52	2-14-52	X	100-D 189
C. Freauff Lee & Estes Kennewick, Washington	Deliver material on order	W. M. Sutton	2-14-52	2-15-52	X	275-UR
L. Wilson Lee & Estes Kennewick, Washington	Deliver material on order	W. H. Sutton	2-15-52	2-15-52	X	275-UR
R. L. Bagby West Coast Fast Freight Kennewick, Washington	Deliver material on order HW 93633	W. H. Sutton	2-26-52	2-26-52	X	300 303-J
C. G. Gieszl Applied Research Laboratories Glendale, California	Service spectrographic equipment purchased on HW 80111-G	G. J. Hayward	2-27-52	2-29-52	X	300 3706 200-W 234 Lab.
H. Long General Electric Company Seattle, Washington	Set up and operate machinery	G. J. Hayward	2-25-52	2-28-52	X	300 3732 Bldg and 303
H. L. Burnell Allis Chalmers Co. Portland, Oregon	Unloading freight cars	G. J. Hayward	2-27-52	2-27-52	X	White Bluffs

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>		
					<u>Class.</u>	<u>Unclass</u>	<u>Areas</u>
J. Shamon Dresser Industries Bradford, Pennsylvania	Inspect pipe	G. J. Hayward	2-27-52	3-1-52		X	
T. Williams J. E. Haseltine Company Portland, Oregon	Service equipment	J. W. Lingafelten	2-25-52	2-26-52		X	300 303
E. S. Constant Arthur Forsyth Company Seattle, Washington	Service balancing fans	J. S. McCool	2-19-52	2-21-52		X	291-U Bldg
R. L. Carlson Arthur Forsyth Company Seattle, Washington	Service balancing fans	J. S. McCool	2-19-52	2-21-52		X	291-U Bldg
F. R. Haddock Robert Filter Mfg. Company Darby Pennsylvania	Inspection	G. J. Hayward	1-31-52	2-1-52		X	100-C Filter Plant
J. W. Burton Roberts Filter Mfg Company Darby, Pennsylvania	Inspection	G. J. Hayward	1-31-52	2-1-52		X	100-C Filter Plant
G. P. White Roberts Filter Mfg. Company Darby Pennsylvania	Inspection	G. J. Hayward	1-31-52	2-1-52		X	100-C Filter Plant

II. Visits to other Installations

G. H. Wright to: Standard Steel Corporation Los Angeles, California	Altering order	K. W. Barhard	2-4-52	2-5-52		X	
G. H. Wright to: Johnston Pump Company Portland, Oregon	Check orders HMC 10067 and 10068	P. Brown	2-6-52	2-6-52		X	

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SECRET

Area

Class.

Restricted

Da.

Unclass

Departure

Arrival

Person Contacted

Purpose of Visit

Name - Organization

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Class.	Da. Unclass	Area
G. H. Wright to: Naval Ordnance Testing Stn Pasadena, California	Alterting order		2-6-52	2-6-52	X		
G. H. Wright to: Viking Electric Co Los Angeles, California	Alteration of order	J Norcross	2-7-52	2-7-52	X		
G. H. Wright to: Standard Steel Los Angeles, California	Alteration of order	J W. Barnhard	2-8-52	2-8-52	X		
G. P. Lawson to: Alaskan Copper Seattle, Washington	Expedite material on order	Mr. Rosen	2-7-52	2-10-52	X		
C. P. Fleming to: O. G. Kelley Boston, Massachusetts	Expedite material on order	E. Meyers	2-7-52	2-9-52	X		
C. P. Kelly to: Pennsylvania Forge Philadelphia, Pennsylvania	Expedite material on order	C. A. Race	2-11-52	2-11-52	X		
C. P. Fleming to: El-Tronics, Inc. Philadelphia, Pennsylvania	Expedite material on order	J. E. Wagenseller	2-11-52	2-11-52	X		
C. P. Fleming to: Leeds & Northrup Philadelphia, Pennsylvania	Expedite material on order	B. Estabrook	2-11-52	2-11-52	X		
C. P. Fleming to: Universal Ball Willow Grove, Pennsylvania	Expedite material on order	Mr. Carpenter	2-12-52	2-12-52	X		
C. P. Fleming to: Mine Safety Appliance Pittsburgh, Pennsylvania	Expedite material on order	Mr. Elliott	2-13-52	2-13-52	X		

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- 15 -

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class.</u>	<u>Unclass Areas</u>
C P Fleming to: Industrial Tectonics Ann Arbor, Michigan	Expedite material on order	Mr. Stern	2-13-52	2-13-52		X
C P Fleming to: Whiting Corporation Harvey, Illinois	Expedite material on order	J. A Sudantes	2-14-52	2-14-52		X
C P Fleming to: Geartner Scientific Chicago, Illinois	Expedite material on order	M. Jaolsky	2-15-52	2-15-52		X
C P Fleming to: Hapman-Dutton Company Kalamazoo, Michigan	Expedite material on order	Mr. Kimball	2-15-52	2-15-52		X
W H Thayer to: Servie Metal Fabricators Beverly Hills, California	Expedite material on order	Mr. Hayes	2-17-52	2-20-52		X
W H Thayer to: Apex Steel Foundry Los Angeles, California	Expedite material on order	Mr. Robertson	2-21-52	2-21-52		X
J C Hamilton to: Worthington Pump Co, Harrison, New Jersey	Expedite delivery of equipment, on order	M. H. Hayman	2-13-52	2-13-52		X
J C Hamilton to: Gleason Works Rochester, New York	Expedite delivery of material	V. K Anderson	2-14-52	2-14-52		X
J C Hamilton to: American Machine & Foundry Buffalo, New York	Expedite delivery of material	E. Forth	2-15-52	2-16-52		X
L. G Jones Western Gear Works Seattle, Washington	Check on boron stainless castings	Mr. Borst	2-6-52	2-6-52		X

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2-16 -  
 Name - Organization

L. G. Jones  
 to: Alaskan Copper Works  
 Seattle, Washington

L. G. Jones  
 to: Puget Sound Navy Shipyard  
 Bremerton Washington

**TECHNICAL SECTION-ENGINEERING DEPARTMENT**

I. Visitors to this Works

J. E. Brown, Jr.  
 General Engineering Laboratory  
 Schenectady, New York

R. L. Carter  
 North American Aviation, Inc  
 Downey, California

Consultation on measure- ment of slugs

Discuss cooperative graphite program

Survey analytical methods for Pu and special work Hanford developed on U analysis

R. W. Edwards  
 General Engineering Laboratory  
 Schenectady New York

C. W. George  
 General Engineering Laboratory  
 Schenectady, New York

Purpose of Visit  
 Inspection hot semi-works tanks  
 Inspection of downcomer

Person Contacted  
 Mr. Kamb  
 Mr. Dexter

Arrival  
 2-6-52  
 2-6-52

Departure  
 2-8-52  
 2-8-52

Class  
 X  
 X

UnClass  
 X  
 X

as  
 100-D 105-D  
 300 III  
 105-C  
 100-B 105  
 100-D 105  
 100-F 105  
 100-H 105  
 300 III  
 300 III;  
 Redox  
 200-W 221-T,  
 231  
 700, 300-III  
 100-D 105-D  
 100-D 105

**RESTRICTED**

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass Area</u>
G. B. Grable Battelle Memorial Institute Cincinnati, Ohio	Consultation on welding in research program	E. A. Eschbach	2-18-52	2-19-52	X	300 303; 700 100-B 108, 105
J. R. Lowe, Jr Knolls Atomic Power Laboratory Schenectady, New York	Discuss materials irradiation program	H. L. Henry	2-8-52	2-8-52	X	100-B 105; 100-D 105, 100-F 105; 100-H 105; 300-XXX 700
L. Tonks Knolls Atomic Power Laboratory Schenectady New York	Conference on crystal spectrometer work and over-power incident	P. F. Gast H. L. Henry	2-14-52	2-1-52	X	100-D 105, 100-F 105; 100-H 105 300 XXX
C. B. Voldrich Battelle Memorial Institute Cincinnati, Ohio	Consultation on welding in research program	E. A. Eschbach	2-18-52	2-19-52	X	300 303; 700 100-B 108, 105
R. C. Warren International Business Machines Richland, Washington	Inspect IBM installations	D. E. Davenport	2-11-52	2-11-52	X	100-D 189-D
C. E. Weber Knolls Atomic Power Laboratory Schenectady, New York	Consultation on special irradiations at KAPL	J. B. Lambert H. L. Henry	2-12-52	2-12-52	X	300 XXX; 100-B 105; 100-D 105; 100-F 105; 100-H 105
T. C. Will Consolidated Engineering Corp Pasadena, California	Install mass spectro-meter	R. J. Brouns	1-7-52 2-1-52	1-31-52 2-16-52	X X	Redox 300 3706
H. Anderson Dow Chemical Company Rocky Flats, Colorado	Discuss spectrographic and then other Bldg. analyses	F. W. Albaugh A. H. Bushey W. W. Marshall	2-25-52	2-26-52	X	300 3706
C. G. Gieszl Applied Research Laboratories Glendale, California	Inspect and adjust spectro-graphic equipment	P. R. Anderson R. E. Roberts	2-27-52	2-29-52	X	300 3706 200-N 234

Name - Organization

Purpose of Visit

Person Contacted

Departure

Restricted Data Class

Unclassified Areas

P. M. Boothe  
Atomic Energy Commission  
Schenectady, New York

Observe design of test  
Laboratory

2-1-52

2-2-52

X  
100-B 105  
300 303

II. Visits to other Installations

R. E. Burns  
to: Brookhaven National Lab  
Upton, Long Island, New York

Attend conference on  
application of intense  
fields of nuclear radiation

2-18-52

2-19-52

X

R. M. Fryar  
to: Charles T. Main, Inc.  
Boston, Massachusetts

Consultation on water  
plant

2-18-52

2-20-52

X

G. E. Duvall  
to: Kirkland Air Force Base  
Albuquerque New Mexico

Personal interview

2-4-52

2-8-52

X

P. F. Gast  
to: Argonne National Lab  
Chicago, Illinois

Reactor Handbook edi-  
torial meeting

2-27-52

2-27-52

X

C. Groot  
to: Knolls Atomic Power Lab.  
Schenectady New York

Consultation on sepa-  
rations methods and Purex  
process development

2-11-52

2-15-52

X

C. Groot  
to: Brookhaven National Lab.  
Upton, Long Island, New York

Consultation on sepa-  
rations methods

2-11-52

2-29-52

X

C. Groot  
to: Argonne National Lab.  
Chicago, Illinois

Consultation on sepa-  
rations methods

2-18-52

3-7-52

X

W. M. Harty  
to: Los Alamos Scientific Lab.  
Los Alamos, New Mexico

Consultation on electrolysis  
methods

2-13-52

2-15-52

X

RECORDED

**DECLASSIFIED**

Restricted Date  
Class    Unclass  
Areas

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Class</u>	<u>Unclass</u>	<u>Areas</u>
W M Harty to: U.B.Atomic Energy Commission Denver, Colorado (Attention: Nat'l Bureau of Standards)	Consultation on material from Los Alamos	M. Holloway	2-14-52	2-16-52	X		
H. M. Jones to: E. I. du Pont de Nemours Wilmington, Delaware	Consultation on Purex instrumentation	Mr. Trapnell	2-18-52	2-22-52	X		
H. M. Jones to: Savannah River Plant Aiken, South Carolina	Consultation on Purex instrumentation	H Bowman	2-18-52	2-22-52	X		
W. T. Kattner to: Argonne National Lab. Chicago, Illinois	Meeting on non destructive testing	F. Foote	2-11-52	2-13-52	X		
W. T. Kattner to: Mallinckrodt Chemical Wks. St Louis, Missouri	Discuss establishment of lot system for uranium	W H Keller	2-11-52	2-16-52	X		
J. B. Lambert to: North American Aviation Downey, California	Inspect equipment for special request NAAM-106 and 107	G Inman	2-7-52	2-8-52	X		
R. H Moore to: Ames Laboratory Ames, Iowa	Discuss analytical methods for uranium	B A. Rogers	2-19-52	2-22-52	X		
D. P. O'Keefe to: Westinghouse Atomic Power Pittsburgh Pennsylvania	Metallurgical investigations	W. E. Johnson	2-18-52	4-1-52	X		
K. T. Perkins to: Charles T. Main, Inc. Boston, Massachusetts	Consultation on water plant	R. K Patterson	2-18-52	2-20-52	X		

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CONFIDENTIAL

Restricted Data  
Class. Unclass. Areas

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u> Class. Unclass. Areas
F. B. Quinlan to: Argonne National Laboratory Chicago, Illinois	Conference on non destructive testing	S. McLain	2-11-52	2-13-52	X
F. B. Quinlan to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on non destructive testing equipment	H. H. Zornig	2-14-52	2-15-52	X
F. B. Quinlan to: General Engineering Lab. Schenectady New York	Consultation on non destructive testing equipment	R. Fehr A. H. Canada	2-14-52	2-15-52	X
D. F. Shepard to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss plutonium assay and associated problems	C. F. Metz	2-28-52	2-29-52	X
J. H. Snyder to: Charles T. Main, Inc. Boston, Massachusetts	Consultation on water plant	R. K. Patterson	2-18-52	2-20-52	X
R. B. Socky to: Argonne National Lab. Chicago, Illinois	Meeting for non destructive testing program and consultation	S. McLain F. Foote	2-12-52	2-13-52	X
R. B. Socky to: General Engineering Lab. Schenectady, New York	Non destructive testing program and consultation	A. H. Canada R. Fehr	2-14-52	2-14-52	X
R. B. Socky to: Research Laboratory Schenectady, New York	Discussion on non destructive testing program and consultation	Dr. Navies	2-15-52	2-15-52	X
R. B. Socky to: Knolls Atomic Power Lab. Schenectady, New York	Discussion on non destructive testing program and consultation	C. Mannal H. H. Zornig	2-16-52	2-16-52	X
F. B. Quinlan to: Research Laboratory Schenectady New York	Consultation on non destructive testing program	E. E. Charlton	2-15-52	2-15-52	X

1214739

CONFIDENTIAL

**DECLASSIFIED**

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>		
					<u>Class.</u>	<u>UnClass</u>	<u>Areas</u>
R. Ward to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Meeting on assigning numbers to lots of uranium	W. H. Keller	2-14-52	2-15-52	X		
R. Ward to: Bethlehem Steel Company Lackawanna New York	Observe experimental rolling of Hanford slugs	F. G. Stroke	2-16-52	2-16-52	X		
R. Ward to: Simonds Saw & Steel Lockport New York	Observation of experimental rolling	A. D. Potts	2-21-52	2-21-52	X		
R. Ward to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Inspection of Hanford Lab. canning program	W. E. Johnson	2-22-52	2-25-52	X		
R. Ward to: Argonne National Lab. Chicago, Illinois	Uranium process meeting	F. G. Foote	2-26-52	2-27-52	X		
R. E. Woodley to: North American Aviation Downey, California	Discussion on graphite radiation damage	R. L. Carter M. Feldman	2-11-52	2-12-52	X		
R. E. Woodley to: Radiation Laboratory Berkeley, California	Discussion on graphite radiation damage	I. Glasgow	2-13-52	2-13-52	X		
J. M. Wright to: North American Aviation Downey, California	Discussion on graphite radiation damage	R. L. Carter M. Feldman	2-11-52	2-12-52	X		
J. M. Wright to: Radiation Laboratory Berkeley, California	Discussion on graphite radiation damage	L. Glasgow	2-13-52	2-13-52	X		
W. T. Kattner to: U. S. Atomic Energy Corp. New York, New York	Plan special metal fabrication	R. J. Smith	2-7-52 2-14-52	2-8-52 2-14-52	X X		

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class, Unclass</u>	<u>Areas</u>
W. T. Kattner to: Allegheny Ludlum Steel Watervliet, New York	Observe special metal fabrication	Mill Supt.	2-9-52	2-10-52	X	
W. T. Kattner to: Bethlehem Steel Company Lackawanna, New York	Observe special metal fabrication	Mr. Henderson	2-16-52	2-17-52	X	
R. E. Hueschen to: U.S. Bureau of Mines Albany, Oregon	Metallurgical consul- tation	E. T. Hayes S. M. Shelton	2-26-52	2-27-52	X	
H. B. Schmidt to: Reed College Portland, Oregon	Discuss progress under a research sub- contract	A. F. Scott	2-1-52	2-1-52	X	
R. H. Moore to: Ames Laboratory Ames, Iowa	Discuss analytical methods on uranium	B. A. Rogers	2-19-52	2-22-52	X	
C. Groot to: Oak Ridge National Lab. Oak Ridge Tennessee	Consultation on sepa- rations methods	H. A. Bernhardt	1-28-52 2-15-52	1-28-52 2-15-52	X X	
W. C. Schmidt to: Alaska Copper Company Seattle, Washington	Supervise packing of off gas filters for 201-C	- - -	2-4-52	2-8-52	X	
<b>FINANCIAL DEPARTMENT</b>						
I. Visits to other Installations						
G. C. Hopkins to: Crane Company Chicago, Illinois	Auditing purposes	P. M. Weiss	2-1-52	2-14-52	X	
G. C. Hopkins to: Foster Wheeler Corporation	Auditing purposes	R. D. Stout	2-18-52	2-26-52	X	

DECLASSIFIED

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class</u>	<u>UnClass</u>

ENGINEERING DEPARTMENT ADMINISTRATIVE

I. Visits to other Installations

M. K. Cain  
to: John W. Maloney Company  
Seattle, Washington

J. W. Maloney  
2-18-52 2-19-52 X

M. K. Cain  
to: Belluschi Skidmore  
and Merrill, Portland, Oregon

E. Brown  
2-19-52 X

M. K. Cain  
to: Moffatt, Nichol & Taylor  
Portland, Oregon

G. Taylor  
2-19-52 X

M. K. Cain  
to: Stevens & Thompson  
Portland, Oregon

L. Thompson  
2-19-52 X

SPECIAL VISITOR

L. W. Fromm  
Argonne National Laboratory  
Chicago, Illinois

M. D. Fitzsimmons  
2-26-52 2-28 52 X  
209-W 222-U  
300-XXX; 700  
100-H 105

PURCHASING AND STORES SECTION  
UTILITIES AND GENERAL SERVICES DEPARTMENT  
SUMMARY - FEBRUARY 1952

Personnel of the Purchasing and Stores Section showed a net decrease of three as noted below:

	<u>TOTAL PERSONNEL</u>		
	<u>1-31-52</u>	<u>2-29-52</u>	<u>Net Change</u>
Exempt	92	94	+2
Non-Exempt	<u>333</u>	<u>328</u>	<u>-5</u>
	425	422	-3

It is evident that certain materials are becoming more available as a result of cutbacks in civilian production. This is not true of nickel or columbium bearing stainless steel. Fabricating shops, particularly those not engaged in defense work are seeking orders.

Many factors indicate a growing softness in various areas of the economy. This softness forecasts possibilities of price weakness developing.

Responsibility for the sale of General Electric owned scrap and salvage material located in vendors' plants was transferred from construction Procurement Unit to Surplus, Salvage and Scrap of the Stores Unit.

Expediting assistance was requested by Project Engineering and the Bay Company on a large order for vessels placed by Bay Company with Alaskan Copper Company. Through intensive coordinating and scheduling work the order is expected to be completed early in March.

It appears that the revised procedure, whereby priority assistance requests are sent directly to A.E.C., is saving time in submission of these requests to Washington.

Production of Vertical Safety Rods and assembly of Horizontal Rods have not reached sufficient volume as yet, and continuing efforts in inspection and expediting will be necessary to meet requirements.

Bellows assemblies and gun barrels for Project C-431-B were shipped complete.

Considerable rescheduling of Essential Materials has been made necessary by process changes which reduce the required quantity of these materials.

The Regional Representative of the Interstate Commerce Commission visited this office after a thorough check of the records of the three rail lines serving Hanford Works with respect to such matters as demurrage, efficient use of cars and payment of freight charges in accordance with I.C.C. regulations. He stated that General Electric Company continues to have an outstanding record in effectively controlling these items.

As a result of rate reductions obtained from carriers there was a total savings in freight charges for February of \$12,850.50. This makes a total savings from September 1, 1946 to date of \$1,701,146.48.

1214143

PURCHASING AND STORES SECTION  
SUMMARY

An amendment to the N.P.A. order affecting electric utilities necessitated a determination of the company's status as a distributor of electricity. The Law Department's interpretation is that, although we supply power for both commercial and residential use, we are not considered an electric utility under this order.

The Army has evacuated 2 warehouses and all storage areas in the Stores' section of North Richland and these facilities are now available for Stores' use.

PURCHASING AND STORES SECTION

GENERAL

Representatives of General Electric Company Sales Office, Seattle, visited Hanford and discussed the problem of providing detailed information concerning manufacturing schedules, subsupplier information, etc., for submission of priorities assistance requests. Arrangements have been made to obtain from them order numbers and manufacturing plants, and to have the balance of the information developed by General Electric Company, Government Business Services Division, Washington, D. C., after submission of requests to National Production Authority.

Nitric acid requirements, phased monthly and by vendor, were developed for the balance of 1952 and correlated to regular quarterly forecasts. Submission of the estimated relative ammonia requirements for this nitric acid production enabled NPA to close our request for assistance on behalf of the Hedges Works.

An amendment to the NPA Order affecting electric utilities necessitated a determination of our status as a distributor of electricity. The Law Department's interpretation is that, although we supply power for both commercial and residential use, we are not to be considered an electric utility under this regulation.

Vendor inquiries on renegotiation status of purchase orders increased substantially during the past month.

Thirteen requests for NPA Directive or DX action were received.

Fifteen cases were submitted to AEC for directive or DX action.

Five supplemental allotments of controlled materials were received:

Carbon Steel (1)	-	500 tons
Alloy Steel (2)	-	37 tons
Brass Mill Products (2)	-	3,000 pounds

PERSONNEL

	As of 1-31-52			As of 2-29-52			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Staff	2	1	3	2	1	3	0	0	0
General	2	3	5	2	3	5	0	0	0
Priorities	6	7	13	7	7	14	/1	0	/1
Inventory Audits	2	11	13	2	11	13	0	0	0
Clerical	2	33	35	2	34	36	0	/1	/1
	<u>14</u>	<u>55</u>	<u>69</u>	<u>15</u>	<u>56</u>	<u>71</u>	<u>/1</u>	<u>/1</u>	<u>/2</u>

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Number of Employees Attending	60

PURCHASING AND STORES SECTION  
GENERAL

STATISTICS

The following schedule reflects total allotments received from the Atomic Energy Commission and allotments used and extended to suppliers and contractors through February. 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.

CONSTRUCTION

Controlled Material	Unit	1 Q 52	2 Q 52	3 Q 52	4 Q 52
	Measure				
Carbon Steel, Plate	Short	977.50	262.00	11.00	12.00
Carbon Steel, Structural Shapes	Tons	493.11	50.13	.05	0
Carbon Steel, Other Forms	Short	1240.00	156.00	24.00	12.00
Alloy Steel (excluding Stainless Steel)	Tons	705.90	45.13	.05	0
Stainless Steel	Short	2300.00	797.50	300.00	75.00
Copper & Copper Base Alloy	Tons	2211.93	511.21	9.05	0
Brass Mill Products	Short	15.00	3.00	35.00	3.00
Copper Wire Mill Products	Tons	13.54	.05	.05	0
Copper & Copper Base Alloy	Lbs.	270,000	113,640	37,000	3,000
Brass Mill Products	Lbs.	249,365	34,502	2,000	0
Copper & Copper Base Alloy	Lbs.	38,914	7,075	2,650	1,000
Brass Mill Products	Lbs.	38,293	1,900	200	0
Copper Wire Mill Products	Lbs.	108,796	50,618	13,630	4,000
Copper & Copper Base Alloy	Lbs.	105,452	26,148	729	0
Foundry Products & Powder	Lbs.	4,000	None	50	None
	Lbs.	3,079	None	0	None
Aluminum	Lbs.	22,800	10,000	206,900	100
	Lbs.	21,490	1,071	200	0

OPERATIONS

Controlled Material	Unit	1 Q 52	2 Q 52	3 Q 52	4 Q 52
	Measure				
Carbon Steel, (including Wrought Iron)	Short	142.00	184.00	120.00	150.00
Alloy Steel (excluding Stainless Steel)	Tons	59.04	57.99	0	0
Stainless Steel	Short	2.00	3.00	4.00	3.00
Copper & Copper Base Alloy	Tons	1.77	0	0	0
Brass Mill Products	Lbs.	36,000	100,000	46,000	42,000
Copper Wire Mill Products	Lbs.	8,870	16,038	0	0
Copper & Copper Base Alloy	Lbs.	10,800	8,050	7,760	2,820
Foundry Products & Powder	Lbs.	10,791	1,561	0	0
Aluminum	Lbs.	11,646	15,000	20,000	12,000
	Lbs.	6,613	1,311	0	0
	Lbs.	600	500	400	400
	Lbs.	0	0	0	0
	Lbs.	314,200	239,980	180,000	132,200
	Lbs.	307,011	199,258	92,519	90,000

PURCHASING AND STORES SECTION  
GENERAL

	<u>G</u>	<u>D</u>	<u>TOTAL</u>
Requisitions On Hand 2-1-52 (Includes 112 Assigned To Gov't.)	925	371	1296
Requisitions Assigned During February	1869	678	2547
Requisitions Placed During February	1980	781	2761
Requisitions on Hand 2-29-52 (Includes 128 Assigned to Gov't.)	814	268	1082

	<u>NUMBER</u>	<u>VALUE</u>
H. W. Orders Placed	1386	\$ 591,284.68
H. W. Alterations Placed	<u>127</u>	<u>37,654.23</u>
<b>TOTAL</b>	<b>1513</b>	<b>\$ 628,938.91</b>

H. W. C. Orders Placed	594	\$ 200,011.69
H. W. C. Alterations Placed	<u>140</u>	<u>185,632.45</u>
<b>TOTAL</b>	<b>734</b>	<b>\$ 385,644.14</b>

A. E. C. Orders Placed	132	\$ 117,768.49
D. C. Orders Placed	77	69,462.01

Gov't. Transfers	<u>OR</u> 0	<u>ORC</u> 1
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Return Orders Issued	<u>NUMBER</u> <u>111</u>
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PURCHASING AND STORES SECTION  
CONSTRUCTION PROCUREMENT UNIT  
FEBRUARY 1952

The number of open purchase requisitions in the Unit decreased from 186 on February 1, to 105 at the end of the month. Of the 105 open requisitions, 62 are for material for major construction projects, 30 for minor construction material and 13 for miscellaneous materials.

