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HANFORD WORKS MONTHLY REPORT

FOR

JANUARY 1952

4338-
Hanford
43383

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Classification Cancelled (Change to [redacted]
By Authority of RLO-CC-4
WA Snyder 3/2/92
By DG Krishen 3/17/92
JN Wells 3-19-92

Compiled By
Department Managers

February 21, 1952

Classification reviewed for declassification but left unchanged by JPD 04 JK 3
Date 5-15-03

HANFORD WORKS
RICHLAND, WASHINGTON

REPOSITORY PNL
COLLECTION Atmospheric Releases
BOX No. 00/A
FOLDER N/A

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

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HANFORD WORKS MONTHLY REPORT

JANUARY 1952

GENERAL SUMMARY

Production Operations

All production forecasts were exceeded during the month except that for the Isolation Building which attained 94.7% of forecast. This lowered production resulted from the delay in anticipated delivery of material from the Redox plant.

For the first time in several months, there was a reduction in the number of failures of slug jackets from 21 last month to 20 this month. Although this reduction is numerically insignificant, there is reason to believe that steps taken to improve the quality of the jackets are having the desired effect.

The first shipment of UO_3 was made during the month.

Engineering and Technology

The record rate of production of tritium attained last month was more than doubled during this month.

Water leaks at F and DR piles present a stubborn problem which is receiving considerable attention.

Shake-down runs at partial activity levels in the Redox plant have been completed, and full-scale activity slugs were started through the head end.

Development work in the field of process control which has been carried on for the past year and more has now reached the pay-off period. The several new processes in the plant are all under control, and the transfer of these control functions from the Engineering Department to the Manufacturing Department is under way.

Significant advances have been made in biological research relating to the retention of tritium and plutonium in the body.

Expansion and Construction

The orderly transfer of the management of construction activities from the Company to the Commission continues. The transfer is expected to be essentially complete about April 1, 1952.

The basic features of a design of a larger and much improved graphite reactor have been assembled, and a proposal for its design has been made to the Commission.

Jurisdictional disputes among craft labor unions continue to delay construction progress.

1210391

General Summary

A new peak demand for electric power was established in January as a consequence of the expansion of the plant. Expansion was also responsible for a new peak in the number of passengers carried by the Plant Bus System.

Personnel and Services

There are 668 applications for housing pending.

The plant roll decreased slightly to 9,094 and the turnover rate increased to 1.6%.

The preparation of budget estimates for FY 1954 and revised estimates for FY 1953 was begun.

The National Fire Protection Association awarded Richland first place in the State of Washington for its 1951 entry in the National Fire Prevention Week contest.

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1210392

[redacted]

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

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1210393

FORCE REPORT JANUARY 1952

	EXEMPT		NON EXEMPT		TOTAL	
	12-29-51	1-31-52	12-29-51	1-31-52	12-29-51	1-31-52
GENERAL	24	26	36	36	60	62
LAW	2	2	14	6	16	8
ENGR. DEPT.						
General	2	2	1	1	3	3
Design & Constr. Section						
Constr.	13	12	27	22	40	34
Design	218	216	416	415	634	631
No. Richland Realty	18	17	111	115	129	132
Proj. Engr.	76	77	1	14	77	91
Technical Section						
Administrative	7	6	3	4	10	10
Pile Technology	170	173	176	171	346	344
Separations Tech.	109	107	65	66	174	173
Technical Services	39	31	158	148	197	179
Analytical	114	87	259	139	373	226
MANUFACTURING DEPT.						
General	23	21	12	12	35	33
Reactor	192	193	908	925	1100	1118
Metal Prep. Section	70	76	369	383	439	459
Separations	249	268	1213	1304	1462	1572
MEDICAL	40	41	233	233	273	274
RADIOLOGICAL SCIENCES						
General	3	3	2	2	5	5
Records & Standards	24	24	140	145	164	169
Biophysics	44	45	70	68	114	113
Biology	35	35	45	46	80	81
FINANCIAL						
Engr. Acctg.	15	15	79	77	94	92
Mfg. Acctg.	7	6	56	31	63	37
Gen. Acctg. (Inc. Med.)	28	29	111	117	139	146
Gen. Acctg. Payroll	10	10	109	97	119	107
Comm. Acctg.	5	4	23	15	28	19
EMPLOYEE & PUBLIC RELATIONS	38	38	73	74	111	112
UTILITIES & GENERAL SERVICES						
General	16	17	13	13	29	30
Elect. Dist. & Telephone	29	30	148	148	177	178
Transportation	39	42	476	476	515	518
Plant Sec. & Service						
Patrol & Security	57	56	602	599	659	655
Safety & Fire	41	42	110	108	151	150
Office Services	28	28	278	280	306	308
Purchasing & Stores	87	87	345	339	432	426
Statistical & Computing	0	12	0	42	0	54
COMM. REAL ESTATE & SERVICE	187	185	363	360	550	545
TOTAL	2059	2063	7045	7031	9104	9094