Although the number of requisitions processed during February decreased slightly from the number handled in January, the work load in the Unit remained constant or increased slightly. This was due to the fact that many of the requisitions received were of an emergency nature and required special handling.

A member of the Unit accompanied by a Design Engineer visited Standard Steel Corporation, Los Angeles, California in connection with order HWC 14036. The purpose of the trip was to determine the results of heat treating and water-quenching a condenser tube-bundle and to make the necessary design changes to utilize the bundle in the original condenser shell. During the same trip, arrangements were made to have a second tube-bundle heat treated and water-quenched by the Navy Ordnance Test Station, Inyokern, California.

Evidence is apparent that certain materials are becoming more available with the cutbacks in civilian production. This is not true of nickel bearing or columbium bearing stainless steels. Fabricating shops, particularly those not engaged in defense work are seeking buyers. Production Pools, consisting of small manufacturers are being organized and solicited for defense contract work.

The first H-Rod was completed and accepted on order HWC 14596. The vendor has been requested to submit a quotation on the balance of 15 units. This is the last of the major fabrication jobs for Project C-431-B.

The responsibility for the sale of General Electric owned scrap and salvage material located in vendors' plants has been transferred to the Scrap and Salvage Unit of Stores. Construction Purchasing will complete the sales on which Invitations to Bid were out when the transfer of responsibility went into effect. A new procedure is being incorporated in the Purchasing Manual.

PERSONNEL

As of 1-31-52			As of 2-29-52			Net Change		
Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
9	9	18	9	9	18	0	0	0

SAFETY AND SECURITY

Safety and Security Meetings - 1  
 Number of employees attending - 14

1214748

OPERATIONS PROCUREMENT UNIT

FEBRUARY -- 1952

Request for quotations have been sent to the vendors on our contract requirements for Sulphuric Acid, Oxygen, and Acetylene. It is anticipated that the awards will be made and the contracts negotiated during the month of March.

The 8" can program is progressing satisfactorily and the supply on hand of both 8" and 4" cans is adequate. Some difficulty has been experienced in obtaining satisfactory steel sleeves, but the problem is being solved and the supply should be satisfactory by early in March.

Considerable rescheduling of Essential Materials has been made necessary by process changes, which reduce the quantity of Essential Materials required. In some cases, contracts will be modified to provide for additional time to enable supplier to dispose of material specifically manufactured for our use, for which he would have no other sale. In each case, this is being discussed with the Atomic Energy Commission prior to discussion with the vendor.

Nitric Acid production at the General Chemical Division Plant, at Hedges, Washington, will begin early in April and deliveries have been scheduled on this basis. The TEP tankage will be filled in advance of start-up. To conform to actual start-up dates of the acid plant and the availability of storage at TEP, the Nitric Acid Contract with General Chemical Division was first modified to begin March 1, 1952, instead of January 1, 1952. A further modification, changing the starting date from March 1 to April 1, 1952, is now in progress.

Personnel

<u>As of 1-31-52</u>			<u>As of 2-29-52</u>			<u>Net Change</u>		
<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>
10	14	24	11	13	24	/1	-1	0

Safety and Security

Safety and Security Meetings scheduled - 1  
Number of employees attending - 24

1214749

7.

PURCHASING AND STORES SECTION  
INSPECTION AND EXPEDITING UNIT  
FEBRUARY 1952

The Superintendent of Inspection and Expediting Unit made a visit to the Worthington Pump Company, Harrison, New Jersey, accompanied by a member of A.E.C. and Engineering for the purpose of expediting a highly critical order for the C-431-A Project. It was necessary that sub-vendors of Worthington also be visited during this trip. A satisfactory delivery promise was obtained. Preliminary checks on the status of this work since our visit indicate the vendor will better the promise obtained.

The Expediting Unit was requested by Project Engineering and the Bay Company to expedite a large order for vessels placed by Bay Company with Alaskan Copper Company. One inspector was assigned full time to this job, and it was necessary that the Supervisor of Expediting spend several days in coordinating and scheduling the work at Alaskan Copper Company. The order is expected to be completed early in March.

A number of critical orders which have been previously reported as requiring exerted expediting efforts have been completed. These orders are the bellows assembly, gun barrels, and "B" blocks. Work is progressing on the horizontal and vertical safety rod assemblies. Attempts are being made to locate additional machining sources for the vendor on parts of the sub-assembly of the vertical safety rods.

During the month of February, the Expediting Unit started sending requests for priority assistance direct to A.E.C. Although it is too early for a definite trend to be established, it appears that much time is being saved between the date of request and the time that it is submitted to A.E.C., Washington. The priority assistance requests are mainly for the C-431 Project. This is normal as the major portion of Expediting time is being spent on this Project.

VS Rods are still a production problem. While the quality of castings from a machinability standpoint were considerably improved by foundry acceptance of 2 changes in technique and process suggested by Inspection Unit, production in sufficient volume has not yet been reached. Of the 2 sources now being used one is having considerable trouble in holding tolerances in final machining operations, and unless some salvage process can be worked out, additional tube castings may be required.

H Rod Assembly has been slower than expected. Some components have been slow in arriving. The sub-vendor producing gear racks had completely stopped machining these racks because of other high priority work. The prime vendor's representative along with our inspector worked several days with the gear rack sub-vendor in attempts to work out a procedure which would allow machining time for our work. At last report this had been arranged, but this situation will bear watching.

"B" blocks were substantially completed during the month, but there is enough work in cataloguing equipment and tools and directing salvage and scrap sales to keep 2 inspectors on this work.

Bellows assemblies and gun barrels for C-431-B were both shipped complete during the month.

With the arrival of the large quantities of equipment for the C-431-A and B Projects, it is contemplated that an inspector will be assigned to the Area as Purchasing Representative to Construction early in March.

PURCHASING AND STORES SECTION  
INSPECTION AND EXPEDITING UNIT  
FEBRUARY 1952

Two technical graduates were returned to Technical Personnel during the month.

PERSONNEL

	As of 1-31-52			As of 2-29-52			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Inspection	29½	18	47½	29½	14	45½	0	-2	-2
Expediting	13½	9	22½	13½	9	22½	0	0	0
	43	27	70	43	23	68	0	-2	-2

SAFETY AND SECURITY

Safety and Security Meetings Scheduled. 0

STATISTICS

Inspection.

Number of open orders requiring inspection	217
Number of open orders being inspected	192
Number of new orders requiring inspection	24
Number of open requisitions requiring inspection	59
Number of completed orders (cancelled, waived, etc.)	76
Number of open orders requiring inspection - sub-vendor	30
Number of open orders being inspected - sub-vendor	30
Number of completed orders - sub-vendor	0

Expediting

HW Orders expedited in February (active)	460
HW Orders expedited in February (routine)	1555
HWC Orders expedited in February	1150
Sub-vendor Orders expedited in February	2200*
HW Orders completed in February	1401
HWC Orders completed in February	692

\* Estimated

PURCHASING AND STORES SECTION  
STORES UNIT  
 FEBRUARY, 1952

GENERAL:

2470 purchase requisitions were processed through screening and 1943 items were furnished from Stores Unit inventories. Sixty-eight items of stainless steel not immediately available on the open market were also furnished to fabricators from Stores Unit inventories.

Maintenance materials and supplies disbursed from Operations inventories totaled \$224,755.43 and Spare Parts disbursements totaled \$132,935.38.

Receiving reports issued during the month totaled 5,456.

Material and equipment valued at \$43,302.84 from 12 captions in the 10.20 Account (Construction Materials Held for Future Use) were disbursed to construction forces during the month. In addition to the foregoing, materials valued at \$191,498.35 were shipped as directed by the Commission. Materials declared excess from the above account totaled \$14,624.64. The total value of materials disposed of during the month was \$249,425.83.

Materials and equipment valued at \$18,319.14 were withdrawn from the 10.10 Account (Excess) for use on the project. Excess materials and equipment valued at \$151,586.91 were shipped from the project as directed by the Commission. Total value of Excess materials disposed of this month was \$169,906.05.

During the month, 29 formal excess lists totaling \$150,434.20 were submitted to the Commission for disposition.

90 representatives of government and private businesses were escorted through our warehouses and yards for the purpose of negotiating the sale of scrap and transfer of excess property. Five scrap sales were completed this month for a revenue of \$16,952.93.

2 Two A.E.C. Surplus and Salvage Sales conducted by our personnel during February resulted in a total revenue of \$24,088.50. Three sales are currently in process.

4 The 200 West area store was placed in operation on February 4th and the work of  
 5 establishing the 100-B area store completed in time for the scheduled opening  
 2 on March 3rd.

The Army has evacuated the North Richland Warehouse area.

PERSONNEL

	As of 1-31-52			As of 2-29-52			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	6		6	5		5	-1		-1
Construction Materials	1	28	29	1	28	29			
Operations Materials	4	123	127	4	121	125		-2	-2
Surplus, Salvage & Scrap Materials	3	67	70	4	66	70	1	-1	
<b>TOTALS</b>	<b>14</b>	<b>218</b>	<b>232</b>	<b>14</b>	<b>215</b>	<b>229</b>	<b>1</b>	<b>-3</b>	<b>-3</b>

PURCHASING AND STORES SECTION  
STORES UNIT

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	12
Number of Employees Attending	202
Minor Injuries	2

1214753

PURCHASING & STORES SECTION  
TRAFFIC UNIT  
February 1952

GENERAL

As a result of our request for reparation on account of unreasonable rate assessed on four tank car loads of Liquid Asphalt from Willbridge, Oregon, to Hanford the Interstate Commerce Commission authorized and directed the Milwaukee Railroad to pay to the General Electric Company \$93.36.

The Interstate Commerce Commission granted the Railway Express Agency authority to assess a charge of 6 cents per less-carload shipment of one or more packages or pieces in addition to the total of all other applicable charges which became effective on February 28, 1952.

Through negotiations with the Motor Carriers we have been successful in having the rate on Sulfamic Acid from Portland and Seattle to Hanford Works reduced, effecting a savings of approximately \$250 per shipment.

The Regional Representative of the Interstate Commerce Commission visited this office after a thorough check of the records of the three rail lines serving Hanford Works with respect to such matters as demurrage, efficient use of cars and payment of freight charges in accordance with ICC regulations. He stated that General Electric Company continues to have an outstanding record in effectively controlling these items.

As a result of rate reductions obtained from the carriers there was a total savings in freight charges for the month of February amounting to \$12,850.50. This makes a total savings from September 1, 1946, to date of \$1,701,146.48.

PERSONNEL

<u>As of 1-31-52</u>			<u>As of 2-29-52</u>			<u>Net Change</u>		
<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>
2	10	12	2	10	12	0	0	0

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Meetings Held	1
Minor Injuries	0

STATISTICS

Savings Report

1. Rate reductions obtained from the Carriers:

<u>Commodity</u>	<u>Origin</u>	<u>Savings for February</u>	<u>Savings 9-1-46 thru Jan. 1952</u>	<u>Total Savings 9-1-46 to date</u>
WB* Blocks	Bremerton, Wash.	\$10,415.19		
Castings, Rough	Los Angeles, Cal.	1,250.00		
Salt, Crude, Undried	Newark, Cal.	499.31		

1214754

PURCHASING & STORES SECTION  
TRAFFIC UNIT  
February 1952

STATISTICS (CONT.)

Savings Report (Cont.)

1. Rate reductions obtained from the Carriers: (Cont.)

<u>Commodity</u>	<u>Origin</u>	<u>Savings for February</u>	<u>Savings 9-1-46 thru Jan. 1952</u>	<u>Total Savings 9-1-46 to date</u>
Gravel	Pioneer Spur, Wn.	\$ 253.31		
Iron or Steel	Los Angeles, Cal.	290.02		
Methane Gas	Various	83.51		
Truck	Various	29.26		
Carloading	Various	29.90		
		<u>\$12,850.50</u>	<u>\$1,688,295.98</u>	<u>\$1,701,146.48</u>
2. Freight Bill Audit		912.55	79,745.40	80,657.95
3. Loss & Damage & Overcharge Claims		1,845.37	109,465.03	111,310.40
4. Ticket Refund Claims		622.38	22,323.45	22,945.83
5. Household Goods Claims		99.45	16,095.51	16,194.96
		<u>\$16,330.25</u>	<u>\$1,915,925.37</u>	<u>\$1,932,255.62</u>

Work Volume Report

Reservations Made	Rail	135
	Air	124
	Hotel	182
Expense Accounts Checked		160
Household Goods & Automobiles	Movements Arranged Inbound	2
	Movements Arranged Outbound	1
	Insurance Riders Issued	4
	Claims Filed	6
	Claims Collected - Number	2
	Claims Collected - Amount	\$99.45
Ticket Refund Claims	Filed	21
	Collected - Number	23
	Collected - Amount	\$622.38
Freight Claims	Filed	13
	Collected - Number	6
	Collected - Amount	\$1,845.37
	Over & Shorts Processed	8
	Damage Reports Processed	8
Freight Bill Audit Savings		\$912.55

**PURCHASING & STORES SECTION**  
**TRAFFIC UNIT**  
**February 1952**

**STATISTICS (CONT.)**

**Work Volume Report (Cont.)**

Freight Shipments Traced		93
Quotations	Freight Rates	201
	Routes	236
Bills Approved	Air Freight	1
	Air Express	26
	Boat	5
	Carloading	193
	Express	257
	Rail	983
	Truck	608
Return Orders Processed		35
Carload Shipments	Inbound - GE - AEC	1,104
	All Others	127
	Outbound - GE - AEC	32
	All Others	48

**Report of Carloads Received**

	<u>CMSTP&amp;P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
General Electric Company			1	1
Agitator Units			1	1
Aluminum Pigs		1		1
Aluminum Sulphate				1
Aluminum Tubing	1			1
Bath Tubs		1		1
Carbon Tetrachloride		1	1	3
Castings	1	10	2	16
Caustic Soda	4		1	2
Chlorine	1			1
Coal	172	35	750	957
Crane			1	1
Desks		1		1
Ferric Sulphate			1	1
Furniture, Office		12		12
Gravel		1		1
Grinding Balls				1
Lime		2	1	3
Machinery				2
Magnetite Iron Ore			1	3
Methyl Isobutyl Ketone			7	13
Nitric Acid		1		1
Petroleum Insecticide		1		3
Phosphoric Acid	214756	2	6	8
Pipe				

PURCHASING & STORES SECTION  
TRAFFIC UNIT  
February 1952

STATISTICS (CONT.)

Report of Carloads Received (Cont.)

	<u>CMSTP&amp;P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
<b>General Electric Company (Cont.)</b>				
Pipe Fittings		2		2
Pumps			1	1
Salt	2	1	1	4
Sand	8			8
Soda Ash	1	1	2	4
Steel		1		1
Steel Structural	1			1
Sulphuric Acid			1	1
Tanks	1			1
Tubes	3			3
Valves & Parts	2	1	1	4
Express Cars	4		1	5
Merchandise Cars		3	3	6
<b>TOTAL</b>	<b>209</b>	<b>83</b>	<b>78 1/2</b>	<b>1,076</b>
<b>A.E.C.</b>				
Automobiles		6		6
Chemicals	5			5
Copper Wire	2			2
Electric Cable		1		1
Electric Motors		3	1	4
Lumber			1	1
Machinery			1	1
Pipe	1			1
Trailers		1		1
Transformers		2		2
Merchandise Cars	1		3	4
<b>TOTAL</b>	<b>9</b>	<b>13</b>	<b>6</b>	<b>28</b>
<b>Atkinson &amp; Jones Const. Co.</b>				
Asbestos Insulation	2			2
Asbestos Roofing	2	3		5
Asbestos Siding	1	1		2
Asbestos Wallboard	1	1		2
Cement	11	6	13	30
Copper Wire	1			1
Pipe	7	5		12
Steel	1			1
Steel Flooring	2			2
Steel Joists			1	1
Wire Fencing	1			1
Merchandise Cars	3	2		5
<b>TOTAL</b>	<b>32</b>	<b>18</b>	<b>14</b>	<b>64</b>

**PURCHASING & STORES SECTION**  
**TRAFFIC UNIT**  
**February 1952**

**STATISTICS (CONT.)**

**Report of Carloads Received (Cont.)**

	<u>CMSTP&amp;P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
Electric Smith, Inc. Pipe		1		1
Head Mechanical Contractors Pipe			4	4
L. H. Hoffman Asphalt Paint		1		1
Pipe		1		1
Truck Crane		1		1
<b>TOTAL</b>		<b>3</b>		<b>3</b>
Hoge Warren Zimmermann Plaster	3			3
S. S. Mullen, Inc. Asbestos Siding	1			1
Richland Fuel Co. Coal			24	24
Seldens, Inc. Tile Flooring			1	1
Sound Construction Co. Machinery		1		1
U. S. Army Autos, Freight		1	1	2
Crossarms	2			2
Explosives			1	1
Tractor Parts	2			2
Trailers	4		10	14
Merchandise Car			1	1
<b>TOTAL</b>	<b>8</b>	<b>1</b>	<b>13</b>	<b>22</b>
U. S. Corps of Engineers Laundry Machinery			3	3
<b>TOTAL - SUBCONTRACTORS</b>	<b>11</b>	<b>24</b>	<b>59</b>	<b>127</b>
<b>TOTAL - ENTIRE PROJECT</b>	<b>262</b>	<b>120</b>	<b>849</b>	<b>1,231</b>

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TRANSPORTATION SECTION  
MONTHLY REPORT  
FEBRUARY 1952

GENERAL

Transportation Section personnel forces decreased from 523 to 521 employees during the month by 7 new hires, 6 transfers in, 1 reactivation - personal illness, 7 transfers out, 6 terminations and 3 deactivations - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during February increased 7.9% over January.

Process movements were slightly below normal and decreased 27.3% over January. Reduction was due to preparations being made to by-pass the 200 North Areas by the handling of these movements direct from the 100 Areas to the 200-East and 200-West Areas.

Car movements including process service totaled 2,803 in February compared to 2,909 in January.

Thirty-six cars of ballast were moved from the 100-H Area to the 100-B and 100-C Areas for the Atkinson & Jones Company. This included ballast spreading service for the construction of new railroad trackage.

The following recapitulation indicates the number of commercial cars handled:

<u>Carload Movements</u>	<u>Loads In</u>	<u>Empties In</u>	<u>Loads Out</u>	<u>Empties Out</u>
General Electric Company	1102	34	39	1088
Atkinson & Jones Company	63	-	-	67
The Bay Company	1	-	-	1
F. J. Early Co.	-	-	1	-
Head Mechanical Contractors	4	-	-	4
L. H. Hoffman Co.	1	-	-	1
Hoge Warren Zimmerman	3	-	-	3
S. S. Mullen Co.	1	-	-	1
Richland Fuel Co.	24	-	-	28
H. H. Robertson Co.	1	-	-	1
Seldens, Inc.	1	-	-	1
Sound Construction Co.	1	-	-	1
Corps of Engineers	3	-	-	3
U. S. Army	<u>18</u>	<u>51</u>	<u>51</u>	<u>17</u>
	1,223	85	91	1,216

Inspected and made minor repairs to the following leased acid cars: USAX 17114, USAX 17136, USAX 17138, USAX 17501, GATX 28851, GATX 28819 and USOX 17108.

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nsportation Section

Railroad track maintenance and renabilitation work continued on a routine basis. Lining, surfacing and dressing of track required 1,522 man-hours. Distribution and handling of materials required 1,149 man-hours. Relay of rail and ties re-  
quired 187 man-hours. Installation of other track materials required 335 man-hours.

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Transportation Section

Effective February 1, the procedure for the control and handling of bus revenue and fare tickets was revised whereby the General Accounting Section assumed the counting and reporting of daily revenue.

Off-Plant chauffeured automobile trips (Company business and/or official visitors) totaled 184.

The following tabulation indicates the volume of Drivers Test Service rendered including the new permits issued in compliance with AEC Bulletin GM 181 and HW Instructions Letter No. 15.

Applicants: Male	93	Number rejected	1
Female	14	Number tests given	107
Permits Issued: Limited to driving with glasses			38
Unlimited			68
Permits Reissued: Routine		21	
New AEC		200	
New AEC to date		5100	

The following tabulation indicates the volume of fuel distribution by Equipment Maintenance personnel:

	<u>Gasoline</u>	<u>Diesel Fuel</u>	<u>50 Cetane</u>	<u>Kerosene</u>	<u>White Gas</u>
Stock at start of month	28,427	9,637	6,663	2,820	186
Received during month	110,536	22,875	29,769	6,952	0
Total	138,963	32,512	36,432	9,772	186
Disbursed during month	113,697	18,333	26,667	7,785	10
Stock at end of month	25,266	14,179	9,765	1,987	176

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by Equipment Maintenance personnel:

34	Motor overhauls
148	Class A Inspections and Repairs
1,230	Class B Inspections and Lubrications
2,218	Other routine maintenance repairs and service calls
675	Tire repairs
601	Wash jobs

Transportation Section

The following tabulation indicates the Plantwide usage of automotive equipment:

<u>Code</u>	<u>Type</u>	<u>No. of Units</u>	<u>Total Mileage</u>
1A	Sedans	319	569,825
1B	Buses	157	253,835
1C	Pickup Trucks	452	275,833
1D	Panel, Carryall, Sta.Wagon	125	153,879
1E	Armored Cars	12	78
1G	Jeeps	2	776
68 Series	Trucks	<u>279</u>	<u>94,198</u>
		1,346	1,348,424

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of road asphalt material handled by Transportation Services personnel:

	<u>MC 1</u>	<u>MC 3</u>	<u>MC 4</u>	<u>MC 5</u>
Stock at start of month	0	395	0	2,803
Received during month	0	0	0	0
Dispensed during month	0	0	0	0
Stock at end of month	0	395	0	2,803

Maintenance of primary roads required 1,101 man-hours.

Handling of materials for the Stores Unit at White Bluffs, 700, 1100 and 3000 Areas included 29 carloads and 272 truckloads and required 6,280 man-hours.

Handling Area deliveries required 1,516 man-hours and office furniture 1,515 man-hours.

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HW-23698

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ELECTRICAL DISTRIBUTION AND  
TELEPHONE SECTION

FEBRUARY 1952

March 7, 1952

GENERAL

The Section scheduled work backlog totaled 4,417 man days as of March 1. This is distributed as follows:

	<u>Days Per</u> <u>Craftsman</u>	<u>Total</u> <u>Man Days</u>	<u>Net Change</u> <u>Man Days</u>
Line Maintenance	50.8	1,678	385 Decrease
Substation Maintenance	25.5	465	243 Decrease
Telephone Unit	59.8	2,274	30 Decrease

The 12.96 per cent reduction from the previous month results chiefly from a revised method of calculating the Electrical Distribution Unit's work backlog. Work scheduled for performance over a protracted period of time does not present a true picture when included in the current month's backlog. Consideration of the time factor in analyzing the work load reduces backlog figures, providing an improved basis for judging manpower requirements. This factor will also be considered in presenting future backlog data for the Telephone Unit.

Electric power peak demands for February were:

	<u>Date</u>	<u>February</u> <u>KW Demand</u>	<u>Comparative</u> <u>January</u>
Process Load	2-19-52 (3:30-4:00 pm)	78,500	78,600
Richland Load	2-19-52 (5:30-6:00 pm)	29,100	32,500

The 7.6 per cent decrease from the Richland February 1951 demand can be attributed to the unusually mild temperature.

The Appropriations and Budget Committee met and tentatively approved the request for approval to purchase and install civil defense emergency radio communication equipment. Cost figures will be submitted for provision of an emergency power source for these communications. Six 1 1/2 KW engine generators have been located on the Plant, have been overhauled, and earmarked for that service.

A description of available telephone equipment installed for civil defense has been developed, with a preliminary procedure for its use. This equipment functioned satisfactorily during a state wide "Yellow Alert" on February 24.

Electrical Distribution Unit civil defense procedures have been established and a question raised regarding the desirability of "blackout."

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ELECTRICAL DISTRIBUTION UNIT

Maintenance and Operation

The Safety Department has tentatively agreed to permit certain types of "hot" line work. A review indicates this will eliminate approximately sixty per cent of the electrical outage time in Richland. The Employee's Handbook of Safe Practices will be revised to conform with this agreement.

Provisional agreement was reached with the Reactor Section for new Critical Power Procedures, Grade "X" and "Y Alert." These supplement the development of the voltage-frequency table mentioned in the January report. Adoption of these procedures will appreciably reduce the duration of critical power outages under emergency conditions, and lost production time.

System Expansion and Planning

Project C-295 (Expansion of Substation 251). This work was completed and a request made for project closeout. Final accounting will show costs to be approximately sixteen (16) per cent, or \$200,000, under original estimate.

B.P.A. has agreed to permit underbuilding approximately two miles of 7,200 volt line on their Midway-Riverland 13.8 KV line. This will replace, instead of building, an equivalent section of the Rivernita Orchards line.

The Electrical Distribution Unit moved to temporary headquarters in the former Richland Plumbing and Heating Company building in North Richland.

TELEPHONE UNIT

Maintenance and Operation

Installation of terminals, and rearranging of cable connections, was completed permitting removal of all equipment from the former 100-D Exchange.

A summary of telephone subscriber service is as follows:

	<u>Subscriber Stations in Service</u>	<u>Lines Available for Service</u>	<u>Sides Available for Service</u>	<u>Exchange Lines in Service</u>
Richland	5,314 (Residence) 994 (Official)	101	265	3,858
N. Richland	515	136	25	444
Process Areas	<u>1,317</u>	<u>518</u>	<u>0</u>	<u>1,232</u>
Total	8,140	755	290	5,534

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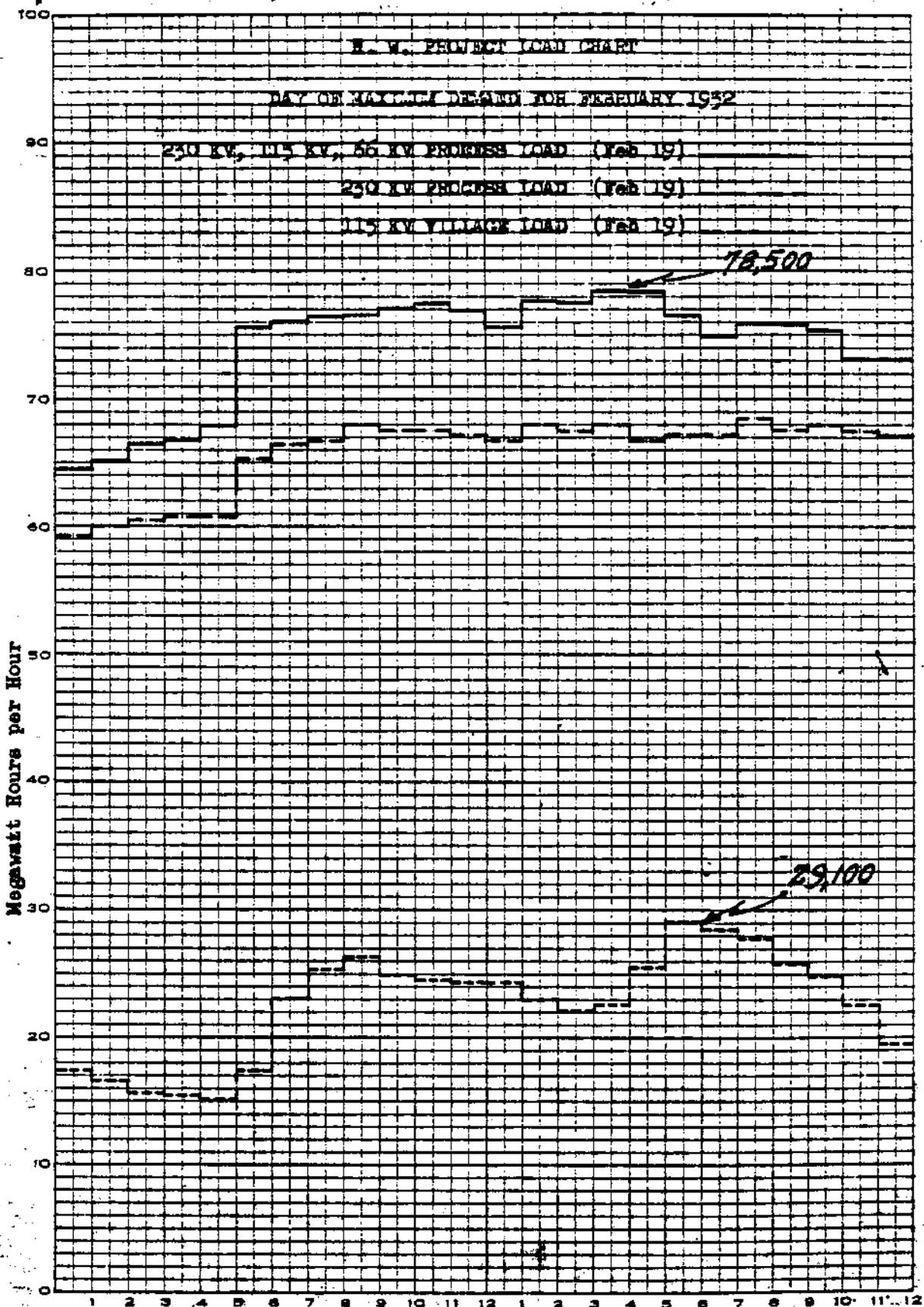
System Expansion and Planning

Agreement was reached with the A.E.C. to include a 1953 FY Budget Item of \$350,000 for a Richland Official Telephone Exchange. A preliminary trunking diagram has been prepared and a project proposal is under preparation:

A.E.C. concurrence was obtained to establishment of a policy for telephone service on a four-party basis in Richland. Four-party service only will be available in the Fifth, and succeeding, Housing Areas. One and two-party service will be provided for new subscribers in existing residential areas only when four-party facilities are not available.

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UTILITIES AND GENERAL SERVICES DEPARTMENT  
STATISTICS UNIT

MONTHLY REPORT - FEBRUARY, 1952

GENERAL - C. A. Bennett

Organization and personnel of the Statistics Unit are summarized as follows:

	<u>As of 1-31-52</u>			<u>As of 2-29-52</u>			<u>Net Change</u>		
	<u>Ex</u>	<u>Non-Ex</u>	<u>Total</u>	<u>Ex</u>	<u>Non-Ex</u>	<u>Total</u>	<u>Ex</u>	<u>Non-Ex</u>	<u>Total</u>
100 Area Services	1	2	3	1	2	3	0	0	0
200 Area Services	2	2	4	2	3	5	0	/1	/1
300 Area Services	1	2	3	1	2	3	0	0	0
General Services	1	0	1	1	0	1	0	0	0
Methods	2	0	2	2	0	2	0	0	0
Staff	0	1	1	1	1	2	/1	0	/1
TOTAL	7	7	14	8	8	16	/1	/1	/2

One clerk was added during the month on a temporary basis to facilitate the preparation of 200 Area laboratory control data for I.B.M. processing, and one exempt statistician was reactivated after a leave of absence.

On February 15, 1952, L. G. Waters attended a meeting at Mallinckrodt Chemical Works, St. Louis, Missouri, at which the identification of lots of uranium billets throughout refining, rolling, and Hanford processing was discussed.

100 AREA SERVICES - R. F. Cell

In connection with the problem of slug failures, assistance was given in the statistical analysis of data supplied by the Pile Technology Unit. In particular, the statistical significance of the difference in failure rate between Group VII and Group VIII metal at various power and exposure levels was assessed. This will be repeated periodically as more data become available. Tests were also made to evaluate the significance of certain tabulations of the failures according to the day of the week and the time of day they were manufactured. The statistical evaluation of other tabulations relating failures to manufacturing and operating variables is in progress.

Statistical analyses were begun on data obtained by the Water Studies group of the Pile Technology Unit in the 100-D flow laboratories. For the same group, a relationship was obtained between film build-up and time of exposure, and confidence limits on the average rate of build-up established.

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Further analysis was made of the relationship between thermocouple readings in the various piles, and a final report is being issued. A discussion was held concerning the propagation of errors in the determination of nitrogen in gas samples, and methods of evaluating the overall error in the determination were recommended. Several problems of a computational nature were solved for Theoretical Physics personnel.

#### 200 AREA SERVICES - W. C. Healy

Measurement studies at several important accountability points were planned and/or initiated during the month. With the designation of the initial sample (P-1) in the isolation building as the final plutonium material balance sample for Redox, and with the proposed bypassing of the final sample (AT) in the isolation building, emphasis was placed on the degree of reliability of the P-1 plutonium measurements. To the end of assessing this reliability, programs of special sampling and analysis, and of test measurements of solution volumes, were planned in cooperation with representatives of the Separations Section.

In addition, data from the previously reported multiplicate sampling programs at the Redox metal solution tank (H-7) and the final uranium product solution tank (E-12) were accumulated and analyzed to date. The amount of data is insufficient to permit firm estimates of reliability, and the programs will continue. Also, data on plutonium measurements on the Redox plutonium before concentration (E-3), after concentration (PR line), and on receipt at the isolation building were accumulated and analyzed to date. This program will also continue until sufficient data are on hand.

It was recommended to the Separations Section that an available drum of sand be weighed daily on the print weight scales for  $UO_3$  in order to provide data on the day-to-day constancy of these scales.

Statistical evaluation of the laboratory determinations on key Redox samples (H-7, H-1-F, E-12, E-3, and PR line) was begun. In conjunction with the Computing Unit, techniques for recording and processing the data on IBM cards were set up so that nearly all the required computations will be made on IBM equipment.

For the Radiological Sciences Toxicology Unit, summary analyses of data relating to the long-term experiment in which radioactive iodine has been administered to sheep were completed. These analyses were specifically concerned with variations in white blood count and with differences in weights of lambs at birth, at weaning, and subsequent to weaning.

The running comparison of actual plutonium yields based on metal solution assays with theoretical yield figures based on pile exposure was maintained up to date, and the regular semi-monthly reports of certain Kr 85 computations were completed and forwarded to the Atomic Energy Commission. The procedures for assembling, processing, and reporting the various data involved in the latter reports were streamlined in such a way that the time involved has been reduced by at least one half.

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300 AREA SERVICES - L. G. Waters

At a meeting at St. Louis, Missouri, attended by the 300 Area representative of the Statistics Unit, a proposal that Mallinckrodt Chemical Works group individual billets into lots whose identity can be maintained throughout rolling and Hanford processing was adopted. Such a procedure will provide a greatly improved basis for relating known variations in the material to observed variations in its processing. The Statistics Unit accepted the responsibility for collecting and analyzing the pertinent data, and issuing reports. The new procedure will be followed on all material produced by Mallinckrodt beginning January 2, and the first of this material should be rolled during March and processed at Hanford Works shortly thereafter. A first report will be issued June 1 giving the results to that date.

The print weight scale for weighing uranium rods in bundles rather than individually was used for weighing several shipments of bundled rods during January and February. A comparison of the weights obtained with the sum of the individual rod weights for each bundle as determined by the rolling mill showed that the differences were considerably greater than expected, and that reproducibility of results from day to day could not be obtained. Further study is being made in conjunction with the Accountability Unit and Metal Preparation Section to resolve the errors, and establish a statistical control of the weighing procedure.

A sampling plan for incoming shipments of both 4" and 8" aluminum cans was recommended to the Metal Preparation Section during the month. This plan is similar to the triangular sampling plan used so effectively for reactivity testing of fuel slugs.

Assistance was afforded the Plant Engineering Services Unit in designing an experiment to determine the copper build-up in the canning process tin bath for varying slug throughputs.

A study was made at the request of the Metal Preparation Section to devise a method for estimating the uranium metal content of raw unburned CRD-2 and CRD-6 oxides (obtained from the chip briquetting process) prior to burning and analyzing. Charts have been prepared for determining an estimate of the total uranium content and its precision from the unburned CRD-2 and CRD-6 weights.

The boron chemical results representing uranium billets produced by Mallinckrodt Chemical Works from June, 1951 to January, 1952 inclusive were analyzed statistically. A statistically significant increase was found in the amount of boron reported for billets produced from October to January as compared with those produced from June to September.

Assistance was given the Metal Preparation Section in evaluating the precision of 305 Test Pile readings. A formula has been supplied for estimating the limits on an average result for the primary standards as a function of the number of readings, and work is currently being done on other aspects of the problem.

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An analysis was made of the difference between bare and canned slug reactivity from the same lots. It was expected that the difference would be somewhat systematic; however, this was not the case. It is not known whether this lack of comparability is due to the variability of the slugs within a lot (the same slugs used for bare testing were not necessarily used for canned testing) or the test itself. The Metal Preparation Section was informed of these results and it was recommended that an experiment be run in which the same slugs are used for both bare and canned testing.

A Metal Quality report representing material produced by Hanford Works and Mallinckrodt Chemical Works was issued which graphically presented the data collected in 1951 (Document HW-23516). Statistical controls were maintained on Metal Preparation Section results from Machining, Pickling, Canning and Autoclave, Test Pile, and Melt Plant (Document HW-23496).

Concerning the sleeveless canning process, data from 120 slugs have been submitted by the Pile Technology Unit to determine the effect of bath temperature, can submerge time, and internal can wiping with a graphite plunger on can-wall thickness (penetration) and base thickness (seating). These data are being analyzed and the results will be reported as soon as the study is completed. The sleeveless canning process being studied is similar to that used at Argonne National Laboratory.

In connection with the slug rupture problem, statistical results pertaining to the machining, canning, and autoclaving of Z slugs were supplied to the Pile Technology Unit as requested. In addition, a listing was made of the production of M slugs covering the months slug ruptures occurred back to and including 1948. Data are presently being studied for evidence of a general relationship between the number of autoclave failures and pickle rejects per lot and incidence of slug ruptures.

Assistance was given the Pile Technology Unit in analyzing the data from electromagnetic induction experiments. No statistically significant relationships were found between the variables studied.

Assistance was afforded the Analytical Section in designing an experiment to determine the optimum mold temperature for pouring aluminum. The higher the temperature of the mold, the easier the aluminum is to pour, but the greater its tendency to become non-homogeneous before setting.

A listing of T.D.S. reactivity results for billets shipped from the December 2 rolling by the Middlesex plant to Feed Material Preparation Center for machining by National Lead was supplied to the Pile Technology Unit.

#### GENERAL SERVICES - G. P. Ruderman

An analysis was performed for the Operations Procurement Unit to evaluate the amount of inventory on hand for various materials used for power operation and maintenance. Work continued on a study of stores operations to determine the monthly flow of materials to various sites on the Project.

Methods are being investigated to enable more accurate reporting of the labor turnover rate at Hanford Works. (See Methods.)

METHODS - F. H. Tingey

A problem dealing with the storage of a radioactive substance was considered for Analytical Research, and assistance was given to the Pile Technology Unit on a problem concerning the Fourier Series representation of a function.

A preliminary study was made with regard to applying cost minimization techniques to I.B.M. operations, and a statistical analysis of the labor turnover problem is being made. In the latter case a tentative procedure has been derived to answer some of the questions pertinent to this problem, which takes into account both the variation in rate of turnover with time and type of personnel and the truncated nature of the data available.

Assistance was given in an advisory capacity to the Senior Statisticians on the various statistical problems requiring additional research, and the project of abstracting statistical techniques from current research literature for dissemination to the Senior Statisticians was continued.

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COMPUTING UNIT

MONTHLY REPORT - FEBRUARY, 1952

Mr. P. M. Thompson visited IBM installations on February 14 and 15 at the Boeing Airplane Company plant in Seattle, City Light Division at Tacoma, and Employment Security Office at Olympia to observe tabulating techniques and operation at these installations.

Personnel for the month are summarized as follows:

	<u>As of 1/31/52</u>			<u>As of 2/29/52</u>			<u>Net Change</u>		
	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>
Staff	1	2	3	1	2	3	0	0	0
Planning	3	7	10	5	7	12	+2	0	+2
Operations	1	27	28	2	27	29	+1	0	+1
<b>TOTALS</b>	<b>5</b>	<b>36</b>	<b>41</b>	<b>8</b>	<b>36</b>	<b>44</b>	<b>+3</b>	<b>0</b>	<b>+3</b>

There were three terminations during the month. Two key punch operators left due to pregnancy and one machine operator terminated because of difficulties in obtaining satisfactory care for her children.

Three key punch operators were added. A business graduate and two technical graduates were added. A machine operator group leader was transferred to the scheduling office and placed on the exempt roll. A mathematician and the key punch supervisor were also transferred to the exempt roll.

New customers are continuously requesting scientific computing service, and large scale calculations are becoming more frequent. The result is a continuously increasing work load. A good portion of the future increase will be absorbed through increased efficiency in operation and second shift use of present machines. Non-technical operators will be trained to do more of the machine work and further experience will increase the capacity of the mathematical staff.

A training program in the operation of IBM key punches and verifiers is being conducted for payroll employees who may be assigned to key punching work when payroll preparation is put on IBM machines. The instruction period covers two weeks. Four employees have taken this course under Dorothy Kaiser and Lola Rice with excellent results.

Six training sessions for new machine operators on the operation and control panel wiring of the collator were given, and a course on the reproducer is to begin the first week in March.

Public health activity reports were completed on schedule for January. Activity reports will cover the period from the 26 of one month through the 25 of the next in order that the statistical work may be completed by the end of the month.

**DECLASSIFIED**

The IBM procedures for this application are now in final form and work is progressing efficiently. Manpower survey reports for the quarter ending December 31, 1951 were completed on February 13.

Another national exempt salary survey is being planned. The data will be processed by machine again this year with several procedural changes. The card programmed calculator will be used to do the least square curve fitting and to obtain progressive averages from man to man on detailed listings. About 15,000 items of data will be processed.

A special Debaset statistical report was completed. It required sorting, collating, calculating, and tabulating approximately 250,000 cards. A few small reports may still be required, but the high volume work seems ended.

Electricity billing master card files on residential meters have been checked by the Electrical Distribution Unit and are being kept current on tenant changes. Master cards for commercial meters have not been set up as all meter installations are not complete.

Procedure revisions are being made on the Technical Section cost distribution reports. Modifications are being made at the same time to incorporate this procedure into the general cost procedure to utilize standardized key punching, calculation, and tabulating techniques.

Computing Unit labor and machine charges are now being handled on the standard work order system. Machine charges will be treated as "material" charges. This will simplify the accumulation of monthly costs.

The work order procedure is planned to provide cost sections with the maximum control on all data entering machine accounting reports. Labor charges are audited on payroll reports and the weekly Cost Entry Breakdown provides a weekly summarized listing of each class of material charges entering the system. Accuracy controls are maintained in the Computing Unit and checked before reports are issued, but all of this data is also available to the accounting sections so they can maintain the same controls in a more general form and incorporate them with their ledger controls. All charges to work orders are matched with active order master cards in the collator before being accepted into cost reports. Charges which do not match active work orders are reported to the cost sections on unmatched detail listings in order that cost personnel may investigate and decide where these charges should be placed. The speed with which monthly cost reports can be completed at the close of each period is dependent upon the time at which each portion of cost data is made available to key punch operators. Cost clerks can expedite the delivery of completed reports by maintaining a uniform flow of data during the month to reduce the month-end peak load.

The Financial Department is considering the adoption of a uniform cost code system. Such a system would be of great convenience and saving for practically every cost problem now performed on IBM equipment, as well as making many new types of information promptly available. Uniform coding would provide an automatic means of transmitting premium payment information from the proposed machine payroll cards to cost reports, resulting in a saving in key punching of about 350,000 cards annually. Uniform service and customer unit codes would accurately and automatically identify each source of labor cost to save key punching an average of at least four columns of coding on each of over 1,000,000 cards per year.

1214774

As further aid to the investigation of the slug rupture problem, sums and sums of squares of seventeen variables are being evaluated periodically as data are received. Such variables as exposure of ruptured slug, power of slug and power of tube at failure, number of screams in course of exposure, etc., are being considered. Slug exposures at discharge also are calculated for the study. When this problem was first investigated, no efficient machine method was found and the work was done by hand. As the urgency grew, further attention was given the problem and a method of compiling the distributions on 402 tabulator was finally developed that is much cheaper than the hand method. A new method of compiling the data has now been worked out using a master card sorting procedure which results in a further 80% reduction in time, and even greater savings in cost. This is a noteworthy achievement in machine procedures.

In the course of a statistical survey of chemical measurements, the evaluation of complex expressions for variances are being computed. Four independent parameters in 168 distinct combinations are to be treated.

The Computing Unit is working in close cooperation with the Statistics Unit on a problem relating to the Redox process. The problem consists of establishing limits of variability on counter measurements at various stages in the process. A statistical test is applied to the variances to determine which sample measurements should be retained and which should be discarded. The data are recorded at the 200 Area on mark-sense cards.

Routine calculations will be made on film buildup data for 100-B water flow laboratory. The calculation involves solutions to sets of six simultaneous equations. The programming has been completed.

A procedure is being prepared for the calculation of product concentrations in the two carrier solutions from stage to stage of the Redox process. A system of simultaneous equations is derived from consideration of mass conservation. An iterative type of solution is used, starting with estimated values of the ratio of the concentration of the two solutions at a given stage.

A tube by tube forecast of H pile exposures using the electronic calculator procedure devised from the special H-10 exposure studies was made. This forecast will be used to determine the effects of the H-10 block discharges on subsequent discharges.

A satisfactory solution to the MM matrix requested by the Theoretical physicists on the X-Y Lattice Calculation was completed. A six by six system of linear equations was solved in four iterations in five minutes. This iterative solution is part of the Computing Unit library of standard procedures, and illustrates the efficient service such a library permits. Allowing 15 minutes for key punching the coefficients and machine setup time, the solution to the six simultaneous equations can be obtained in an elapsed time of 20 minutes. A solution of 14 simultaneous equilibrium equations was carried out in connection with a solvent extraction problem.

Incidental data was received from 100-H this month and processed as follows:

1. A frequency distribution and the standard deviation were determined for

the panellit pressures of January 6, 1952.

2. Four uncorrected temperature maps were made to show the progress made in drying a "wet spot" in the H pile.

New data has been received on the Slug Skin and Axial Temperature problem. 7776 sets of answers with 34 values in each set are required. Over 1000 sets of answers have been completed and returned to the customer. The gain in time of machine calculation over hand calculation, using a desk calculator, is presently over 20 to 1, and proposed new general purpose control panels for the new model calculator will increase this appreciably.

A conversion table was prepared for converting meteorological station pressure readings to sea level values. 6400 table entries were calculated. The monthly meteorology report has been revised and enlarged. In addition to finding the total and average hourly, daily, and monthly values of the various readings, a procedure is being prepared to calculate the hourly readings of temperature differences, wind speed, wind direction, and relative humidity; hourly frequency distribution of temperature differences, relative humidity, and sky cover; three-way correlation between temperature, wind speed, and relative humidity; correlation between wind direction and wind speed; and the north and west components of the resultant air movement for the month. The additional results will be used in the correlation study between meteorological variables and radioactivity found in vegetation.

Routine calculations were made for DR temperature maps and allied data, special request exposures, aquatic biology, sheep thyroid, radioanalysis and meteorology.

	IBM Card Volume	Machine Utilization Index	Number of Reports
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FOR THE FINANCIAL DEPARTMENT:

Exempt Salary Distribution	6,700	120	1
Manufacturing Payroll Distribution	48,200	919	14
General Payroll Distribution	20,400	385	10
Manufacturing Work Order Cost	29,500	447	38
Community Work Order Cost	12,000	286	26
Technical Cost Distribution Report	8,000	108	5
General Work Order Cost	36,000	539	36
General Motorized Equipment Cost	11,500	494	14
Electrical Billing	200	13	0
Check Writing Deduction and Payroll Statistics	800	18	0
Problem on Project Debaset	1,100	697	4
Machine Time Training Payroll Personnel		8	0
<b>Totals</b>	<b>174,400</b>	<b>4,034</b>	<b>148</b>

1214776

**DECLASSIFIED**

	Volume	Machine Utilization Index	Number of Reports
<u>FOR THE RADIOLOGICAL SCIENCES DEPARTMENT:</u>			
Monthly Meteorological Study	3,350	40	1
Weather Station Wind Study	10,000	43	1
Zoology Thyroid Counts	200	24	1
Zoology (Sheep Radionalyses)	200	4	1
Aquatic Biology	300	3	2
Pressure Tables	500	5	1
Totals	14,550	119	7
<u>FOR THE MEDICAL DEPARTMENT:</u>			
Public Health Activities	2,000	30	5
<u>FOR THE ATOMIC ENERGY COMMISSION:</u>			
Columbia River Studies	400	9	1
A.E.C. Quarterly Motorized Equipment Reports	2,200	101	6
Totals	2,600	110	7
<u>FOR THE EMPLOYEE &amp; PUBLIC RELATIONS DEPARTMENT:</u>			
Manpower Survey Quarterly	6,000	97	3
<u>FOR THE MANUFACTURING DEPARTMENT:</u>			
Metal Quality Data Preparation	750	15	1
<u>FOR THE UTILITIES &amp; GENERAL SERVICES DEPARTMENT:</u>			
Stores Survey	18,000	42	1
<u>FOR THE SALARY ADMINISTRATION DEPARTMENT:</u>			
Exempt Salary Statistics	1,500	75	11

	IBM Card Volume	Machine Utilization Index	Number of Reports
<u>FOR THE ENGINEERING DEPARTMENT:</u>			
D-File Graphite Temperature Calculations	2,100	76	1
Slug Rupture Studies	130,000	896	17
S. R. Exposure Calculations	1,000	70	7
Film Buildup Calculations	3,000	48	1
File Poisoning Integral No. 2	600	174	2
Slug Skin & Axial Temperature	2,000	877	5
Slug Stress Analyses	3,000	367	1
Samarium Buildup	6,000	57	1
Discharge Forecast for H-File	10,000	304	1
100-H Water Flow Power Study No. 1	2,000	15	2
Freq. Distribution of 285 Panellit Pressures	1,100	2	1
Incidental Problems	4,500	126	3
	<hr/>	<hr/>	<hr/>
	165,300	3,012	42
<b>GRAND TOTALS</b>	<b>385,100</b>	<b>7,534</b>	<b>225</b>

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

SUMMARY -- FEBRUARY, 1952

The number of applicants interviewed in February was 1,160 as compared to 1,538 in January. Of these applicants, 340 were individuals who applied for employment with General Electric for the first time. In addition, 116 new applications were submitted through the mail. Open, nonexempt, nontechnical requisitions increased from 149 at the beginning of the month to 178 at month end. Total plant roll decreased from 9,094 to 9,055. Turnover rate decreased from 1.64% in January to 1.51% in February. During February, 43 new requests for transfer to other type of work were received in the Employment Office, and 24 transfers were effected. Attendance recognition award pins and wallet cards were distributed and presented to 86 employees who qualified for one-year awards during January, and to 486 employees who qualified for two-year awards during December and January. As the result of a questionnaire forwarded to all GE women employees at Hanford Works, plans have been formulated to stimulate interest in a Women's Club by giving a desert-coffee, style show on March 13. As a result of the AEC assuming responsibility for certain phases of the construction activity, by month end 12 employees had been removed from the Company's payroll and added to the Commission's payroll. Of the nonexempt personnel affected who have been made available to the Employment Office to date all have been placed, others who would have been made available have been absorbed by other sections of the departments affected. To date 23 exempt employees have been made available to the Employment Office; of these 6 have been offered other positions, with efforts continuing to place the others. Also during February it was necessary for Manufacturing to make 21 chemical helpers available to Employment. Of these 13 were transferred to another section of Manufacturing, 5 reassigned to other jobs here, and 3 elected to take a lack of work separation.

Two employees died during the month, and two employees retired. On hundred twenty-six visits were made to employees confined at Kadlec Hospital and 71 checks were delivered to employees confined either at home or at the hospital. At month end, participation in the Pension Plan was 94.5%, in the Life and Health Insurance Plan 98.2%, and in the Employee Savings and Stock Bonus Plan 48.4%. During the past month, a composite rating chart of nonexempt personnel was forwarded to all supervision, and rating sheets for all exempt personnel were distributed for completion in the next two months. As of the end of February, there were 1,017 employees registered under Selective Service, and 750 military reservists on the rolls. Since August 1, 1950, 189 employees have terminated to enter military service, of which 16 have returned, leaving 173 still in military leave status.

Management Orientation Program was presented for the second time on February 4, 1952. There were 32 employees attending this session. On the evening of February 6, Groups 17, 18, 19 and 20 received their certificates of completion of the Principles and Methods of Supervision at a dinner meeting held at the Desert Inn. Groups 21, 22, 23 and 24 have completed session number 11. On February 5, 29 new supervisors attended a program relating to the use of the Supervisor's Handbook. On February 19 this program was presented to a group of 16 supervisors from the Housing and Maintenance Unit of Community Real Estate and Services Department. During the month, 15 additional Handbooks were distributed. On February 5, the GE 9-Point Better Job Program was presented to 16 new supervisors. A total of 79 employees were given Orientation during February.

1214779

Employee and Public Relations  
Summary

Effective Business Management was presented on the 13th to 16 new supervisors. This program included HOBSO, the GE Annual Report, and Benefit Plans Status Report. Labor-Management Relations Program was presented for the first time on February 14. There were 19 new exempt employees attending. Special Supervisory Considerations, a program made up of Supervisory Cooperation, Accountability of SF Materials, and Cost Control, was conducted on the 14th, with 27 attending. On February 20 and 21 Policy Seminar Program was conducted wherein each of the Organization and Policy Guides was covered. This program was attended by 17 new supervisors. On February 1, the 8-Hour Nonexempt Program was presented to 19 employees of the Manufacturing Department, Separations Section, and on February 5 it was presented to 17 employees of the Engineering Department, D & C Services. Several training program manuals were completed. Two copies of "Men and Volts" were sold.

A total of 58 news releases were distributed during the month. Of these 28 were sent to the "local list". One feature story was written for WESTERN INDUSTRY Magazine.

The editor of the Dalles CHRONICLE requested information on the use of atomic energy to produce electricity. A group of nine photos with cutlines were sent to him.

Offin award winners at Hanford Works were announced in the Works NEWS and a release was sent to the local and daily lists. A special story giving local emphasis on ceremonies observed here was run, and pictures were taken for release.

Community presentations of HOBSO were discussed with a representative of the local Lions Club. This organization is interested in presenting the HOBSO program on the community level.

A letter concerning the union shop question was written and mailed to community leaders and daily newspapers in Washington, Oregon, California and Idaho.

Civil defense films now available for showing were reported to local clubs and organizations.

A "yellow alert" civil defense test was participated in by three members of the Public Relations Section. Pictures were taken during the test for publication of a "picture story" in the Works NEWS.

The Chief Warden attended the Western Training Center of the Federal Civil Defense Administration at St. Mary's College, California, from February 11 to 23.

A total of 7 completed speeches were cleared during the month. One abstract for a future paper was cleared.

A total of 5,902 prints of photos were produced during the month. Of the total prints produced, 4,869 were for employee identification and area admittance badges.

A total of 24 General Electric and University of Washington films were booked during the month for plant and community viewing.

1214780

Employee and Public Relations  
Summary

Thirteen 15-minute interviews with physicians and health officials that will be incorporated in a Radio Health Series, were tape-recorded for the Medical Department.

A total of 7 spot announcements for radio were written during the month.

Four women's pages were prepared and published in the Works News.

A letter was written to all supervisors concerning the 1.08% wage increase.

Property Joe Sez, a new column in the Works News, was published for the first time during the month. "Meet your New Neighbor on the Job" is a new photo feature published for the first time this month in the Works News.

Art work completed for the month included eight pen and ink illustrations, three editorial cartoons, four layouts and two designs.

A Stipulation for Consent Election covering the petition for representation initiated by Electrical Dispatchers and Wire Chiefs was executed by the Company and the HAMTC and transmitted to the NLRB. Carl Haller, a Plumber-Steamfitter on the rolls about 30 days, was removed from the rolls because he did not qualify as a Journeyman. After alleging discriminatory discharge, Mr. Haller was offered and accepted a position as Boilermaker for which he is qualified. A meeting was held with the HAMTC and international representatives to discuss the unions' demand for an increase in isolation pay and the union shop question. Further discussions have been held in abeyance until March 12, 1952, when the HAMTC will inform the Company as to its intention relative to reopening of the HAMTC-GE Contract. No further word was received from the HAMTC regarding the grievance which the union desires to bring to arbitration.

WSB approval of a 62½ cent per day isolation pay increase received February 1. AJ's suggestion that USW offer Plumbers \$ 2.125 and \$ 2.625 per day in lieu of flat \$ 2.50 approved by WSB was rejected. Electrician Wiremen were then offered and accepted flat \$ 2.50 per day allowance. NLRB notified V.S. Jenkins Company of an unfair labor practice charge filed by an individual who applied for but failed to obtain employment. Jenkins Company denies charge. AJ postponed plans for return to five-day week. Machinist-Millwright jurisdictional dispute settled on February 7; AJ granted jurisdiction over all work in 101 Machine Shop to Machinists. Eleven Ironworkers off job in Minor Construction February 27. Objected to Plumbers doing Boilermaker work. AJS reassigned the work in dispute to Boilermakers. Ten Laborers refused to operate four-wheeled motor driven carts in 101 Building until paid increased rate agreed to in October. AJ failed to request necessary approvals until January 17, and had not received WSB approval. The work was completed by using a fork lift at approximately 70% efficiency.

WSB approved the 1.08% cost-of-living adjustment but withheld a decision on the 2.5% productivity increase. The 1.08% increase will be paid on a current basis during March. WSB approval was received for the extension of the nonexempt holiday benefits to the classification of Supervisor-in-Training. Work was started on a project-wide study of assignment of craft work in anticipation of Company and Union jurisdictional meetings.

1214781

PRIVACY ACT MATERIAL REMOVED

307

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

FEBRUARY, 1952

ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective February 1, 1952, Zane D. Wood, a Business Graduate assigned to Employment, was upgraded to Staff Assistant.

Effective February 8, 1952, a General Clerk D assigned to Investigation and Personnel Files terminated voluntarily.

Effective February 19, 1952, a Messenger was engaged and assigned to Investigation and Personnel Files to replace a Messenger who had been upgraded to fill the vacancies which occurred due to the termination of the General Clerk D.

Training and Program Development

There were no organizational changes during February.

Public Relations

Effective February 7, 1952, the News Bureau Supervisor was removed due to personal illness.

Union Relations

Effective February 8, 1952, a General Clerk C was removed due to personal illness.

Effective February 8, 1952, a General Clerk B terminated voluntarily.

Effective February 18, 1952, a Steno-Typist B was added to the Suggestions and Insurance Unit.

Effective February 27, 1952, a General Clerk C was added to Wage Rates.

Effective February 29, 1952, a General Clerk C was added to Suggestions and Insurance Unit.

<u>Number of Employees on Roll</u>	<u>February, 1952</u>
Beginning of Month	113
End of Month	<u>113</u>
Net Change	0

Employee and Public Relations

ACTIVITIES

Employment and Employee Services

Employment

	<u>January, 1952</u>	<u>February, 1952</u>
Applicants interviewed	1,538	1,160

340 of the above applicants interviewed during February were individuals who applied for employment with the Company for the first time. In addition, 116 new applications were received through the mail.

Open Requisitions	<u>January, 1952</u>	<u>February, 1952</u>
Exempt	2	0
Nonexempt	149	178

Of the 149 open, nonexempt, nontechnical requisitions at the beginning of the month, 78 were covered by interim commitments. Of the 178 open, nonexempt, nontechnical requisitions at month end, 72 were covered by interim commitments. During February, 84 new requisitions were received requesting the employment of 126 nonexempt, nontechnical employees.

	<u>January, 1952</u>	<u>February, 1952</u>
Employees added to the rolls	139	100
Employees removed from the rolls	<u>149</u>	<u>139</u>
<b>NET GAIN OR LOSS</b>	- 10	- 39

Of the 139 employees removed from the rolls, 18 were removed due to lack of work, 4 of which were in the Unit and 14 who were outside the Bargaining Unit.

Turnover:	<u>January, 1952</u>		<u>February, 1952</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Including employees who were laid off for lack of work	1.06%	3.81%	1.07%	3.16%
Excluding employees who were laid off for lack of work	1.06	3.65	0.95	2.69
<b>Over-all Turnover:</b>	<u>January, 1952</u>		<u>February, 1952</u>	
Including employees who were laid off for lack of work	1.64%		1.51%	
Excluding employees who were laid off for lack of work	1.60		1.31	

During February, 35 employees terminated voluntarily to accept other employment, 9 left to enter military service and 8 terminated to leave this vicinity.

1214783

## Employee and Public Relations

### Transfer Data

Accumulative total of requests for transfer received since 1-1-52	102
Number of requests for transfer received during February	48
No. interviewed in February, including promotional transfers	82
Transfers effected in February, including promotional transfers	24
Transfers effected since 1-1-52, including promotional transfers	46
Transfers effected in February for employees given lay off notices	27
Transfers effected since 1-1-52 for employees given lay off notices	30
No. of stenographers transferred out of steno. pool in February	5
Transfer requests active at month end	198

During February, 12 people whose continuity of service was broken while in an inactive status were so informed by letter.

One-year emblems and wallet cards in recognition of perfect attendance were presented to 86 employees in February, who qualified in January, and two-year emblems and wallet cards were presented to 486 employees in February, who qualified in January and December.

In maintaining the Manpower Inventory for the Atomic Energy Commission on a current basis for the 4th quarter of calendar year 1951, I.B.M. cards covering 2,060 changes were submitted to the Commission.

A total of sixty-one female employees were visited at the hospital and given assistance in completing disability benefit applications during February. Checks were delivered each week to employees confined to the hospital or ill at home. In addition, two home calls were made to female employees absent for three days at the request of their supervisors.

The Assistant Employment Supervisor--Women during February endeavored to stimulate interest among GE women employees to formulate a women's club. Early in the month a steering committee was formulated and as the result of a questionnaire sent to all GE women it appears that there might be sufficient interest in such an activity to lead to the formulation of a club. Tentative plans are to have a desert-coffee and style show on March 13 in an effort to stimulate additional interest.

Early in the year it was announced that the Atomic Energy Commission would assume responsibility for certain phases of the Hanford Works construction activity. It was mutually agreed that the employees directly affected by this shift in responsibility would be made available to the Commission for their first consideration. By the end of February, exclusive of the North Richland Camp personnel, the AEC had interviewed most of the people in whom they were interested. These people were assigned to the Design and Construction Section of Engineering and the Engineering Accounting Section of Finance. By month end 12 employees had been removed from the Company's payroll and added to the Commission's payroll. The non-exempt personnel in the two sections who have been made available to Employment for reassignment to date have been relatively few in number and all have been placed. Others who have been made available have been absorbed by other sections of Engineering and Finance. The largest number affected, however, being assigned to the North Richland Camp had not been made available for consideration for reassignment at month end. In the exempt categories 23 Design and Construction employees have been made available to Employment, however, no exempt people in the Financial Department have been made available. Other positions have been offered to 6 of the 23, and efforts are being made to place the others, not only at Hanford Works

Employee and Public Relations

but elsewhere within the Company. Prospects are none too encouraging as most of these people are qualified primarily for assignment in a construction activity.

Also during February the Separations Section of Manufacturing made available for reassignment 21 chemical helpers. Within Manufacturing, all were offered an opportunity to transfer to the Metal Preparation Section as metal workers. Thirteen elected to make the transfer, 5 were reassigned to other jobs by the Employment Office, and 3 elected to take a lack of work separation.

Employment Statistics

Number of employees on rolls	<u>1-31-52</u>	<u>2-29-52</u>
Exempt - Male	1,950	1,957
Female	57	59
	<u>2,007</u>	<u>2,016</u>
Nonexempt - Male	5,181	5,153
Female	1,865	1,830
	<u>7,031</u>	<u>6,983</u>
Community Firemen	<u>56</u>	<u>56</u>
TOTAL	9,094	9,055

ADDITIONS TO THE ROLLS

	<u>Exempt</u>	<u>Nonexempt</u>	<u>Community Firemen</u>	<u>Total</u>
New Hires	2	74	0	76
Re-engaged	0	0	0	0
Reactivations	2	22	0	24
Transfers (from other plants)	0	0	0	0
Actual additions	4	96	0	100
Payroll exchanges	25 <sup>a</sup>	0	0	25
GROSS ADDITIONS	29	96	0	125

TERMINATIONS FROM THE ROLLS

Actual Terminations	16	88	0	104
Removals from the rolls (deactivations)	2	31	0	33
Payroll exchanges	0	25 <sup>b</sup>	0	25
Transfers (to other plants)	2	0	0	2
GROSS TERMINATIONS	20	144	0	164

GENERAL

	<u>1-1952</u>	<u>2-1952</u>
Applicants interviewed	1,538	1,160
Photographs taken	370	309
Fingerprint impressions (taken in duplicate)	427	332

1214785

Employee and Public Relations

ABSENTEEISM STATISTICS  
(Weekly Salary Roll) <sup>e</sup>

	<u>1-1952</u>	<u>2-1952</u>
Male	2.22%	2.34%
Female	4.28	3.57
Total plant average	2.65	2.59

PERSONNEL SECURITY QUESTIONNAIRES PROCESSED

General Electric cases	122	86
Facility cases	<u>78</u>	<u>99</u>
TOTAL	200	185

INVESTIGATION STATISTICS

Cases received during the month	144	249
Cases closed	338	269
Cases found satisfactory for employment	148	118
Cases found unsatisfactory for employment	6	2
Cases closed before investigations completed	27	7
Special investigations conducted	7	2

PERFECT ATTENDANCE RECOGNITION AWARDS

Total one-year awards to date	2,590
One-year awards made during February for those qualifying in January	86
Total two-year awards to date	486
Two-year awards made during February for those qualifying in January and December	486

aTransferred from Weekly Payroll  
bTransferred to Monthly Payroll  
cStatistics furnished by Weekly Payroll

Employee Services

The following visits were made with employees during the month by a representative of Employee Services:

Employees visited at Kadlec Hospital	126
Salary checks delivered to employees at Kadlec Hosp.	59
Salary checks delivered to employees at home	11
Disability checks delivered to employees at home	1

During the month of February a composite rating chart of nonexempt personnel was forwarded to all members of supervision. In addition, rating sheets for all exempt personnel have been distributed to the various departments in order that ratings may be completed during the months of February and March.

As of the end of February, participation in Company Benefit Plans was as follows:

Pension Plan	94.5%
Life and Health Insurance Plan	98.2
Employee Savings and Stock Bonus Plan	48.4

Employee and Public Relations

Two employees died during February, namely:

Community Real Estate and Services; and  
Engineering.

Also during the month, a retired employee, was killed  
in an automobile accident.

Forty letters were written to deceased employees' families during February, concerning payment of monies due them from the Company, as well as answering other pertinent questions for them.

Since September 1, 1946, 79 life insurance claims have been paid totaling \$ 440,000.00.

Two employees retired during the month, namely:

H. B. Gray, W-6478-SS, Utilities and General Services; and  
William F. Sneddon, W-2112-ST, Utilities and General Services.

During February, 14 letters were written to retired employees providing them with information of a general interest to them. To date 185 employees have retired at Hanford Works, of which 87 are continuing their residence in this immediate vicinity.

In connection with the Pre-Retirement Program, 26 contacts were made with employees who will be retiring in 1952 or 1953.

During the month 5 retired employees were visited for the purpose of presenting them with their pension checks, certificates of service, and statements of retirement income. The forming of a Pensioners' Club was suggested and all expressed favorable attitudes toward this.

Military Reserve and Selective Service

Two reports were compiled during February which reflect by department and section the number of deferrable nontechnical employees vulnerable to the draft, and the number of technically trained employees vulnerable to the draft.

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on the rolls	750
Number who returned to active duty to date	91
Number who returned to active duty in February	2
Deferments requested to date	104
Deferments granted	97
Deferments pending	0
Deferments denied	4
Deferment requests withdrawn	3

1214787

PRIVACY ACT MATERIAL REMOVED

313

## Employee and Public Relations

The statistics with respect to employees registered under Selective Service are as follows:

Employees registered	1,017
Employees registered who are veterans	475
Employees registered who are nonveterans	542
Employees vulnerable to the draft	376
Deferments requested to date (including renewals)	467
Deferments granted	304
Deferments denied and appealed at state levels	26
Deferments denied and appealed at local levels	3
Deferments denied and appealed at national level	1
Deferments denied by local board and not appealed	2
Deferments denied by state board and not appealed	4
Deferments denied at national level (by Gen. Hershey's office)	1
Deferments denied at national level (by President)	1
Deferments denied by local and state boards and pending for review	1
Deferments requested, employees later reclassified	46
Deferments requested, later withdrawn	27
Deferments pending	51

Military terminations since 8-1-1950 are as follows:

Reservists recalled	91
Selective Service	96
Female employees enlisted	2
	<hr/>
TOTAL	189

Employees returned from military service:

Reservists	15
Selective Service	1
	<hr/>
TOTAL	16

Number of employees still in military leave status 173

## Employee and Public Relations

### TRAINING AND PROGRAM DEVELOPMENT

MANAGEMENT ORIENTATION PROGRAM was presented for the second time on February 4, 1952. This 8-hour program has as its purpose to welcome new exempt and supervisory personnel to the "management team" and give them the feeling of belonging to the General Electric family. This program stresses human relations, getting along with others, the information necessary for them to carry out their responsibilities and how and where this information will be supplied. There were 32 employees attending this session. Mr. H. E. Callahan represented senior management in welcoming this group. A luncheon was held at the Desert Inn and Mr. C. N. Gross, Manager of the Manufacturing Departments, made a short talk on "Your Future with GE".

PRINCIPLES AND METHODS OF SUPERVISION. On the evening of February 6, Groups 17, 18, 19 and 20, received their certificates of completion at a dinner meeting held at the Desert Inn. There were 89 present, including managers of the various departments as guests. Mr. W.E. Johnson made a short talk of congratulation. Certificates were presented by Mr. H. E. Callahan. Groups 21, 22, 23 and 24, have completed session number 11. There was no meeting held during the week of February 22 since this was a holiday week.

SUPERVISOR'S HANDBOOK PROGRAM. On February 5, new supervisors were invited to attend a program relating to the use of the Supervisor's Handbook. This program is intended to acquaint the new supervisor with this valuable and handy management aid, and to bring out some of the more essential sources of information contained therein. There was a total of 29 attending. On February 19 we were requested to present the Supervisor's Handbook Program to a group of 16 supervisors from the Housing and Maintenance Unit of Community Real Estate and Services Department. Before February, 1952, 1369 Handbooks had been issued. During the month 15 additional Handbooks were distributed. At the end of February we have 116 in stock, however, 17 are not usable because of lack of pages. Of the 116 in stock, 47 remain to be checked for completeness before re-issuing.

ORIENTATION OF NEW EMPLOYEES. A total of 79 employees were given Orientation during the month, 96.1% choosing to participate in the Group Insurance Plan, and 83.9% electing to participate in the Pension Plan. Beginning on February 12, 1952, we started, as a regular procedure, the distribution of a reference manual relative to benefits under the Workmen's Compensation and Medical Aid Acts of the State of Washington. This again is an endeavor to supply our employees with pertinent and complete information toward our goal of keeping everyone well informed.

Employee and Public Relations

TRAINING AND PROGRAM DEVELOPMENT

G. E. 9-POINT BETTER JOB PROGRAM. On February 5, the G. E. 9-Point Better Job Program was presented to 16 new supervisors. This program was offered at this time in order to bring new supervisors up to date on the philosophy behind our Way of Life.

EFFECTIVE BUSINESS MANAGEMENT. Another new program, entitled "Effective Business Management", was presented on the 13th to 16 new supervisors. This program included the long version of HOBBSO, explanation of how to intelligently read the GE Annual Report, and an explanation and interpretation of the Benefit Plans Status Report.

LABOR-MANAGEMENT RELATIONS PROGRAM. This is another supervisory aid which was presented as such for the first time on February 14. There were 19 new exempt employees attending. This program includes the Philosophy of Operating Under a Union Contract, and the Spirit and Intent of Agreements.

SPECIAL SUPERVISORY CONSIDERATIONS. This program is made up of Supervisory Cooperation (including the showing of the film "Strange Interview"), Accountability of SF Materials, and a program on Cost Control. The program is intended to help supervisors hold in mind the necessary cooperation required in successful leadership; to point out the responsibilities in the accountability of SF materials and to stimulate thought towards methods improvement. This program was conducted on the 14th, with 27 attending.

POLICY SEMINAR. On February 20 and 21, a program was conducted wherein each of the Organization and Policy Guides was covered, bringing to the new supervisor's attention the highlights and specially important points in each guide. Time was allowed for questions and discussion, the aim being to insure uniformity throughout our supervisory ranks in administering our plans, policies and procedures. This management Aid program was attended by 17 new supervisors.

8-HOUR NON-EXEMPT PROGRAM. On February 1 this program was presented to 19 employees of the Manufacturing Department, Separations Section, at the 200 West Area Fire House. On February 5 the same program was presented to 17 employees of the Engineering Department, D&C Services, and was held at Dorm W-10. This program, as previously reported, is intended to create a favorable attitude on the part of our non-exempt employees.

MANUALS. During the month several training program manuals were completed; namely, Labor-Management Relations manual, Time Card Procedure manual, Exempt Rating manual, Non-Exempt Rating manual, and also a Technique manual (for use of Training staff members) was completed. We also have partially completed a Training Procedure manual which will be completed early next month.

Employee and Public Relations

**TRAINING AND PROGRAM DEVELOPMENT**

SALE OF "MEN AND VOLTS". During February 2 copies of "Men and Volts" were sold to employees.

BOOKLETS. During the month of February, 1 Safety booklet was sent to 200 West Separations Section, 8 copies of "You and GE at Hanford Works" were supplied to the Technical Personnel office, and one complete Orientation jacket was furnished to the Operations Procurement Unit. In addition to requests for booklets, many departments and sections have asked for attendance records on their people who have attended our Training programs. Since so many requests have come in for this information, it is planned to make up lists for each Section and to supply the lists voluntarily.

OUTSIDE ACTIVITIES. On February 19 one of our staff members was requested to supply equipment and show film to a group of 20 Lions Club members at the Desert Inn, in Richland. The GE film "By Their Works" was shown, together with another film on "Underwriters of Fire Insurance", which was supplied by the Club. All members of the Training Staff, during the month of February, wrote letters to their Senators and Representatives in Washington, D.C., voicing their disapproval of proposed legislation to force the Union Shop upon Industry. The request was made that these representatives take up the fight to preserve our individual freedom.

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## PUBLIC INFORMATION

A total of 58 news releases were distributed during the month. Of these, only one was sent to the "daily list". Twenty-eight were sent to the "local list". One feature story was written for WESTERN INDUSTRY and twenty-eight were answers to special requests from various newspapers. The total also includes releases on the hiring of new employees.

Eight stories and pictures with cutlines were released to local media for the Recreation and Civil Affairs Unit.

Eight stories and pictures with cutlines were released to local media for the Richland Public Library.

The editor of the Dalles CHRONICLE requested information on the use of atomic energy to produce electricity. A group of nine photos with cutlines were sent to him.

The Tri-City HERALD requested and received information concerning the housing policy in Richland; the status of the patrolman who was contaminated sometime ago, and a new case of an employee becoming contaminated; and bid openings on downtown lots.

The Spokane Chronicle stringer requested information concerning the policy governing rent refunds to employees who terminate.

Coffin award winners at Hanford Works were announced in the Works NEWS and a release was sent to the local and daily list. A special story giving local emphasis regarding ceremonies held here was run, and pictures of each award recipient was taken for release. A follow-up story with pictures of the ceremony was released. A letter and printed material concerning the Coffin award winners was mailed to community leaders in Richland.

A feature story was written in collaboration with John Holeman, Coffin award winner, on heavily leaded glass. It was sent to WESTERN INDUSTRY, together with two pictures for use as illustrations.

Special feature was done on the Richland Symphony with pictures showing participation in the organization by Hanford Works people.

Community presentations of HOBSO were discussed with a representative of the local Lions Club. This organization is interested in presenting the HOBSO program on the community level, and the representative asked if the Company would sponsor a training clinic to instruct Lions Club members in the technique of presenting HOBSO. He was assured that the Company would cooperate in every way possible.

Copies of the Nucleonics Division Community Relations Program were produced for use locally and for distribution among community relations people elsewhere throughout the Company.

A letter concerning the union shop question was written for the signature of the Manager, Public Relations. The letter and reprints of an article about the union shop and the limitations it places on personal freedom were mailed to community leaders and newspapers in Washington, Oregon, California and Idaho. The same letter, over the signature of the Manager, Employee and Public Relations Department, was mailed to Presidents of Chambers of Commerce in various cities in the State of Washington.

Civil defense news stories and pictures prepared for release to local newspapers concerned the litter-making activities of the local Red Cross Unit; the completion of a survey of Richland's buildings for disaster considerations; and broadcast times of the radio program, "What You Should Know About Biological Warfare". This radio program was produced and recorded for Hanford District Civil Defense and broadcast by all three local radio stations.

Production of a civil defense slide film that explains the local CD organization structure and its activities was completed through the planning stage.

CD films now available for showing were reported to local clubs and organizations, through a letter sent to each.

The layout for a monthly CD publication was prepared and presented to local civil defense officials for their consideration.

Publicity for a talk to be presented by the local director of Civil Defense before the Portland Chamber of Commerce on February 13, 1952, was prepared.

A "yellow alert" civil defense test was participated in by three members of the Public Relations Section. They performed public information and warden services duties. Results of the test were reported promptly to local newspapers and radio stations. Pictures were taken during the test for publication of a "picture story" in the Works NEWS.

Preparatory to a test of air raid sirens, a complete publicity program designed to acquaint the public with the test was outlined and prepared. News stories, radio spots, and a letter for mailing to each residence was written.

The Wardens were obtained to fill the six District positions into which the communities of Richland and North Richland are divided. These District Wardens were charged with the responsibility of obtaining sufficient Zone Wardens who will in turn secure the necessary Block Wardens. Approximately one-half the necessary Zone Wardens were obtained in February.

The Chief Warden attended the Western Training Center, Federal Civil Defense Administration, at St. Mary's College, California from February 11 through 22. Upon returning and viewing the results of the recruiting program and progress made, and at the request of the District Wardens, a publicity campaign has been set in motion to publicize the Warden Service. This will include all of the media normally available to Public Relations such as Works NEWS, radio, newspapers and posters.

A total of seven completed speeches were cleared through the Speaker's Bureau during the month. One abstract for a future paper was cleared.

In answer to a request from the Hermiston, Oregon, public schools a Hanford Works speaker was sent to speak at "Career Day" in the Hermiston High School on February 6, 1952. Mr. Fred E. Ames, engineer, agreed to act as G.E.'s representative. Mr. Ames was prepared to give a talk on "Atomic Energy and the Role of the Electrical Engineer" previously prepared and presented by W. J. Dows. However, time was insufficient for him to give a formal speech. This was the first time to our knowledge, that a high school has requested a speaker for this type of meeting and arrangements are being made to handle such requests more efficiently in the future through the cooperation of the various professional societies.

Four Richland engineers presented technical papers at the meeting of the Richland section of the American Society of Mechanical Engineers, February 28, at 8 p.m., in the Marcus Whitman Hotel, Walla Walla, Washington. C. E. Hirsch presented a paper on "Treatment of Radioactive Waste Solutions," E. Hollister's subject was "The Handling of Radioactive Materials," Arc Welding Applied to Vacuum Furnace Design," was the title of the paper presented by E. M. Johnston, "Ventilation Problems in Safe Handling of Radioactive Materials," was the subject of the paper to be read by W. W. McIntosh.

Tape recordings were made of talks given by the Assistant General Manager and other speakers who appeared at the Company luncheon given for the Ministers, Educators, and Professional people of the community.

#### PHOTOGRAPHIC SERVICES

A total of 5,902 prints of photos were produced during the month. Of the total prints produced, 4,869 were for employee identification and area admittance badges.

Requests for lantern slides 3½ x 4" have reached a new high. One hundred and seventy-five slides were completed and the initial copy work has been started on approximately seventy additional glass slides. Slide making is becoming an increasingly important part of Photographic Services' work.

"The Fundamentals of Photography" was presented to a class of Boy Scouts by one of the photographers.

Photographs of equipment and operating methods were made for the Manufacturing Department's annual report. One hundred and twenty negatives were exposed and prints were produced in two days. Fifty-two additional prints were produced ranging in sizes of 4 x 5 to 11 x 14".

The production of three color sound slide films was started. Two hundred and sixty color slides were exposed and sent to Eastman Kodak for processing.

Motion pictures were made of the inside of a metal tube. It was necessary to have a special type periscope constructed to complete this work. A regular program will be started involving this procedure for making 16mm motion pictures. This will be a major assignment.

See statistical report of Photographic Services attached.

#### PROGRAM DEVELOPMENT

A total of 24 General Electric and University of Washington films were booked during the month for plant and community viewing.

Thirteen 15-minute interviews with physicians and health officials that will be incorporated in a Radio Health Series, were tape-recorded for the Medical Department.

A 15-minute radio program, dramatized with background music was written, produced and directed by this Section at the request of the Richland Public Library, to publicize their "American Heritage Project" discussions. The program was broadcast over a local radio station on February 25.

Four 30-second spot announcements soliciting listeners for the dramatized program on "American Heritage Project" were written at the request of the Richland Public Library and broadcast over the three local radio stations.

Three one-minute spot announcements were tape-recorded for a local public service organization.

Acting as plant publicity chairman for the current Red Cross drive, a member of Special Programs provided the Works NEWS issues of February 21 and February 29 with news stories, photographs, captions and informative articles on the job the Red Cross is doing both locally and nationally. Red Cross posters were distributed throughout the plant. Plans have been laid for additional two weeks publicity.

A Community Service involving extensive preparation was coordinated for the Benton County Red Cross Fund Campaign by the Supervisor of Radio and Special Events who was appointed Public Information Chairman by the Manager of Manufacturing Department, the County Chairman. Included in the list of events was an hour-long stage show that was broadcast over a Yakima Valley network of radio stations. A Korean War Veteran, a hero of this campaign stationed at Camp Hanford, was featured on a broadcast in a direct telephone conversation with Ralph Edwards, radio and screen star. Hanford Works Telephone Section personnel cooperated with the radio stations on the technical features of the program. The Post and Group Commanding Officers at Camp Hanford sanctioned the attendance of over 700 enlisted personnel for whom the physical aspect of the show was presented.

Arrangements were completed for the installation of two horn-type speakers on the queue of the 705 building and are being used to transmit tape-recorded Safety and Traffic messages to motorists and pedestrians during congested periods and inclement weather on an every-other-night basis. Recordings were made for this project which thus eliminates the necessity of a patrolman on duty here, releasing him for important traffic duties elsewhere.

"Here's to Your Health," a sound slide film produced by Radio and Special Events for the Health Activities Committee in various plant Safety meetings was shown ten times during the month.

Production of the sound slide film, "What's the Idea?" for the Suggestion System is nearing completion.

Production has begun on a sound slide film for the Hanford District Civil Defense.

#### EMPLOYEE INFORMATION

Four women's pages appeared in four issues of the Hanford Works NEWS during the month.

March of Dimes Drive publicity in the Works NEWS was completed during the month. Promotion material included news stories, pictures, with special emphasis being given to individual and group efforts to raise money throughout the plant.

Employee Sales Plan was publicized during the month through a news story concerning items that cannot be purchased locally, but which can now again be purchased through Employee Services. Local G-E dealer was given special recognition for his success in obtaining steam irons for local purchase by employees.

Special duty nurse shortage and reasons for it was reviewed by the Works NEWS to show employees some of the reasons why the situation exists.

"Property Joe Sez," a new column in the WorksNEWS, was published for the first time during the month. It is being published at the request of the A.E.C. to show Hanford Works people their responsibilities for government property.

"Meet Your New Neighbor on the Job," a new photo-feature in the Works NEWS was published for the first time during the month. It is designed to introduce all new employees coming on the job to employees already at work.

Safety promotion was given a different twist by giving a full page spread to the activities of people in one of the areas on their reliance on safety shoes. Pictures and story demonstrated the value of wearing safety shoes by presenting actual experiences of the employees concerned. Another full page feature showed the affects of acid burns on employees, and discussed the value of safety glasses.

The Union Relations news column in the Works NEWS called attention to the article entitled "Will Freedom Be Sold Out in the Name of Its Defense?"

A letter was written to all Supervisors from H. E. Callahan, Manager, Employee and Public Relations Department, concerning the 1.08 percent wage increase.

Safety topic of the month for March, "Why Job Hazard Breakdown?" was written, printed and distributed to all supervisors.

The monthly health bulletin for April, "Facts About Cancer", was prepared.

An eight-page leaflet for distribution at the Coffin Award presentation was prepared and printed off site.

"Handling Grievances", an eight-page, two color leaflet on the proper method of handling employees grievances was written, produced and distributed to all supervisors.

The following posters were distributed throughout the plant: 260 G-E Photo News Service posters; 160 Sheldon-Claire posters; 300 posters on the G-E educational benefits; 300 AEC-GE security posters; and 300 AEC property conservation posters.

Ten employee information racks were put up throughout Hanford Works. An initial stock of 100 copies each of 4 G-E publications was installed. Subsequently, 400 additional copies of one comic book and 450 copies of another comic book were put in the racks to replace copies taken by employees.

Art work completed for the month included eight pen and ink illustrations, three editorial cartoons for Hanford Works NEWS, four layouts and two designs.

The Public Relations Illustrator made a four-day tour of the Plant areas to survey prospective subjects to be illustrated in a special report for the General Manager.

See attached News Bureau space report.

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Hanford Works Photo House  
 Month of February, 1952

2	2	5	8			3 1/2		11
x	x	x	x	Neg.	35mm	x	Contacts	x
2	4	7	10			4		14

COMMUNITY REAL ESTATE &  
 SERVICES

Commercial Services		8	4
Police	84	15	9

EMPLOYEE AND PUBLIC RELATIONS

Employment			309	
News Bureau	92	112	69	
Special Programs	24	31	19	
Radio & Special Events	32	31	20	260exp.
Training	4	6	10	
Works NEWS	136	20	91	
Community Information	16		22	

ENGINEERING

Design & Construction		24	12		12
Technical		11	11		11
File Technology	18	1	22		30

MEDICAL

Industrial Medical	4	3	1	2
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MANUFACTURING

Plant Engineers	52	42	144	120
Metallurgical Preparation Section		28	7	
Separations Section		4	3	

RADIOLOGICAL SCIENCES

Operational		4	2	
Instrument				2

UTILITIES & GENERAL SERVICES

Purchasing & Stores		4	9	
Security	4381	488	273	25
Transportation		20	10	
Offices Service Unit		6	7	4

MISCELLANEOUS

AEC Safety		12	79	5	12
AEC Security					20

TOTAL	4381	488	474	507	798	260exp. 173	32	10
	December, 1952			January, 1952			February, 1952	

Total Prints	5,661	8,763	5,902
Total Negatives	655	844	798
Total Assignments	103	126	113

1214797

**NEWSPAPER SPACE REPORT**

January, 1952

As Compiled from the Nucleonics Division News Bureau clipping files

<u>SUBJECT</u>	<u>NEWSPAPER</u>	<u>COL. IN.</u>	<u>PHOTOS</u>
Plant Safety	Tri-City Herald	30	1
	Yakima Republic	2	
	Walla Walla Union Bulletin	7	
	Portland Journal of Commerce	2 $\frac{1}{2}$	
	Yakima Herald	2 $\frac{1}{2}$	
	Spokesman Review	5	
	Corvallis Gazette Times	2	
	Columbia Basin News	16	3
Civil Defense	Hanford Works News		1
	Columbia Basin News		1
	Tri-City Herald	3	
Community General	Columbia Basin News	11 $\frac{1}{2}$	
	Tri-City Herald	14 $\frac{1}{2}$	1
	Spokesman-Review	20	2
	Hanford Works News	6	
Community Construction	Tri-City Herald	2	
	Walla Walla Union Bulletin	2	
	Columbia Basin News	2	
Organization Changes	Tri-City Herald	2 $\frac{1}{2}$	
	Columbia Basin News	2	
Employee Benefit Plans	Columbia Basin News	3 $\frac{1}{2}$	
Personnel General	Tri-City Herald	6 $\frac{1}{2}$	1
	Yakima Herald	4	
	Columbia Basin News	4	
	Hanford Works News	4	1
	Walla Walla Union Bulletin	4 $\frac{1}{2}$	
Medical	Tri-City Herald	6	1
	Richland Reporter	22	
Speakers	Columbia Basin News	24 $\frac{1}{2}$	
	Yakima Herald	7	
	Walla Walla Union Bulletin	10	
	Seattle Post Intelligencer	5	
	Yakima Republic	10 $\frac{1}{2}$	
	Spokesman Review	1	
Recreation	Columbia Basin News	4	2
	Tri-City Herald	6	6
	Hanford Works News		2
	Walla Walla Union Bulletin	7	
Plant General	Richland Reporter	20	

1214798

**TOTAL**

282 col. in.

22 photos

Employee and Public Relations

Union Relations

UNION RELATIONS - OPERATING PERSONNEL

The Company and the Hanford Atomic Metal Trades Council jointly executed a "Stipulation for Consent Election" covering the petition for representation initiated by Electrical Dispatchers and Wire Chiefs. Election consent forms were transmitted to the National Labor Relations Board on February 29, 1952, and it is expected that an election may be held during the month of March.

An employee, Carl Haller, was hired as a Plumber-Steamfitter in the early part of January, 1952. After being on the job approximately thirty days, he was removed from the rolls on the basis that he did not possess the necessary experience nor ability to qualify as a Plumber-Steamfitter Journeyman. Mr. Haller subsequently alleged discriminatory discharge, contending that he had not falsified his application for employment and that the Company knew at the time of his hire what his qualifications were. While the Company had made a proper determination (although latently) of the employee's capabilities, it was considered appropriate to offer him a position as Boilermaker for which job his qualifications could not be questioned. Such an offer was made and accepted by Mr. Haller to close this case on February 28.

The Company met with D. E. Williams, Business Agent of the HAMTC, and M. J. McClure and Clayton Bilderback, International Representatives of the Chemical Workers, AFL and the Plumbers and Steamfitters respectively, to discuss the unions' demand for an increase in isolation pay and the union shop question. With regard to isolation pay, the Company indicated that it questioned whether or not such an issue could be discussed at this time since isolation pay was a type of wage adjustment and it did not apply to all members of the bargaining unit. The Company also advised the unions that it did not look with favor on any modification to the present system of dues check-off revocable on thirty days' notice. The unions were informed, however, that the Company would be willing to discuss these issues only if it had assurance that the entire Contract would not be opened for renegotiation. If the Contract is to be reopened, then the Company would prefer to discuss all of these items together. In this regard, the unions have indicated that they will inform the Company by March 12, 1952, as to their desire in this matter. The GE-HAMTC Contract deadline date for such determination is March 17, 1952.

A representative of this office spent several days in Seattle and Tacoma contacting business concerns and other organizations on the union shop question. Over 1,000 copies of the Joe Ball "Freeman" letter on this subject were distributed to interested parties.

As reported previously, the HAMTC notified the Company that it wished to take to arbitration the case of \_\_\_\_\_ Bus Driver, discharged for fighting on the job. The Company expressed the opinion that this was not an arbitrable matter and to date no further word has been received from the union in this regard.

1214799

PRIVACY ACT MATERIAL REMOVED

325

**Employee and Public Relations**

**Grievance Statistics:**

Eighteen grievances were received during the month bringing the total received this year to 39.

Grievances were sent in this month from the following departments:

<b>Utilities and General Service Department</b>	
Purchasing and Stores Section	1
Electrical Distribution & Telephone Section	1
<b>Community, Real Estate and Services Dept.</b>	
700-1100 Area Services Section	1
Community Real Estate Section	2
<b>Financial Department</b>	
Construction Accounting Section	1
<b>Manufacturing Department</b>	
Metal Preparation Section	1
Reactor Section	3
Separations Section	6
<b>Radiological Sciences Department</b>	
Biophysics Section	1
<b>General grievance involving all outer area production and maintenance employees</b>	<u>1</u>
<b>Total</b>	<b>18</b>

Employee grievance reports were received regarding the following subjects:

<b>Discrimination</b>	2
<b>Jurisdiction</b>	6
<b>Health-Safety-Sanitation</b>	2
<b>Hours of Work</b>	1
<b>Seniority</b>	1
<b>Wage Rates</b>	3
<b>Miscellaneous</b>	<u>3</u>
<b>Total</b>	<b>18</b>

The status of grievances received in 1952 as compared to those received during the same period in 1951 is as follows:

1214800

## Employee and Public Relations

	<u>1952</u>	<u>1951</u>
Received in February	18	1
Received thru February	39	17
Settled Satisfactorily, Step I, thru February 29	20	3
Pending at Step I thru February 29	3	--
Settled Step II thru February 29	10	6
Pending at Step II thru February 29	72*	13
At arbitration	5**	3

\*Including 59 grievances received prior to January 1, 1952.

\*\*Including 4 grievances received prior to January 1, 1952.

Three percent of the grievances received this year were from non-unit employees.

One meeting was held during the month with the Hanford Atomic Metal Trades Council for the purpose of processing grievances at the Step II level.

### CONSTRUCTION LIAISON

Wage Stabilization Board approval of an isolation pay increase of 62½ cents per day, effective the first payroll period after January 16, 1952, was received on the Project on February 1, 1952. The increase is presently being paid to those Unions who were a party to the Dispute.

In a letter to USW dated February 18, AJ suggested that an offer of \$2.625 and \$2.125 per day be made to the Plumbers' Union in lieu of the flat 50-cent per day increase (was \$2.00) approved by the CISC. USW replied, "We have ample reasons to believe that any change in the proposal such as outlined in your letter of February 18, 1952, would be entirely unacceptable to the Local Union." The 50-cent per day increase was then offered to and accepted by the Electrician Wiremen. This offer was made in line with the policy of uniform application of this allowance on the Project.

Negotiations with the Boilermakers continued with no progress being made and on February 15, AJ requested that the Davis Panel take jurisdiction of the dispute. The Union stood fast in their refusal to supply men to Chicago Bridge and Iron and Pittsburgh-Des Moines (AJ lump sum subs) until they agreed to perform their work under the terms of the Seven Western States Agreement. It appeared that the lower Project rate (\$2.53) might be affecting the furnishing of men to these sub-contractors. However, the Union refused to join AJ in seeking WEB approval of the \$2.68 rate which had been agreed upon under the Seven Western States Agreement and had continuously been offered by AJ. As a result of their refusal, AJ filed a unilateral request to the CISC for approval which was obtained on February 27. Following the Davis Panel's wire to the Boilermaker National President requesting him to take steps to get men on the job, a wire was sent by the National President

1214801

## Employee and Public Relations

which ordered the Local Union to begin furnishing men to the subcontractors immediately. Several men were dispatched on February 27. The Davis Panel will hear this dispute in New York City on March 3.

A recommendation for a rate of \$2.625 for Machinists retroactive to August 14, 1951, was received from the Davis Panel on February 28. This increase, if accepted by the parties and approved by the CISC, will place Machinists on a par with the Millwrights.

A Memorandum of Agreement was signed with the Technical Engineers which reduced the \$5 minimum increase previously agreed upon to that amount approvable under General Wage Regulations 6 and 8 (approx. \$3.93). The schedule of automatic increases remained unchanged and the settlement is now before the WSB for approval.

On February 14, AJ and the Sheet Metal Workers' Union requested an interpretation from the Davis Panel regarding the intent of the Memorandum of Settlement referable to the Vacation and Health and Welfare Plans. The parties agreed to accept the Panel's interpretation and the Union indicated that they will become signatory to the Project Master Agreement.

AJ and the Unions involved (Boilermakers and Ironworkers) have agreed on the principle of maintaining a 20-cent differential over the Boilermaker rate (\$2.68) for Plug Welders.

On January 7, an unfair labor practice charge was filed with the NLRB against the V. S. Jenkins Company, an Insulation Contractor for AJ. The charge alleges discrimination because the individual was not dispatched by the Union. The Project Manager states that 25 of the 47 Asbestos Workers employed on the Project are non-union men and that he can and does hire men from any source available.

Atkinson-Jones' plans for a return to a five-day week were postponed beyond the February 25 date announced to the Unions--possibly to go into effect on March 15 or April 1.

Requests for Reimbursement Authorization handled during the month:

1. Technical Engineers - Wage Rates
2. Isolation Pay
3. Teamsters (Wheel Type Tractor when used for towing purposes)
4. Plumbers - Isolation Pay
5. Electrician Wiremen - Cable Splicer
6. Sheet Metal Workers - Wage Rates
7. Painters - Classification and Rate
8. Electrician Wiremen - Isolation Pay
9. Boilermakers - Wage Rates

1214802

Employee and Public Relations

Reimbursement Authorizations received during the month:

1. Electrician Wiremen - Overtime
2. Isolation Pay

Work Stoppages - Actual or Threatened:

The Machinists' work stoppage reported last month was settled on February 4, after AJ assigned the disputed work to the Machinists. The dispute recurred on February 5, when the Millwrights objected to certain repair work being performed by the Machinists. The matter was settled on February 7, when AJ officially announced their decision giving Machinists complete jurisdiction in the 101 Machine Shop.

A work stoppage involving 11 Ironworkers on Minor Construction in the BY Tank Farm (200-E) occurred February 27, apparently because they were not informed of the cancellation of plans made by the Union on February 26, to stage a walkout the next day in protest over Plumbers doing Boilermaker work. All men were back on the job on February 28, at which time jurisdiction over the removing, loading and transporting to tank risers previously performed by Boilermakers, Ironworkers and Plumbers respectively was reassigned in its entirety to Boilermakers by Atkinson-Jones Service, who will insist that they perform their own rigging instead of allowing the Ironworkers to do the work as in the past.

Ten Laborers who had been performing an operation entailing the use of four-wheeled motor driven carts refused to operate this equipment beginning February 4. The Business Agent gave orders that they were not to perform this work until they received an increased rate which had been agreed upon with AJ in late October or early November. AJ failed to request the new classification of "power driven wheelbarrow" until January 17 and the necessary WSB approval was pending at the time of the dispute. The stoppage slowed down work to a considerable degree and it was necessary to complete the operation by means of a fork lift at approximately 70 per cent efficiency.

WAGE RATES

It has been determined that individuals classified as Supervisors-in-Training will be continued on a monthly payment basis but all other pay policies will be the same as those for all nonexempt employees.

A reimbursement authorization request was submitted to the Atomic Energy Commission covering application of nonexempt overtime, shift differential and isolation pay policies to the classification of Supervisor-in-Training.

An application for the extension of nonexempt overtime pay policies to the classification of Supervisor-in-Training was submitted to the Wage Stabilization Board.

1214803

## Employee and Public Relations

A request was submitted to the Atomic Energy Commission for reimbursement authorization to pay the job rate to an individual hired into the classifications of Business and Technical Graduates when such employee possesses two B.S. degrees in related fields, or has received a B.S. degree as a result of graduating from a regular 5-year course at an institution of higher learning.

The Wage Stabilization Board gave approval of the 1.08 percent cost-of-living adjustment but withheld a decision on the requested 2.5 percent productivity increase. This 1.08 percent increase will be paid in March and will be retroactive to September 17, 1951.

Wage Stabilization Board approval was received for the extension of the nonexempt holiday benefits to the classification of Supervisor-in-Training.

The Wage Stabilization Board has assigned Docket No. N-15109 to our petition for an increase in the rates of management secretaries. It was indicated that the petition is being held pending settlement of the 3.58 percent general increase question. The Atomic Energy Commission Office in Washington, D. C., was contacted for assistance in expediting this matter.

A petition was submitted to the Wage Stabilization Board for revision of our plan for classifying secretaries and stenographers.

The Wage Rates Unit participated in an area survey conducted by the Camp Hanford Personnel Office.

Work was started on a project-wide study of assignment of craft work in anticipation of Company and union jurisdictional meetings.

The Wage Rates Unit publicity writers survey was completed.

During February, 179 job reclassifications were studied and approved and 55 temporary reclassifications were checked and processed. Requisitions for 131 people were investigated. Eighty-five new hires and 21 reactivations were investigated concerning replacements, job grade and qualifications.

One merit raise and 744 automatic increases were reviewed and processed. Interdepartmental transfers for 157 employees involved a check as to job, individual qualifications, type of transfer, replacement and seniority.

## SUGGESTIONS AND INSURANCE

### Suggestion System:

	<u>January, 1952</u>	<u>February, 1952</u>	<u>Total since 7-15-47</u>
Suggestions Received	325	205	8448
Investigation Reports Completed	202	169	
Awards granted by Suggestion Committee	37	29	
Cash Awards	\$ 1,455.00	\$ 1,125.00	
Estimated Savings	15,768.98	30,346.54	

1214804

## Employee and Public Relations

The highest award of \$800 was made to an employee in the Community Real Estate and Services Department for his suggestion of chempointing sinks in various houses in Richland to eliminate seepage due to improper caulking. His suggestion resulted in a considerable savings in material and labor.

### Workmen's Compensation:

Five cases under litigation were closed during the month of February.

### Liability:

One case under litigation was closed during the month.

### Life Insurance:

Code information which is known only to Home Office Life Underwriters Association has been furnished 34 insurance companies and investigation agencies during the month of February, 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:

	<u>January, 1952</u>	<u>February, 1952</u>	<u>Total since Sept., 1946</u>
Claims reported to the Department of Labor and Industries	201	180	5779
Claims reported to Travelers Insurance Company	13	10*	595

\*All claims reported during February to the Travelers Insurance Company were property damage claims.

COMMUNITY REAL ESTATE AND  
SERVICES DEPARTMENT  
SUMMARY  
FEBRUARY, 1952

ORGANIZATION AND PERSONNEL

Number of employees on roll:	<u>Beg. of Month</u>	<u>End of Month</u>
Administration	21	20
<u>Community Services Section - (Total 204)</u>		
Public Works	85	83
Recreation & Civic Affairs	10	9
Library	10	10
Police (Richland)	43	42
Fire (Richland)	50	50
Engineering	11	10
<u>Community Real Estate Section - (Total - 195)</u>		
Housing and Maintenance	184	182
Commercial Property	13	13
<u>700-1100-3000 Area Services Section -(Total - 115)</u>		
700-1100 Maintenance	61	60
Patrol (North Richland)	21	22
Fire (North Richland)	33	33
	<u>542</u>	<u>534</u>

There was a decrease of eight employees in the Department during the month of February, 1952.

GENERAL

The following establishments opened for business during the month of February:

- Al Phillips' Cleaners, Inc.
- Gilson's Fabrics
- Shield's Book and Stationery
- Montgomery Ward & Company
- Lee's Barber shop
- Standard Stations, Inc.

Total housing applications pending - 680.

The Community Real Estate and Services Department participated in the Civil Defense Yellow Alert which was held on February 24, 1952.

HARoot/jak  
3/10/52

1214806

CONTRACT SECTION			
Contract Number	Contractor	Title & Status	Project Number
G-354	Erwen Construction Company	Additions to Sewage Lift Station. Contract closed out and final papers submitted to AEC for payment 2-25-52.	C-357
G-390	D&H Paving Company	1951 Street Improvements, Parking Lot at The Mart (South) and Campbell's; Construction of Sidewalk to Jason Lee School; Extension of Parking Lot Dorm W-20. Request for modification of contract to adjust final quantities submitted to AEC 2-29-52.	C-426 L-575 L-589 K-611
AT(45-1)-608	Associated Engineers, Inc.	Site grading, irrigation, landscaping, construction of restroom, sewer lines, water lines and shelterbelts. C-408 portion of the contract is approximately 80% 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 was Awarded to Anderson Brothers, Inc., 3-3-52 in the amount of \$49,101.00	S-909
-	-	Additional Fire Protection, Desert Inn & Richland Theater; Fire Hydrant Installation Birch Avenue. Request for contract services to AEC 2-27-52.	S-552
-	-	Site Grading, top soiling, lawn seeding and related work. Preliminary specifications approved by AEC. Final specifications and drawings in process of preparation.	C-426
-	-	Repair of fire damaged prefab and Repair of Damaged "A" House. Preliminary specifications submitted to AEC for approval 2-26-52.	S-922 L-921
-	-	Elimination of odors at sewage lift station. Final specifications and drawings in process of preparation.	L-608

Payments to contractors during the month totalled \$11,965.27. Contract services for S-922, L-921 and L-608 will be requested during March.

COMMUNITY SERVICES SECTION

SUMMARY

FEBRUARY, 1952

ORGANIZATION AND PERSONNEL:

	<u>BEGINNING OF MONTH</u>		<u>END OF MONTH</u>	
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Non-Exempt</u>
ENGINEERING	7	4	7	3
FIRE	50	0	50	0
LIBRARY	4	6	4	6
POLICE	16	27	16	26
PUBLIC WORKS	15	70	15	68
RECREATION & CIVIC AFFAIRS	<u>5</u>	<u>5</u>	<u>5</u>	<u>4</u>
	97	112	97	107

The Community Services Section participated in the Civil Defense Yellow Alert which was held on February 24, 1952. Fire Department equipment was dispersed to pre-determined points and police personnel was stationed throughout the community at strategic locations. The communications check between the principle Civil Defense stations was tested and proven satisfactory.

COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT  
PUBLIC WORKS UNIT  
FEBRUARY 29, 1952

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-Exempt</u>
Employees Beginning of Month	15	70
Transfers In		2
Transfers Out		3
New Employees		2
Terminations		3
Total - End of Month	15	68

SANITATION

Total weight of waste material collected and disposed of during February was 1,176 tons. Collections were not made on February 22, Washingtons Birthday, and those routes normally scheduled for that day were made on the following work day, which was February 25.

ROADS AND STREETS

Cleaning and flushing of drainage siphons, storm sewers and catch basins was performed during the month. A considerable amount of sand was spread on streets during icy weather in December and January, and the Elgin Steet Broom has been used quite extensively this month to remove this sand.

Other routine seasonal maintenance of streets, sidewalks and street drainage system was continued.

GROUNDS MAINTENANCE

The installation of playground equipment at Marcus Whitman and Sacajawea Schools, a part of Project C-425 was completed this month.

The planting of trees in Shelterbelts under Project C-408 is approximately 80% complete, and Park planting, also a part of C-425 has commenced and is about 2% complete. A total of 149 street trees were planted during February under Project S-405.

Seasonal grounds maintenance and pruning of trees was continued in Park areas.

**DOMESTIC WATER**

The 24" main from North Richland was out of service from 8:00 AM 2-28-52 until 1:00 AM 3-1-52, to allow for installation of two 18" valves to provide a water loop around the new Stores Buildings west of Stevens Drive at Spangler Road, and installation of a 24" valve between these two 18" loop valves.

Normal operations and maintenance were continued, and average daily water consumption amounted to 5.21 million gallons.

Production and consumption recordings for February are as follows:

Domestic Water

	<u>Well Production Million Gallons</u>	<u>Avg. Daily Production</u>	<u>Total Consumption Million Gallons</u>	<u>Avg. Daily Consumption</u>
Richland	79.5394	2.7427	81.2366	2.80126
North Richland	41.7020	1.4380	46.3074	1.59681
Columbia Field	29.2568	1.0089		
CO Area			<u>23.6606</u>	<u>0.81588</u>
Total	<u>150.4982</u>	<u>5.1896</u>	151.2046	5.21395

**SEWERAGE SYSTEM**

Copper sulphate was introduced into the collection system from 182 different laterals, in a continuation of a "root control" program.

A stoppage occurred in the 8" line on Comstock at Atkins, and although this has been opened, further repair will be necessary to correct a settled section of this line.

Normal operation and maintenance of the collection system, lift station and treatment plants were continued, and average daily flow through the treatment plants was 2.91 million gallons.

Flow records for the month are as follows:

Sewerage

	<u>Total Sewage Flow Million Gallons</u>	<u>Average Daily Flow Million Gal.GPD</u>	<u>Average Rate Flow Gals. Per Min.</u>
Plant No. 1	21.180	0.730	507
Plant No. 2	<u>63.297</u>	<u>2.183</u>	<u>1516</u>
Total	<u>84.477</u>	2.913	2023

**IRRIGATION SYSTEM**

The canal cleaning and burning program is 98% complete, and the unlined section of the canal from Yellow Bridge south to the concrete lined section has been sprayed with Polybor Chlorate 88 for weed control.

Water has been turned into the canal from Horn Rapids Dam to Wiedles Spill, and it is planned to carry water to the North Richland recharge basin within the next week.

1214810

RECREATION AND CIVIC AFFAIRS UNIT  
MONTHLY REPORT

February, 1952

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-exempt</u>
Beginning of Month	5	5
New Hires	0	0
Terminations	0	0
Transfers - IN	0	0
OUT	0	1
	<u>5</u>	<u>4</u>

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of February 29, 1952:

Administration	6
Principals & Supervisors	14
Clerical	23
Teachers	279
Health Audiometer	1
Cooks	40
Nursery School & Ext. Day Care	11
Bus Drivers	1
Maintenance	9
Operations	43
	<u>427</u>

CLUBS AND ORGANIZATIONS

As of February 29, 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
	<u>11</u>

On February 22, 1952, the Richland Little League Association began the installation of Little League baseball field No. 2 on the Spalding Playground. All materials for this installation were provided by the Recreation and Civic Affairs Unit. Also, arrangements for the loan of Government equipment to be used in conjunction with the installation were made by the Recreation and Civic Affairs Unit.

The Richland Pony League baseball group was granted permission to install a baseball field on the Carmichael Playground. The baseball field is to be located on the southwest area of the Playground and is to be equipped with 12 ft. backstop and 4 ft. fencing around the outfield. The Recreation and Civic Affairs Unit is to provide the necessary materials for the installation and arrange for the loan of Government equipment to be used by the group to install the backstop and outfield fencing. Plans have been made by the Richland Pony League group to begin work on the field by March 1, 1952.

Arrangements have been made by the Recreation and Civic Affairs Unit with the Richland Rod and Gun Club to begin work on the juvenile fishing area located at the north end of the Wellisian Way well fields. The necessary Atomic Energy Commission approval for the loan of Government equipment to be used on the project has been received by the Recreation and Civic Affairs Unit, and the Rod and Gun Club has lined up enough volunteer labor to guarantee completion of the project by the middle of next month.

The Parks and Recreation Board held its regular monthly meeting on February 7, 1952 at the Community House. It was announced that the 1951 committee members of both the Community House Committee and Memorial Softball Field Committee had agreed to serve in the same capacity for 1952. The next regular meeting of the Parks and Recreation Board is to be held on March 6, 1952 at the Community House.

The number and types of organizations presently served by the Recreation and Civic Affairs Unit include:

Business & Professional organizations	23
Churches & Church organizations	27
Civic organizations	19
Schools	13
Fraternal organizations	25
Political organizations	5
Recreation & Social Clubs -	
Alumni	3
Art, Music & Theatre	10
Bridge	3
Dance	5
Garden	2
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	14
	<u>315</u>

#### RECREATION

The finals for the city-championship in the P.I. Hoop Shoot contest were held at the Carmichael Junior High gymnasium under the direction of the Recreation and Civic Affairs Unit on February 16, 1952.





COMMUNITY SERVICES

RICHLAND PUBLIC LIBRARY

FEBRUARY 1952

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-exempt</u>
Employees - Beginning of Month	4	6
Transfers In	0	0
Transfers Out	0	0
New Hires	1	0
Terminations	1	0
End of Month	4	6

GENERAL

Circulation

<u>Books</u>	16,522 (Adult 9765; Juvenile 6757)
<u>Magazines</u>	471
<u>Records</u>	739
<u>Pamphlets</u>	14
<u>Interlibrary Loans</u>	56
<u>Grand total</u>	17,850
<u>Books added this month</u>	205 (Adult 106; Juvenile 99)
<u>Current book stock</u>	18,788

Registration

<u>Adult</u>	337
<u>Juvenile</u>	86
<u>Total</u>	423
<u>Total registered borrowers</u>	9,077
<u>Children's story hour attendance</u>	431 (Includes attendance at Valentine's party - 54)

1214815

341

Fifteen meetings were held in North Hall this month.

The first and organizational meeting of persons interested in "What is the American Way?", the library's group discussion project in cooperation with the A.L.A. American Heritage Project, was held in the North Hall of the Library on February 26, 1952. Twenty six enthusiastic people attended the meeting. Group attendance showed a varied age (15-50) and interest group. Two discussion groups have been formed, one to meet every other Tuesday starting March 11, 1952 and the other to meet every other Wednesday starting March 19, 1952. The present phase of the program will consist of five sessions in each group. The current leadership of the Tuesday group will be by Miss Lucile Lomen and of the Wednesday group by Rev. Robert Uphoff. The two books being used as a basis for discussion are "This American People" by Gerald Johnson and "Living Ideas in America" by Henry S. Commager.

Two High School students are now obtaining vocational training at the Library. This consists of six hours a week for which credit is given.

The special function of the children's program this month was the Valentine's party. For admission to the party each child had to make a valentine for his favorite book character. Candy prizes were awarded for the best and most original valentines.

COMMUNITY SERVICES

RICHLAND POLICE DEPARTMENT

FEBRUARY 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-exempt
Employees - Beginning of Month	16	27
Transfers In	0	1
Transfers Out	0	1
New Hires	0	0
Terminations	0	1
Total - End of Month	16	26

GENERAL

The Richland Police Department was the host to the Yakima River Peace Officers' Association's first meeting of 1952. The meeting was held February 28 at the Desert Inn. Election of officers was held and Chief H. W. Strock was elected president, replacing Chief Harold Robinson of the Yakima Police Department. Other officers elected were Capt. J. S. Johnson, vice-president, Richard Clark, Yakima, secretary-treasurer, John Pannatoni, Ellensburg, Sergeant at Arms. Capt. C. F. Klepper is the retiring secretary-treasurer. Guest speaker at the meeting was Richard Auerbach, Special Officer in Charge of the Seattle office of the F.B.I.

This department participated in the Civil Defense yellow test alert held Sunday, February 24. Results of our staff mobilization and all other activities associated with the test were very successful.

The regular meeting of the Police Athletic League was held February 4 at which time new officers were elected for the coming year. All officers were re-elected to serve a second term. J. S. Johnson is President of the group.

Two groups of cub scouts were escorted through Police Headquarters on a tour during the month of February.

During the month a total of 131 letters were received, compared to 133 last month. These consisted of 125 inquiries on arrests and 6 requests for assistance.

During the month, 30 prisoners were processed through the Richland Jail. Fifteen of these were from North Richland.

Sixteen safety films were available for the use of personnel groups, civic organizations and schools during the month. Approximately 550 people viewed these safety films during the month.

During the month, 19 gun registrations were recorded.

During the month, 84 bicycle registrations were recorded.

During the month, 262 traffic violation reports were received. These consisted mainly of speeding, illegal parking, negligence and stop sign. A total of 108 other reports were received.

1214817

Richland Police Department (continued)

TRAFFIC

There were 24 reportable accidents in Richland during the month of February. This is only one-half the number reported for January, but the total for the two months is exactly double the number reported during the same two months last year. We have already recorded 27% of the total number of accidents for last year.

There were 3 minor and 1 major injury accidents this month in which 6 persons were injured to the extent that they required medical attention. There were the same number of persons injured last month.

Property damage this month has been extremely high with an average of \$377.00 per accident, as compared to \$363.00 last month, which included one accident totaling \$7,500.00 damage. There were several accidents this month in which a car was considered completely demolished.

Eighteen of the above accidents were investigated by members of the Richland Police Department. These investigations resulted in the arrest of 13 drivers for traffic violations.

Driving violations which contributed to the 24 accidents this month were:

Failure to yield right of way	8	Illegal turn	2
Drunken driving	1	Failure to signal	1
Reckless driving	2	Improper backing	1
Negligent driving	4	Unsafe speed	1
Distraction to driving	2	Following too close	2

The intersections where School Boy Patrols are stationed were checked regularly and most of them are doing an exceptionally good job. The boys at school became a bit lax in wearing their uniforms but a meeting with the boys, their instructor and the school principal, seems to have corrected the situation and no further difficulty has been reported. A member of the Police Department conducted scheduled meetings with Patrol members of 4 schools this month. The group at Jason Lee is completely organized and necessary crosswalks will be painted as soon as weather will permit.

A manual tabulation was made of pedestrians at the intersection of Knight and Goethals to determine the effectiveness of past use of the public address system on the jeep. Of 283 pedestrians tabulated between 11:30 A.M. and 1:30 P.M. last Monday, only 43/100 of one percent were observed violating traffic laws. Two of these walked against the green light and two made mid-block crossings.

During the month of February, there were 17 traffic control signs installed; 14 traffic control signs replaced; and 9 new "no parking" signs installed and 5 replaced.

TRAINING

Advanced training for police members at the small arms range for the period in Field Instruction consisted of one hour pistol and one hour machine gun instruction. The subject for classroom training for the month was Public Relations.

Richland Police Department (continued)

Qualifications on the Army-L Course were as follows:

<u>Score</u>	<u>No. of Men</u>	<u>Per Cent</u>
Expert	11	61%
Sharpshooter	4	22%
Marksman	2	11%
Unqualified	1	6%

Qualifications on the Machine Gun Course were as follows:

<u>Score</u>	<u>No. of Men</u>	<u>Per Cent</u>
Expert	11	61%
Sharpshooter	5	28%
Marksman	2	11%

A total of 18 men reported for police training.

ACTIVITIES AND SERVICES

	<u>December</u>	<u>January</u>	<u>February</u>
Doors and windows found open in facilities	37	55	55
Children lost or found	18	8	21
Dogs, cats reported lost or found	45	43	33
Dog, cat, loose stock complaints	42	23	26
Persons injured by dogs	1	4	7
Bank escorts and details	0	1	2
Fires investigated	10	16	17
Miscellaneous escorts	8	4	13
Complaints investigated (no enforcement action)	74	43	15
Deaths reported	1	1	4
Property lost or found	17	25	16
Records inquiries	171	147	110
Law enforcement agencies assisted	19	14	2
Private individuals assisted	9	14	2
Plant departments assisted	149	118	80
Emergency messages delivered	47	39	47
Street lights out reported to Electrical	107	124	96
<b>Totals</b>	<b>755</b>	<b>679</b>	<b>548</b>

POLICE DIVISION - TRAFFIC CONTROL STATISTICS  
FEBRUARY, 1952

MOTOR VEHICLE ACCIDENTS:

1214820  
Richland

Total Number	Fatalities		Major Injuries		Minor Injuries	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
48	0	0	0	1	2	3

ACCIDENT CAUSES:

Richland

Negligent Driving	Failure to Yield Right of Way		Reckless & Drunken Driving		Other Cases	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
5	4	10	1	3	37	9

PLANT WARNING TRAFFIC TICKETS ISSUED:

Richland: NO WARNING TICKETS ISSUED FOR JANUARY AND FEBRUARY, 1952.

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

Richland	44	52	31	7	6	4	4	12	6	29	21	83	74	116	45	333	Totals
																	Jan.

Speeding Stop Sign Drunken Dr. Reckless Dr. Right of Way V. Neg. Drvg. Parking V. Other V. Totals  
 Jan. Feb. Jan. Feb.

TRAFFIC VOLUME: Average 24-Hour Traffic Volume Count for week ending February 29, 1952, north of Van Giesen on Jadwin 2,543 cars.

MONTHLY REPORT  
 RICHLAND POLICE DEPARTMENT  
 FEBRUARY, 1952

OFFENSES	KNOWN	UNFOUNDED	CLEARED OTHER*	CLEARED ARREST
<b>PART I</b>				
1. Murder				
2. Rape				
3. Robbery				
4. Aggravated Assault				
5. Burglary - Break & Ent.	1	1		
6. Larceny - Over \$50.00	5			1
Larceny - Under \$50.00	18	1	4**	4
Bicycle Theft	34		30	
7. Auto Theft	2			
<b>TOTAL PART I CASES</b>	<b>60</b>	<b>2</b>	<b>34</b>	<b>5</b>
<b>PART II</b>				
8. Other Assaults	2	1	1	
9. Forgery & Counterfeit				
10. Embezzlement & Fraud				
11. Stolen Prop: Buy: Rec: Poss.				
12. Weapons:Carrying:Poss.				
13. Prostitution				
14. Sex Offenses	1			1
15. Offense Ag. Fam. & Child				
16. Narcotics-Drug Laws				
17. Liquor Laws				
Drunkenness	5			5
18. Disorderly Conduct	2			2
19. Vagrancy	1		1	
20. Gambling				
22. Driving While Intox.	5			5
23. Violation Rd. & Dr. Laws:				
Speeding	42			42
Stop Sign	28			28
Reckless Driving	3			3
Right of Way	4			4
Negligent Driving	14			14
Defective Equipment	1			1
24. Parking	61			61
25. All Other Traffic Viol.	34			34
26. All Other Offenses:				
Public Nuisance	3			3
Prowlers		1**		
Dest. of Pers. Property	2		2	
Malicious Mischief	6		3	3
Vandalism	4		2	2
Delinquency	2		2	2
Investigation of Juv.	2		2	2
Pickup for outside agency	1		1	1
Dog Nuisance	4		2	2
Car Prowl	1		1	1
Truancy	1		1	1
Damage to Govt. Property	2		2	2
Trespassing Juvenile	1		1	1
27. Suspicion	3	3	2	
<b>TOTAL PART II CASES</b>	<b>214</b>	<b>5</b>	<b>21</b>	<b>206</b>

22814822

RICHLAND POLICE DEPARTMENT  
 RICHLAND JUSTICE COURT CASES  
 FEBRUARY 1952

VIOLATION	NO OF NO OF		CASES WARR.		SENT SENT		LIC. SUSP.		CASES	ORIG.	INCL.	OTHER	BAIL	FINES	FINES	SUSP.
	CASES	NO OF	CONT.	DISM.	ISS.	JAIL	SUSP.	REV.								
Defective equipment	2	1	1						1	2						
Disregarding flagman	1		1													
Drunken driving	6	5	1				5							332.50		
Dr. across fire hose	1	1												7.50		
Drivers license	17	10	6		1				2	12			3.50	22.50		22.50
Failure to give proper signal.	1	1	1										10.00			
F.T.O.P.O.	1	1							1	1						
F.T.S. & I.	5	2			1								27.50	32.50		
F.T.I.A.O.W.	7	3	2						1							
Hit and run	1		1													
Illegal parking	78	25	42						4	1			143.50	91.00		66.50
Illegal passing	1	1														
Illegal turn	3		3										17.50			
Impr. lic. plates	18	6	7		1				6	6			40.00	18.50		7.50
Negligent driving	25	20	4						4	1			120.00	407.00		112.50
No registration	2	1	1													
Operating motor veh. while lic. under suspension.	1							1								
Reckless driving	5	3	1						4	2			50.00	117.50		
Speeding	56	27	27						4	4			308.00	272.50		10.00
Stop sign	33	15	16						2	3			98.50	58.50		
Contributing to delinquency of a minor.	1	1														
Disorderly conduct	1		1										27.50			
Public intoxication	3	3	3										47.50			
Public nuisance	2	1	1													
<b>TOTAL</b>	<b>271</b>	<b>122</b>	<b>115</b>	<b>29</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>26</b>	<b>29</b>	<b>\$893.50</b>	<b>\$1360.00</b>		<b>\$219.00</b>

One reckless driving case amended to negligent driving.

348

MONTHLY REPORT      RICHMOND POLICE DEPARTMENT      FEBRUARY, 1952

OFFENSES	KNOWN	UNFOUNDED	CLEARED OTHERS	CLEARED ARREST
<b>PART III</b>				
19. Missing Persons	13		13	
Lost Persons	10		10	
Lost Animals	9		2	
Lost Property	2		1	
20. Found Persons	-	-	-	
Found Animals	9		9	
Found Property	2		2	
<b>TOTAL PART III CASES</b>	<b>45</b>		<b>37</b>	
<b>PART IV</b>				
30. Fatal Mot.Veh.Traf. Acc.	-			
31. Pers. Inj. Mot. Veh. Traf. Acc.	4			
32. Prop. Dam. Mot. Veh. Acc.	20			
33. Other Traffic Accidents	-			
34. Public Accidents	}			No Accurate Statistics Kept
35. Home Accidents				
36. Occupational Accidents				
37. Firearms Accidents				
38. Dog Bites				
39. Suicides	1		1	
Suicide Attempts	2		2	
Sudden Death & Bodies. Fd.				
40. Sick Cared For				
41. Mental Cases				
<b>TOTAL PART IV CASES</b>	<b>27</b>		<b>3</b>	
<b>COMPOSITE TOTALS</b>				
<b>PARTS I, II, III, IV CASES</b>	<b>367</b>	<b>7</b>	<b>95</b>	<b>213</b>

\* 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 were no arrests.

\* Three cases of Larceny in Part I, (Under \$50.00) in the "Cleared Other" column occurred during the previous month.  
 One Provier case, shown in Part II, was cleared by "Unfounded", occurred during the previous month.

Property reported stolen \$1,959.05 (includes 34 bikes)  
 Property recovered \$782.98 (includes 30 bikes)

FACE THREE MONTHLY REPORT RICHLAND POLICE DEPARTMENT JUVENILES INVOLVED FEBRUARY, 1952

OFFENSE	NO.	JUVENILES	SEX	10	11	12	13	14	15	16	17	TOTAL
Juveniles with liquor	1	1	M						1			3
Truancy	1	4	M			1	3					4
Delinquency	1	2	M			2						2
Shoplifting	1	1	M			1						1
Public Intox.	1	1	M						1			1
Malicious Mischief	1	1	M	1								1
Vandalism	1	1	M					1				1
Trespassing	1	1	M						1			1

TOTALS	8	14		1	4	5	2	2	2	14

1214824

COMMUNITY SERVICES

RICHLAND FIRE DEPARTMENT

FEBRUARY 1952

<u>Organization and Personnel:</u>	Exempt	Non-Exempt
Employees - Beginning of Month	50	0
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	0
End of Month	50	0

Fire Protection:

Fire Loss (Estimated):	Government	\$ 47.00
	Personal	<u>24.50</u>
	Total	\$ 71.50

Response To Fire Alarms	14
Investigation of Minor Fires and Incidents	9
Ambulance Responses	53
Inside Schools or Drills	46
Safety Meetings	8
Security Meetings	4
Fire Alarm Boxes Tested	196
Airport Standby	1

Dry fire hose was installed in one 700 Area Hose Box.

Eighteen Cub Scouts and three adult leaders were given a conducted tour of No. 1 Fire Station on February 5th.

The new Howe 500 GPM pumper was given a pump test from draft on February 13th and truck returned to Transportation for modifications.

On February 24th, the Fire Department participated in the Civil Defense "Yellow Alert" drill by dispersing apparatus and personnel to five points on the outskirts of Richland and manning one reserve pumper in each fire station.

Fire Department lieutenants were detailed to accompany the Assistant Fire Marshal on hazard inspections. A total of 28 manhours was utilized for this purpose to orient officers on building layouts and contents.

Fire Prevention:

A total of 179 hazard inspections were made during February. During these inspections 530 fire extinguishers were inspected and 22 serviced in some manner. Sixty three standpine fire hoses were inspected. As a result of these inspections, 25 inspection reports were written to responsible sections.

1214825

(Fire Prevention, Continued)

Several hazardous weed areas were noted near and around several 700 and 1100 Area Buildings. Their removal was recommended in each instance.

At the tenant's request, an inspection was made of a furnace smokepipe at 1600 George Washington Way. Recommendation was made to Tenant Service for replacement of a rusted out smokepipe.

The 700 Area General Maintenance Foreman was contacted concerning the report that electrical motors were being cleaned with gasoline. It was agreed that this practice would be halted immediately.

The 700 Area Safety Engineer was advised that the 734 Building (Cylinder Storage) safety shower was inoperative.

Inspection was made of the 703 Building sprinkler system after faulty gaskets were replaced in the fire department connections.

The fire prevention display book on Richland activities was completed and reviewed by the Fire Prevention Committee and full membership of the Chamber of Commerce. It was then forwarded to the U. S. Chamber of Commerce National Fire Waste Contest. Another display book was also completed and forwarded to the Washington State Fire Prevention Committee for judging in the first state-wide contest.

Recommendation was made to the Real Estate Section that construction materials blocking an alley fire hydrant in the Uptown district be removed as soon as possible.

The Assistant Fire Marshal attended the regular monthly meeting of the Traffic Control Committee.

Inspection revealed an inoperative fire door in Campbell's No. 1 Market. It was requested that immediate repairs be made or that the fire door remain closed until repaired.

At their request, the Fire Marshal assisted AEC Engineering and School officials on a pre-acceptance inspection of the Jason Lee Grade School building. Several undesirable conditions were noted and immediate steps taken by AEC Engineers to work out corrections with the construction contractor. A subsequent test of the school's fire alarm system resulted in several minor failures, most of which were immediately corrected.

On February 29th, a fire drill was conducted at Kadlec Hospital. Except for inaudibility of one signal buzzer, the drill was satisfactory. Immediately after the drill, a meeting was held with hospital wardens and arrangements made for adjusting the signal buzzer in question.

COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT

ENGINEERING UNIT

February, 1952

<u>Personnel</u>	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
Employees - Beginning of Month	7	4	10
Employees - End of Month	7	3	10

The Status of Active Projects is as follows:

- K-562 - Automatic Irrigation Levee 2-C - Work scheduled during month of April. No work progressing to date.
  - L-262 - Water and Sewer - Assembly of God Church - Job lines staked. Construction work to begin within ten days.
  - L-608 - Odors Emanating from Sewage Lift Station - Design 90% complete.
  - S-405-B Street Tree Planting - Additional Erosion Control - During the month 133 new trees were planted on this project. Work has been slowed up by a shortage of some varieties of trees, inclement weather, and a shortage of manpower.
  - 3-552 - Additional Fire Protection - Desert Inn and Richland Theater - Design and bid package prepared and in hands of Contract Unit.
  - C-357 - Alterations to Sewage Lift Station - Project has been completed and accepted and Physical Completion Notice has been written.
  - C-408 - Additional Erosion Control - By-pass extension and Abbot Street shelterbelts are 80% complete. Work scheduled on Howell belt for about April 1.
  - C-425 - 1951 Park Development Program -  
 Columbia Playfield - Parking lots, sewer line, and site grading under construction.  
 Chief Joseph Playground - Site grading 90% complete. Irrigation system to be installed concurrently with development around building.  
 Libraries - Site grading started.  
 Frankfort Playground - Trees and shrubs set. Job approximately 75% complete.  
 Spalding Grade School - Trees and shrubs planting started. No work has been started on the balance of the areas included in this project.
  - C-426 - Street Improvement Program 1951 - Grass Seeding and top soil on 1951 street construction work for 1952. Plans and specifications complete and in the hands of Contract Unit this date.
  - C-486 - 1952 Street Improvement Program - Design 50% complete. Design on parking lots Chief Joseph School in preliminary stage.
- Status of Active ESRs
- 235-PW Town Planning Board Work - Def. for other work.
  - 369-CA Site Map CAP Field - Def. for other work.

Engineering Unit

- 473-M Westside United Protestant Church - Building materially completed.
- 510-M Roads and Streets Drawings - 1950 Construction - Def. for other work.
- 544-SD Tree Planting for Schools - Arboreteum planting for high school selected.
- 547-MD Fixed Irrigation System - Design in progress.
- 561-SD Chief Joseph Grounds - Site grading complete. Irrigation system started.
- 565-RC Site South of Tract House O-1224 - Def. for other work. 33
- 572-M First Baptist Church - Work progressing. 50% complete.
- 579-MS Goethals Drive to Williams - Study of intersection - Def. for other work.
- 581-RC "As Built" plans for LDS Church - Plans returned to building committee for correction.
- 585-M Anderson Motors Addition - Work materially complete. Final inspection to be made.
- 586-M Standard Oil Station - Final inspection made and list of exceptions prepared. 99% complete.
- 591-M Preparation of Advice Pamphlet for contractors. - Rough completed. Temporarily delayed for other work.
- 595-M Shell Oil Company - Work completed. Final inspection made.
- 596-M Store Building #3 - C. D. Joseph - Work progressing - 99% complete.
- 597-RC Additions to Mart - Plans rejected for non-conformance to U.B.C.
- 603-RC Legal Description - McVicker Building #3 - Waiting for ground assignment.
- 605-PR Erosion Control - Preliminary work started on project proposal.
- 606-RC Legal Description - 89 Lee - Being processed.
- 609-M Plan Checking - Store Bldg. #4 - CD Joseph - Bldg. permit issued.
- 612-RC As Built for Richland Thrifty Drug - Returned to Architect for correction.
- 613-RC Building Alteration Permit #11 - Central United Protestant Church - Inspection to be made.
- 615-M Plan Checking - McVicker Bldg. No. 4 - Construction progressing. Bldg. 90% complete.
- 616-M Level Control Valve - Sewage Treatment Plant - Def. for other work.
- 617-RC As Built plans for Theater Building - Def. for other work.
- 618-RC Legal Description - Area between Photographic Studio and Automatic Laundry Co., in North Commercial Area (Block #1) - 100% complete.
- 619-M Alteration of Greenway for Parking Area - Preliminary estimate submitted.
- 620-M Fire Hydrant Installation - Birch Street between Kuhn Street and Swift Blvd. Design completed and in hands of Contract Unit.

Engineering Unit

- 621-RC Housing Plots - Bauer-Day Lease - 80% complete.
- 622-RC Gillette Building - Being processed.
- 623-M Request for preliminary Engineering on Additional Erosion Control - FY 1952 - Work in progress.
- 624-M Landscaping Estimate for Central Fire Station - Preliminary work is completed. Balance of work is to be done after the building is completed.
- 625-M Kirkpatrick Building No. 2, Block 4 - Construction progressing - 35% complete.
- 628-M Prepare As Built plans for Richland Fire Alarm System - 10% complete.
- 629-M Temporary Loan of Employees to Design - Still active.
- 630-M Correction of Master Plan - Although started, work has been delayed for lack of material.
- 631-M As Built Plans for Sewer System - To be developed as time permits.
- 632-M As Built Plans for Water System - To be developed as time permits.
- 633-M As Built Plans for Streets - Def. for other work.
- 634-M Engineer Liaison - Richland Water Expansion - Prepared and submitted data as requested by AEC - work continuing.
- 635-RC Uptown Business District - Legal Description - Being processed.
- 636-RC Extension of Lateral Water and Sewage Lines to Lot Lines - completed.
- 637-M Engineering - Parking Lots - Chief Joseph School - Preliminary work started.
- 638-M Flow Diagram - Sewage Treatment Plant - 80% complete.
- 639-RC Legal Description - Bus Depot - Work Started.
- 640-RC Anderson Motors - As Built Plans - Plans received for checking.
- 641-RC Sewer Service to Gillette Property - Up for Managerial approval.
- 642-M Cost Estimate - Boiler at #2 Fire Station - Work started.

COMMUNITY REAL ESTATE SECTION

SUMMARY

FEBRUARY  
1 9 5 2

ORGANIZATION AND PERSONNEL:

	<u>BEGINNING OF MONTH</u>		<u>END OF MONTH</u>	
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Non-Exempt</u>
Commercial Property Unit	7	6	7	6
Housing & Maintenance Unit	22	162	22	160
	29	168	29	166

Net Decrease in Employees for month of February 2

GENERAL

The following establishments opened for business in the month of February as sub-lessees in the C. D. Joseph Company Bldg. #1:

Al Phillips' Cleaners, Inc.	1356 Jadwin	Feb. 4, 1952
Gilson's Fabrics	1358 Jadwin	Feb. 1, 1952
Shield's Book and Stationery	1360 Jadwin	Feb. 22, 1952
Montgomery Ward & Company	1364 Jadwin	Feb. 14, 1952

Lee's Barbershop located in McVicker's Building #4 opened for business February 29, 1952.

Standard Stations, Inc. located at 1323 Lee Blvd. opened for business February 2, 1952.

HOUSING AND MAINTENANCE UNIT

February, 1952

ORGANIZATION AND PERSONNEL

February

Number of employees on payroll:

Beginning of month

22 Exempt

162 Non-Exempt

184

184

End of month

22 Exempt

160 Non-Exempt

182

182

Category	Beginning of month	End of month
Exempt	22	22
Non-Exempt	162	160
<b>Total</b>	<b>184</b>	<b>182</b>

RICHLAND HOUSING

Housing Utilization as of Month Ending February 29, 1952

Houses occupied by Family Groups

	<u>Conven- tional</u>	<u>Block</u>	<u>T Pre cut</u>	<u>Ranch</u>	<u>Pre fab</u>	<u>Apt</u>	<u>4th add</u>	<u>Tract</u>	<u>Total</u>
G.E. Employees	2228	260	9 382	828	1170	57	270	40	5244
Commercial Facilities	90	11	1 35	77	60	8	8	4	294
Community Activities	9			5	4			1	19
Medical Facilities	4	15		1	1		3		24
Post Office	5			3	12		1	3	24
AEC and other government	91	29	19	48	19	3	12	3	224
Schools	49	1	5	11	53	1	2		122
Atkinson and Jones	8	13	3	10	4	4	1		43
Vitro Corporation	6	3	2	8	3				22
Charles T. Main	1		2	3	11				17
Newberry Neon	3	1	1			1	1		7
Urban-Smythe-Warren				2			1		3
Robert's Filter	1								1
V.S. Jenkins				1					1
Vernita Orchards								4	4
<b>Total</b>	<u>2495</u>	<u>333</u>	<u>10 449</u>	<u>997</u>	<u>1337</u>	<u>74</u>	<u>299</u>	<u>55</u>	<u>6049</u>

Houses assign. Leases written	1				3		1		5
es Assign. Leases not written	1			1					2
Available for assignment	2				1			1	4
Turnovers	1			2					3
House Exchanges			1		1				2
<b>Total</b>	<u>2500</u>	<u>333</u>	<u>10 450</u>	<u>1000</u>	<u>1342</u>	<u>74</u>	<u>300</u>	<u>56</u>	<u>6065</u>

	<u>Begin Month</u>	<u>Moved In</u>	<u>Moved Out</u>	<u>Month End</u>	<u>Diff.</u>
Conventional Type	2496	20	20	2496	—
A. and J. Houses	332	4	4	332	—
"T" Type	10	—	—	10	—
Pre-cut Type	452	9	10	451	Minus 1
Ranch Type	997	14	14	997	—
Prefab Type	1338	12	14	1336	Minus 2
Apartments	76	1	1	76	—
4th Housing Addition	298	—	1	297	Minus 1
Tract Houses	55	1	1	55	—
<b>Total</b>	<u>6054</u>	<u>61</u>	<u>65</u>	<u>6050</u>	<u>Minus 4</u>

DORMITORY STATISTICS

Dormitories:

	<u>No.-Dorms</u>	<u>Occupants</u>	<u>Vacancies</u>	<u>Total Beds</u>
Men Occupied	15	616	----	616
Women Occupied	12	*481		481

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 176 men waiting for rooms in Richland.  
There are 2 Women waiting for rooms in Richland.  
There are 68 Men waiting for single rooms in Richland.  
There are 86 Women waiting for single rooms in Richland.

GENERAL

Houses Allocated to new tenants	32
Exchanged Houses	16
Moves (Within the Village)	9
Turnovers	2
Total Leases Signed	61
Terminations	33
Total Cancellations	65
Applications Pending	680

ALLOCATION SECTION STATISTICS

Voluntary Terminations	14
R.O.F.	--
Discharge	1
Transfers	8
Retirement-Divorce-Death	4
Houses Assigned "As Is"	31
Move Off Project	6
Houses sent to Renovation	19

DEBITORY REPORT FOR FEBRUARY - 1952.

156 MINOR REPAIRS TO FUSES, PLUMBING, ETC.

23 WORK ORDERS, GLASS, EQUIPMENT, ETC.

67 PIECES OF FURNITURE REPAIRED.

80 HOUSEKEEPING CONTACTS.

54 ROOMS VACATED.

12 ROOMS PAINTED.

LINENS LAUNDERED

10,769 SHEETS

5,519 PILLOW CASES

343 BED SPREADS

48 BED PADS

320 SHOWER CURTAINS

24 PAIRS DRAPES

**MISCELLANEOUS STORES WAREHOUSE INVENTORY SUMMARY**  
**MONTH ENDING FEBRUARY 1952.**

	EXPENDABLE ITEMS	FURNITURE (GEN. LEDGER)	FURNITURE (KARDEX CONT.)	PLANT ITEMS	TOTAL
BEGINNING BALANCE	\$13,953.91	\$10,966.06	(\$10,330.35)	\$46,226.99	\$78,371.96
RECEIPTS:					
On Purchase Orders	774.00				
On Store Orders	652.49				
From Housing	393.31			2902.66	
From Dormitories	15.12		292.68	100.50	
From Other (Misc.)				100.50	
TOTAL RECEIPTS	\$ 1834.92	\$	\$ 292.68	\$ 3003.66	\$
TOTAL AVAILABLE DISBURSEMENTS:	\$20,793.83	\$10,966.06	\$10,622.93	\$49,450.65	\$
Cash Sales (Backcharge)	29.55				
To Housing	996.41		\$ 453.47	\$ 1124.30	
To Dormitories	1098.97		134.90	165.10	
Dormitories-Linens	145.00				
Dorm-Shades & Reflectors	1.70				
To Warehouse Supplies	13.44				
To Other (Misc.)	3.92		141.34	627.20	
TOTAL DISBURSEMENTS	\$ 2288.99	\$	\$ 734.71	\$ 1916.60	\$
ENDING BALANCE (1) (2) (4)	18,504.84	10,966.06	(\$ 9,888.22)	\$47,534.05	\$77,004.95
NET CHANGE	\$ 454.07	\$10,966.06	\$ 442.03	\$ 1,087.06	\$ 632.99
ENDING BALANCE GENERAL LEDGER ( BALANCE-COL. 1 PLUS COL. 2)					\$29,470.90

COLUMN 3 FOR LOCATION CONTROL ONLY-COLUMN 4 MEMO ACCOUNT ONLY

EXCHANGED:	PIECES			
Dorm. Furniture	47			
Ranges	7			
Refrigerators	5			
Prefab Heaters	2			
Sent to Maintenance	67			
Maintenance	37			

TENANT RELATIONS WORK ORDER AND PROGRESS REPORT - MONTH OF FEBRUARY, 1952

Processing of Service Orders, Work Orders, & Service Charges

	Orders Incomplete as of January 31	Orders Issued 1-31 to 2-29	Total Order: Incomplete as of February 29, 1952
Service Orders	51	2033	130
Work Orders	961	425	1069
Service Charges	1	267	

Principal Work Order Loads

	Incomplete as of January 31, 1952	Incomplete as of February 29, 1952
Laundry Tub Replacements	38	5
Bathroom Renovations (tub, tile, lino.)	34	42
Tileboard Only (Bathroom)	1	4
Kitchen Cabinet Linoleum	24	19
Kitchen Floor Linoleum	12	6
Shower Stalls	37	16

Alteration Permits Issued During the Month of February totaled 83 compared to 79 issued in January.

Floor sanded	1	Install air conditioner	2
Install storage shed	1	Remove section of wall	1
Install fence	27	Install longer pigtail on range	1
Install auto. washer	11	Remove broom closet	3
Install auto. dryer	1	Install additional glass in door	1
Basement excavations	2	Install additional outlets	3
Install oil burner	1	Install parking strip	2
Install wall receptacle	1	Install arbor	1
Install driveway	7	Remove clothes poles	1
Install water softener	7	Install back door	2
Reverse range and refer.	1	Install patio	1
Basement partitions	1	Install doorbell	1
Raise threshold	2	Change screen door	1

1341 Inspections were made during the month of February compared to 1004 made during January.

Alteration permits	65	Sidewalks	32
Bathtubs	65	Sinks	21
Garage	1	Tileboard	42
Drainage	15	Driving on grass	1
Floorboards	11	House siding	2
Top soil	29	Shades	1
Jack & Shim	16	Doors	21
Leaking basements	17	Toilet seats	36
Linoleum	152	Shows (New Tenants)	30
Lot Lines	43	First Inspections	58
Paint	228	Walls	34
Porch & Steps	18	Renovations	62
Screen Doors	25	Windows	4
Shower Stalls	45	Miscellaneous	287

HOUSING AND MAINTENANCE

February, 1952

I. HOUSING MAINTENANCE BACK-LOG REPORT

<u>TYPE OF WORK</u>	<u>OLDEST ISSUE DATE</u>	<u>BACK-LOG</u>	<u>RATE OF REPLACEMENT</u>
Bath tubs, including:			
Tile Board (Bath)			
Floor lino (Bath)	9-6-51	42	10 per week
Painting (Bath)			
Tile Board - A & J Other than tub install.	2-4-52	2	1 per week
Tile Board - Conventional Other than tub install.	2-15-52	2	1 per week
Painting (Misc.)	Orders ready 12-6-51	50	None
Kitchen floor lino Prefabs	2-14-52	3	2 - 3 per week
Kitchen floor lino Conventional	2-14-52	3	1 - 2 per week
Bathroom floor lino Prefabs	5-23-51	2	Waiting for shower stall installation
Bathroom floor lino Conventional	11-28-50	2	Waiting for shower stall installation, "D" house.
Kitchen sink lino Prefabs	9-15-51	10	6 - 8 per week
Kitchen sink lino Conventional	11-30-51	9	6 - 8 per week
Shower stall installations	11-30-50 12-7-50 8-15-51	1BR "D" Other 16	2 - 3 per week
Laundry Trays	1-22-52	5	2 - 3 per week

7  
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II. MAINTENANCE TRANSPORTATION FACILITIES

<u>TRUCK TYPE</u>	<u>NO. IN POSSESSION</u>	<u>CRAFT</u>
1½ ton Flatbed	7	Carpenters
1/2 ton Pickups	5	Carpenters
3½ ton Dump Trucks	2	Labor
1/2 ton Pickup	1	Labor
3/4 ton Power Wagon	1	Labor
1/2 ton Pickups	2	Sheetmetal
Panels	2	Millwrights
3/4 ton Walkin	1	Millwrights
Panels	2	Painters
1½ ton Flatbed	3	Painters
1/2 ton Pickups	4	Painters
1/2 ton Pickups	2	Plumbers
3/4 ton Pickups	<u>3</u>	Plumbers
	Subtotal:	
	35	
 <u>SERVICE ORDERS:</u>		
3/4 ton Pickups	2	Plumbers
1/2 ton Pickups	2	Plumbers
1/2 ton Pickups	4	Electricians
1/2 ton Pickups	2	Carpenters
1/2 ton Pickup	1	Locksmith
1/2 ton Pickup	<u>1</u>	Glazier
	Subtotal:	
	12	
 <u>RENOVATIONS:</u>		
Chevrolet Carryall	1	Painters &
		Janitresses
1/2 ton Pickup	<u>2</u>	Carpenters
	Subtotal:	
	3	
 <u>GENERAL:</u>		
Sedans	<u>2</u>	Supervision
	Subtotal:	
	2	
	GRAND TOTAL:	
	54	

### III. PROGRESS REPORT

#### A. INTERIOR PAINT PROGRAM:

Minor carpentry repair work was done in 156 units of housing prior to painting. This work consisted of repair and replacement of cupboard doors; checking of doors and windows for free operation; replacement of sash balances, cabinet door catches; repair of loose molding, etc. This work is done in the part of the house that is to be painted.

Interior painting on Interior Paint Cycle Program was completed in 145 units of housing.

Dormitories M-3 and M-4 were completely painted on the Interior Paint Cycle Program. The men are now working in M-2 and have six (6) of the rooms already completed.

#### B. LINOLEUM AND TILE:

Tile board installed:	36
Bathroom floor linoleum installed:	12
Kitchen floor linoleum installed:	18
Sink linoleum installed:	30
Filler strips installed:	16
Kitchen sinks installed:	4
Covered stairway with linoleum:	1
Chempoint Program:	125 units.
Jack & Shim A & J houses:	2

#### C. FIELD CARPENTRY:

The Field Carpenters and the Linoleum and Tile Carpenters are now combined into one crew and are assigned to R. M. Martin, Carpenter Foreman. The Field Carpenters have accomplished the following units of work.

House Numbers:	98%	Repaired floors:	2
Repaired roofs:	27	Sanded floors:	1
Installed shower stalls:	10	Repaired walls:	3
Jack & Shim jobs:	12	Reset fixtures at "Mart":	1
Installed flashing on Precuts:	10	Paint touch-ups:	20
Rebuilt loading docks:	2	Miscellaneous:	35
Repaired ceilings:	4		
Replaced doors:	8		

#### D. CARPENTER SHOP:

During February, 1952 the Carpenter Shop performed the following work:

Filed saws and sharpened tools for 700 and 1100 Areas.  
Repaired and checked out ladders for 700 and 1100 Areas.  
Repaired office furniture for 700 and 1100 Areas.  
Fabricated 60 new screen doors, replaced eight (8) screen doors and repaired 58 screen doors.

(Carpenter Shop, Cont'd)

Exterior Carpenter work was completed on 15 "S" houses.  
Exterior Carpenter work was completed on 115 "R" houses.  
Exterior Carpenter work was completed on 120 "Q" houses.  
Exterior Carpenter work was completed on 15 "H" houses.

The Upholstery Shop in the Carpenter Shop reupholstered 10 KC chairs and two davenos.

**E. PLUMBING, GENERAL:**

The following is a summary of the work done by the Plumbing, General Group during the month of February.

Installed 32 bathtubs.  
Installed 51 laundry trays.  
Installed 22 water heaters.  
Opened 20 sewer lines clogged with tree roots and cleaned sewers of other stoppages.  
Completed 18 linoleum jobs such as removing and resetting closet bowls for linoleum men.  
Completed 10 bath faucet repairs consisting of repacking valves and replacing chrome trim.  
Performed plumbing work on 34 shower stalls.  
Completed 23 plumbing work orders consisting of replacing broken fixtures, pipe; repairing outside water lines, sewer lines, etc.  
Completed 32 steam work orders consisting of repairing steam leaks; replacing rusted out pipe, leaking radiators, valves and traps.  
Replaced the heating coil at Recreation Hall Tavern.  
Repacked all steam valves in Dorms and Geo. Wash. Way Apartments.  
Removed and tested relief valves from P.R.V. stations and steam heated hot water tanks in all Commercial buildings and Dorms; an annual program.  
Replaced two septic tank drain fields for tract houses.  
Overhauled the plumbing in all Dorms consisting of repairing faucets, toilet tanks; and opening clogged drains.  
Overhauled the hot water heaters in the Hangar.  
Made weekly steam inspection of Commercial buildings, Dorms, Geo. Wash. Way and 4th Housing Addition Apartments.  
Installed wash basin cleanouts in all Dorms so drains can be unclogged easily.

**F. MILLWRIGHTS: 4 men.**

1. This group has been on routine lubrication and inspection of Ranch type and Precut houses in addition to all of the regular Service Orders that come in daily.
2. Tests are in progress on one more low pressure nozzle setup; at 1624 Howell.

**G. SHEETMETAL: 3 men.**

1. This group has made and installed about 30 shower stalls for Dorms and one Bedroom Prefabs.
2. Gutters were installed on 25 houses.

(Sheetmetal, Cont'd)

3. This group has made 15 smoke pipe replacements during the month.
4. Numerous small jobs, such as making signs and flashings, have been done during the month.

H. RENOVATION:

Nineteen houses were processed through Renovation during the month. Of these, three received complete interior painting and cleaning, two houses were partially painted and received complete cleaning. The remaining fourteen houses were cleaned only.

There were 3 1/2 trash pickups and eight coal deliveries made to vacant houses.

I. SERVICE ORDERS:

The following is a status report of Service Orders:

- |   |              |
|---|--------------|
| A. On hand at the beginning of the month:   | 51           |
| B. Received during the month:   | 2033         |
| C. Completed during the month:  | 1954         |
| D. On hand at the end of the month:   | 130          |
| E. Time spent on Work Orders:   | 476.4 hours. |
| F. The Locksmith has approximately 200 hours back-log.  |              |
| G. Glazing, Plumbing and Carpentry have no back-log to speak of, and Electrical should be tapered off at the end of next month, depending on the weather. |              |

J. LABOR: 4 Servicemen.

This group has been doing a variety of work such as assisting in hauling and spreading of rock for drain fields at two different tract houses; digging up broken water lines and plugged sewers; removing trees that interfere with same.

1. Parking logs have been installed at four different parking compounds throughout town to stop traffic on grassed-in areas.
2. All preparations have been made for tree spraying, and spraying of all street trees will start this coming Monday, March 3, 1952.

REAL ESTATE ENGINEERING UNIT  
FEBRUARY 29, 1952

Following is the status of active projects being handled by this unit:

K-918, Exterior Painting - Three Government-Owned Buildings

Bids opened February 20, 1952. Bids received being reviewed prior to award contract.

L-911, Resurface Parking Lot Between Campbell's Food Store No. 2 and Village Pharmacy

Preparation of plans and specifications in process.

L-921, Repair of Fire Damaged Prefab - 1004 Wright Avenue

Plans and specifications completed.

S-909, Exterior Cycle Painting-331 Houses - Divisions II and III

Bids opened February 20, 1952. Bids received being reviewed prior to award contract.

S-922, Repair of Damaged "A" Type House - 1311 Swift Boulevard

Informal request for appropriation approved by the Atomic Energy Commission Hanford Operations Office February 6, 1952. Field Release (1) issued February 15, 1952. Plans and specifications completed.

S-379, Interior Painting - Prefabs

Final payment to the subcontractor made January 31, 1952.

Following is the status of active ESRs being handled by this unit:

903-RH - Alteration Inspections

No activity this month.

904-RM - Procurement Aid and Material Studies

Routine duties performed as required.

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368

910-RC - Approval of Pasture Land Permits

Routine work.

912-RC - Heating Wagon Wheel Club

Inspections and recommendations made during period covered by last report.  
No work performed this report.

913-RH - Study of Kitchen Light Fixtures in A & J Ranch Houses

Study completed February 2, 1952.

917-RH - Drainage of Inner Block Area

Study in progress

919-RC - Approval of Alterations - Desert Inn Hotel

Sample installations have been made. Decision on final completion of  
this alteration work pending.

920-RM - Maintenance Painting Estimate

100% Complete.

923-RH - Ranch House Furnace and Flue Cleaning

Study in progress.

924-RH - Exterior Cycle Painting, M, Q, R, and S Houses

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COMMERCIAL PROPERTY - REAL ESTATE SECTION

FEBRUARY, 1952

PERSONNEL - COMMERCIAL PROPERTY:

	<u>February</u>
Beginning of month	13
End of month	13
Net difference	0

PERSONNEL - COMMERCIAL AND NONCOMMERCIAL FACILITIES:

	<u>Commercial</u>	<u>Noncommercial</u>	<u>Total</u>
January	1,329	116	1,445
February	1,331	118	1,449
Net increase	2	2	4

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	54	5	59
Back Charges	2	3	5

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Leases:

a. Chalmer D. Joseph Company - covering the construction, operation and maintenance of a commercial building, Block 5, Uptown Business District.

2. Assignments of Lease:

a. The Mixer - by A. J. Deymonas, an individual, to Sam Levinson and Bernie Minsky, a partnership.

b. "Floyd & Dale's Tune-Up" by Floyd Johnson & Dale Sylvester to Don R. Crawford & Dale Sylvester to operate as "Don & Dale's Tune-Up".

c. Hanson Enterprises, Inc., to Elmer J. Hanson, an individual.

d. Grazing lease - by F. H. Moller & Ray Moller to Ray Moller.

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3. Letters of Approval:

- a. Automatic Laundry Company's sale of building, occupied by Uptown Tavern, to Ralph C. Wheeler.
- b. Spencer-Kirkpatrick - Sublease to United Finance Co.
- c. Virgil O. McVicker - Sublease space in Bldg. #4, Block 1, to the following sublessees:
  - (1) Watson and Hutson (Drift-Imm)
  - (2) Washington Investment Company
  - (3) Gamble's Western Auto
  - (4) Sears, and Roebuck (Order office)
  - (5) Lee Barbershop and Beauty Shop
- d. C. D. Joseph Co. - Sublease to Shield's Stationery Store in Bldg. #1, Block 6.

B. Noncommercial:

1. Letter of Authorization:

- a. To West Side United Protestant Church to rent heavy earth moving equipment for use in grading the Church premises.

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

A. Commercial:

	<u>January</u>	<u>February</u>
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	16
(c) Total businesses operating in Government-owned buildings	57	57
2. Doctors and dentists in private practices, leasing space in Government-owned buildings	21	21
3. Number of privately-owned buildings		
(a) Number of businesses operated by prime lessees	38	39

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COMMERCIAL PROPERTY - REAL ESTATE SECTION:

February, 1952

	<u>January</u>	<u>February</u>
(b) Number of businesses operated by sublessees.	34	39
(c) Total businesses operating in privately-owned buildings	72	78
4. Privately-owned buildings under construction	<u>4</u>	<u>4</u>
5. Total number of businesses in operation	129	135
<b>B. Noncommercial:</b>		
1. Government-owned buildings		
(a) Churches	4	4
(b) Clubs and organizations	9	9
(c) Government agencies	<u>3</u>	<u>3</u>
Total	16	16
2. Privately-owned buildings		
(a) Completed and in use	6	6
(b) Under construction	6	6
3. Sites tentatively allocated or leases in process of negotiation	<u>2</u>	<u>2</u>
Total	14	14
4. Pasture Land Permits	45	65

GENERAL:

A. Commercial:

1. Gilson's Fabrics located at 1358 Jadwin in C. D. Joseph Co. Bldg. #1 opened for business February 1, 1952.
2. Standard Stations, Inc. located at 1323 Lee Blvd. opened for business February 2, 1952.
3. Al Phillips' Cleaners, Inc. located at 1356 Jadwin in C. D. Joseph Co. Bldg. #1 opened for business February 4, 1952.
4. Montgomery Ward & Company located at 1364 Jadwin in C. D. Joseph Co. Bldg. #1 opened for business February 14, 1952.

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COMMERCIAL PROPERTY - REAL ESTATE SECTION

February, 1952

- 5. Shield's Book and Stationery located at 1360 Jadwin in C. D. Joseph Co. Bldg. #1 opened for business February 22, 1952.
- 6. Lee's Barbershop located in McVicker's Building #4 opened for business February 29, 1952.

B. Noncommercial:

- 1. Twenty new pasture land permits were issued.

COMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of commercial enterprises:

Auto Agency  
 Used Car Lot  
 Taxi Service

Drive-In Theater  
 Women's Wear  
 General Information

NONCOMMERCIAL PROSPECTS:

None

700-1100-3000 AREA SERVICES SECTION  
MONTHLY REPORT  
FEBRUARY, 1952

700-1100 MAINTENANCE AND STEAM UNIT

General Maintenance:

Renovation of building 717-A for occupancy by General Accounting personnel was completed on schedule.

Crating, banding, shoring and preparation of materials for excessing involved approximately 350 manhours carpenter labor.

Building 722-A is being renovated to accommodate I.B.M. personnel and equipment. Carpenter and paint work is 85% complete and electrical work, most of which is power wiring for I.B.M. machines, is 60% complete.

Shop prefabrication of the 10' x 20' roadside billboards is completed. Poster painting on panels for two of the four billboards has been completed. The fronts of these billboards are made up of panels which can be removed and brought inside for poster exchange during inclement weather, or any one panel may be refinished individually if desired.

Thirty-two feet of Hauserman partition was installed for division of office space in 700 Area buildings.

Miscellaneous minor routine repair increased and the time of two carpenters was required this month.

A varied assortment of signs, posters and name plates were made for Operating groups.

A new 200 Ampere service panel was installed at Campbell's Food Store No. 1 to correct electrical overload conditions. Wiring damaged by overload was replaced with heavier service wiring.

Fifteen fluorescent blackboard light fixtures were installed in W-10.

A general overhaul of Multi-roll Mangle at 723 Laundry was made. All bearings were replaced.

One hundred twenty-five safety relief valves were repaired and tested during the month, 105 of which were for Real Estate Maintenance.

Tapped main steam line and installed a 3" valve for tie-in of new wing of 703 Building.

Carried on routine and miscellaneous small repair jobs.

Trees were trimmed at the cemetery, Hospital and 700 Area.

Preparations were made for each foreman to handle and control coveralls and gloves for his men. This service is deleted from the 700-1100 Area tool crib as of March 1.

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in Operation:

Three boilers were in service from beginning of the month until February 5, when load conditions permitted No. 4 boiler to be taken off the line. Two boilers carried the load until February 13, when No. 1 boiler was added to those in service. Boilers No. 1, 2, and 3 remained in service for the balance of the month.

The quantity of steam generated at 784 Heating Plant for the first 28 days was 10.8% less than that for the month of February of the previous year.

The soft water line to Kadlec Hospital was returned to service on February 5 and remained in service except for several very brief outages. The average soft water usage was about 33,000 gallons per day.

Coal receipts by rail were continued for the entire month and moderate stockpiling was carried on for most of the month, with increased activity in this operation during the latter part of February.

One boiler of the Heating Plant at 1131 Bus Terminal Area was able to carry the load during the entire month.

1214849	Steam Generated	25,122.0	M. Lbs.
	Steam Leaving Plant	21,353.7	M. Lbs.
	Steam Delivered	19,265.7	M. Lbs.
	Coal Consumed	1,932.45	Net Tons
	Total Water Softened	4,020,300	Gallons
	Soft Water Sent to Kadlec Hospital	798,870	Gallons
	Soft Water used at 784 Heating Plant	3,221,430	Gallons
	Soft Water Served to Kadlec Hospital	588.6	Hours

NORTH RICHLAND FIRE UNIT

<u>Alarm No.</u>	<u>Response to Alarms</u>	<u>Cause for Alarms</u>	<u>How Recieved</u>
32	1st St. between G.W.W. & "Q"	Probable jar close to Aux. box	Box
33	Trailer at 531 "D"	Improperly operated oil stove	Phone
34	Bremerton House at 910 "Q"	Improperly operated oil stove	Box
35	Childrens' Playhouse at 720 "F"	Unknown	Phone
36	Bks. 238-A at 4th & "Q"	False Alarm	Box
37	822 "C"	False Alarm	Phone
38	Bremerton House at 218 "C"	Short in kitchen range	Phone
39	Hospital at 5th & G.W.W.	Overheated Protecto wire	Box
40	5th & "C"	False Alarm	Box
41	John Ball School, 6th & "C"	Accidental Alarm	Box
42	2nd and Stevens Drive	Truck bumped fire box pole	Box
43	North of Govt. Airport	Unnecessary Alarm	Phone
44	8th & "C"	False Alarm	Box
45	Bathhouses 12, 13, 14 between C & D, Children playing with matches E & F, G & H Avenues		Phone

Investigations:

	<u>Personal Loss</u>	<u>H.W. Loss</u>	<u>Total Loss</u>
2-6-52 Trailer at 819 "F". Smoke Scare			
2-14-52 Bks. 238-C, Rm. 5. Smoker's carelessness	\$17.00		\$17.00
2-19-52 Smoke from auto. Stevens & By-Pass Highway			

Miscellaneous:

There were 3 safety and security meetings: 2 inside drills and schools; and 9 outside drills.

Eighty-seven fire alarm boxes were tested.

Six employees reported for annual physicals.

All auxiliary boxes in the hospital were tested. Also Protecto wire and evacuation horns were reactivated.

Fire personnel was acquainted with chosen locations for dispersal of fire equipment and personnel in case of an alert.

Yellow alert was received 2-24-52 at 1:49 p.m. Apparatus and personnel were dispatched to pre-arranged dispersal points.

Stand-by protection for controlled burning along irrigation ditch was provided.

NORTH RICHLAND PATROL UNITGeneral:

Eighty-eight traffic warning tickets were issued, mainly for Illegal Parking.

There were eighty-four traffic citation tickets issued: 20 for Illegal Parking, 24 for Failure to Observe Stop Sign, 2 for Reckless Driving, 9 for Negligent Driving, 12 for Speeding, 7 for No Operator's License, 3 for Out of State Plates, 2 for No Valid Plates, 3 for Defective Equipment, 1 for Improper Left Turn and 1 for Driving on Sidewalk.

Fifteen persons were incarcerated in the Richland jail during the month: 7 for Operating a Motor Vehicle While under the Influence of Liquor, 6 for Public Intoxication, 1 for Vagrancy and 1 for Negligent Driving with Liquor Involved.

Twenty-one inquiries regarding formerly employed General Electric and construction personnel were answered by this office. These inquiries came from Civil Service Commission, U. S. Navy, U. S. Army and E. I. du Pont Company.

All fire, safety and traffic hazards observed by North Richland Patrol were reported to the proper authorities.

All facilities, buildings, warehouses and the John Ball School were checked on the No. 1 and 3 shifts daily, and on all shifts on Sundays and holidays.

The following time was spent on escort service from Pasco: Weekly Payroll - 30 hours, Monthly Payroll - 10 hours.

Each Thursday during the month an Appearance Officer was assigned to Judge E. W. Brown's court to appear against persons cited to court by North Richland Patrol.

Five firearms were checked into the Contraband Room and 9 firearms were checked out.

A Police School, under the direction of the Washington State Patrol, on In-Service Training was held in Kennewick during February. The following North Richland personnel were in attendance: C. H. Overdahl, T. J. McGuire, W. W. Kerr, G. M. Everett, R. R. Robertson, G. W. Benitz, P. L. Shuman, F. B. Lang, H. R. DeMeyer, W. T. Henderson, G. J. Akridge and A. C. Eals.

Green Courtesy Cards were placed on automobiles that did not warrant receiving a warning or citation ticket. These cards request the cooperation of the drivers in assisting North Richland Patrol to uphold the traffic laws of the State of Washington.

North Richland population is as follows:

Bremerton Houses-----	642	Total occupied Lots in Trailer Camp-----	1,449
Trailer Camp-----	4,089	Total Bremerton Houses occupied-----	186
Barracks (Men's)-----	1,342		
Barracks (Women's)-----	84		
Total-----	6,157		

Unusual Incident Reports:

Public Intoxication-----	7	Investigation-----	1
Public Nuisance-----	1	Accident (Involving Property Damage)-----	1
Negligent Driving-----	6	Overtime Parking Violation-----	1
Negligent Driving (Liquor Involved)-----	2	Attempted Assault, Indecent Language-----	1
No Operator's License-----	1	Disturbance-----	1
Operating Vehicle While Under Influence	7	Investigation of Fire-----	1
		Operating Vehicle While Lic. Revoked-----	1

Complaints:

Petit Larceny-----	3	Grand Larceny-----	8
		Miscellaneous-----	1

Special Services Performed:

Emergency Messages Delivered-----	57	Disturbances Investigated-----	3
Emergency Long Distance Calls-----	93	Suspicious Persons Investigated-----	5
Western Union Telegrams-----	1	Personnel Locked out of Rooms-----	3
Pacific Telegraph Telegrams-----	3	Bicycles Reported Lost or Stolen-----	1
Fires Sig. 12-----	5	Bicycles Found-----	3
False Fire Alarms-----	6	Bicycles Returned to Owners-----	2
Conditions Reported to Maintenance-----	12	Soldiers Turned over to M. P.'s-----	3
Escorts to First Aid-----	5	Patrol Assistance to Ambulance-----	4
Complaints on Dogs (Trailer Camp)-----	3	Cars Impounded at Headquarters-----	2
Dogs Impounded-----	5	Lost Children-----	8
Children Bitten by Dogs-----	2	Children Returned to Parents-----	8
Escort for Public Health Nurse-----	1	Runaway Children-----	2
Billfolds Turned in to Patrol-----	3	Pick Up for County Sheriff's Office-----	1
Billfolds Returned to Owner-----	2		

ORGANIZATION AND PERSONNEL

No. of Employees on Roll:	Beginning of Month			End of Month		
	Exempt	Non-Exempt	Total	Exempt	Non-Exempt	Total
Maintenance & Steam Operation	8	53	61	8	52	60
North Richland Patrol	5	16	21	5	17	22
North Richland Fire	33	—	33	33	—	33
TOTAL	46	69	115	46	69	115

Personnel Changes During Month:

Transfers From Utilities & General Services	1
Terminations	1

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NORTH RICHLAND PATROL  
COURT CASES FOR MONTH  
OF FEBRUARY - 1952

	NO. OF CASES	NO. OF CONV.	NO. OF FORF.	CASES DISH.	CASES CONT'D.	WARR. ISS.	LIC. RVKD.	TOTAL FINES	TOTAL SUSP.	TOTAL BALI FORFEITED
Illegal Parking	20	6	10	2	2			\$ 21.00	\$	\$ 44.50
Stop Sign Violation	24	4	15	1	2	2		11.00	3.50	94.50
Reckless Driving	2	2					#2	100.00		
Negligent Driving	9	6	2		1			135.00		37.50
Speeding	12	4	7		1			35.00		72.50
Drunken Driving	7	5			2		3	310.00		
No Operator's Lic.	7	2	3		2			11.00		25.00
Out of State Plates	3	2			1			11.00	7.50	
Defective Equipment	3	1	2					3.50		10.00
No Valid Plates	2	1	1					7.50		7.50
Driving on Sidewalk	1		1							3.50
Improper Left Turn	1				1					
Public Intoxication	6	1	5					12.50		72.50
Third Degree Assault	1				1					
Public Nuisance	1	1						7.50		
TOTAL	99	35	46	3	13	2	5	\$665.00	\$11.00	\$367.50

## PROJECT &amp; RELATED PERSONNEL

FEBRUARY 1952

	<u>1-31-52</u>	<u>2-29-52</u>
<u>GOVERNMENT EMPLOYEES</u>		
Civilian Personnel-Atomic Energy Comm.	365	387
Civilian Personnel G. A. O.	5	5
Total	371	392
<u>RICHLAND VILLAGE PERSONNEL</u>		
Comm. Facilities (Inc. No. Richland)	1329	1331
Govn. Agencies, Churches, Clubs, Etc.	116	118
Schools	435	427
Organizations	11	11
Total	1891	1887
<u>CONSTRUCTION SUB CONTRACTORS</u>		
Atkinson & Jones	5252	4908
Newberry Neon	406	399
Urban Smyth Warren Co.	1125	175
Vitro Corp. of America	140	107
Erwin Const. Co.	18	3
J. P. Head	0	4
Fred J. Early Jr.	3	0
V. S. Jenkins	53	52
Empire Elect Co.	0	1
Montgomery Electric Co.	3	0
Sound Const. & Engr. Co.	15	12
J. G. Shotwell	8	11
West Coast Heating & Plumbing Co.	19	40
Electric Smith Inc.	12	18
L. H. Hoffman	79	76
Stier, Shelton & Schick	2	2
Charles T. Main	205	185
The Bay Company	49	52
Holliday & Edworthy	6	5
Industrial Electric Co.	2	2
Puget Sound Naval Shipyard	794	794
A. H. Barbour & Sons	0	5
Anderson Decorating Co.	2	4
Soule Steel Co.	10	7
Leland S. Rosener	1	3
Head Mech. Construction Co.	6	5
Murphy Brothers	12	7
Buchanan Co., Incorp.	4	4
S. S. Mullen Inc.	6	1
Pittsburg Des Moine Steel Co.	1	2
Chicago Bridge & Iron Co.	2	2
Hoge-Warren-Zimmermann Co.	10	12
Automatic Sprinkler Co. of America	4	2
National Blower & Sheetmetal Co.	2	4
Northwest Painting & Roofing Co., Inc.	5	0
E. J. Bartells Co.	2	0
Emory & Bohm Elect. Co.	2	4
Layrite Concrete Products	1	0
L. D. Reeder Co.	1	1
Royal Co., Inc.	1	0
Associated Engrs.	6	20
Haughton Elevator Co.	1	5

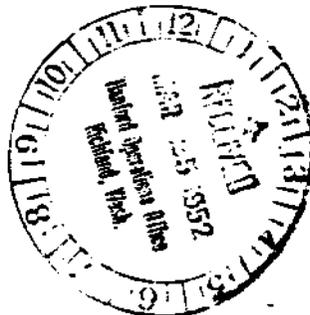
Page # 2

Minneapolis Honeywell Regulator Co.	0	2
U. S. Sheetmetal & Blower Co.	0	3
Bumstead-Woolford	0	3
Dix Steel Building Co.	0	4
E. F. Hauserman	0	2
Cain Co.	0	2
Royal Roofing Co.	0	3
D. H. Paving Co.	0	3
Total	8270	6961
General Electric Total	9094	9055
GRAND TOTAL	19,626	18,295

RECEIVED

MAR 25 1952

700 AREA  
CLASSIFIED FILES



380

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