INCLUDES 56 FIREMEN

2 1 9 3 9 4

PERSONNEL DISTRIBUTION - JANUARY 1952

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL												
Exempt Pers.	-	-	-	-	-	-	-	-	-	-	26	26
Cler.&Other Non Exempt	-	-	-	-	-	-	-	-	-	-	36	36
Total	-	-	-	-	-	-	-	-	-	-	62	62
LAW												
Exempt Personnel	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	-	-	-	8	8
ENGR. DEPT.												
GENERAL												
Supv.	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	-	-	3	3
DESIGN & CONST.												
CONSTRUCTION												
Supervisors	-	-	-	-	-	-	-	-	-	-	8	8
Inspectors & Analyst	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	22	22
Total	-	-	-	-	-	-	-	-	-	-	34	34
DESIGN												
Supervisors	23	1	-	3	12	1	-	2	-	-	38	80
Other Exempt	11	7	-	8	11	-	30	4	-	13	52	136
Draftsmen & Designers	-	-	-	-	-	-	3	-	-	13	104	120
Clerical	36	-	-	2	-	-	4	-	-	12	114	168
Others	24	-	1	2	15	1	13	6	-	6	59	127
Total	94	8	1	15	38	2	50	12	-	44	367	631
NO. RICHLAND REALTY												
Supervisors	-	-	-	-	-	-	-	-	-	17	-	17
Janitors	-	-	-	-	-	-	-	-	-	14	-	14
Clerical	-	-	-	-	-	-	-	-	-	61	-	61
Others	-	-	-	-	-	-	-	-	-	40	-	40
Total	-	-	-	-	-	-	-	-	-	132	-	132

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PROJ. ENGR.												
Supervisors	-	-	-	-	-	-	-	-	-	-	37	37
Engineers	-	-	-	-	-	-	-	-	-	-	40	40
Clerical	-	-	-	-	-	-	-	-	-	-	8	8
Others	-	-	-	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	-	-	-	91	91
TECHNICAL GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	10	10
PILE TECH.												
Supervisors	1	-	-	-	-	-	-	5	-	-	-	6
Metallurgist & Engrs.	14	6	1	5	17	-	3	38	-	-	1	85
Physicists	-	4	1	5	-	-	-	16	-	-	-	26
Engr. Assts.	17	3	2	6	8	-	-	20	-	-	-	56
Tech. Grads.	15	4	2	6	11	-	2	22	-	-	-	62
Technologists	15	1	1	4	-	-	-	3	-	-	-	24
Lab. Assts.	16	9	-	6	-	-	1	17	-	-	-	49
Clerical	6	2	-	3	3	-	-	16	-	-	-	30
Engr. Assts.	-	5	-	-	-	-	-	1	-	-	-	6
Total	84	34	7	35	39	-	6	138	-	-	1	344
SEPARATIONS TECH.												
Supv.	-	-	-	-	-	1	7	13	-	-	-	21
Chemists & Engrs.	-	-	-	-	-	4	40	42	-	-	-	86
Tech. Grads.	-	-	-	-	-	-	11	15	-	-	-	26
Clerical	-	-	-	-	-	-	5	12	-	-	-	17
Lab. Assts. & Tech.	-	-	-	-	-	-	7	8	-	-	-	15
Others	-	-	-	-	-	2	1	5	-	-	-	8
Total	-	-	-	-	-	7	71	95	-	-	-	173

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
TECH. SERVICES												
Supervisors	-	2	-	-	-	-	1	6	-	-	5	14
Other Exempt	-	6	-	-	-	-	3	5	-	3	-	17
Technologists, Tech. Grads.	-	8	-	-	-	-	-	3	-	-	-	11
Lab. Asts.	-	-	-	-	-	-	12	-	-	-	-	12
Clerical	-	4	1	-	-	-	4	38	-	1	42	90
Others	3	4	1	-	-	-	6	20	-	-	1	35
Total	3	24	2	-	-	-	26	72	-	4	48	179
ANALYTICAL TECH.												
Supervisors	1	-	-	-	-	-	17	11	-	-	-	29
Chemists & Engrs.	5	1	-	-	-	-	14	38	-	-	-	58
Technologists, Tech. Grads.	1	-	-	2	-	-	36	8	-	-	-	47
Lab. Assts.	6	-	-	1	-	-	56	20	-	-	-	83
Clerical	-	-	-	1	-	-	3	5	-	-	-	9
Total	13	1	-	4	-	-	126	82	-	-	-	226
MANUFACTURING DEPT.												
GENERAL												
Supv.	-	-	-	-	-	-	-	-	-	-	13	13
Other Exempt	-	-	-	-	-	-	-	-	1	-	7	8
Clerical	-	-	-	-	-	-	-	-	-	-	12	12
Total	-	-	-	-	-	-	-	-	1	-	32	33
REACTOR												
Supv.	27	45	35	31	-	-	-	-		-	-	138
Other Exempt	15	8	14	13	-	-	-	-	-	2	3	55
Supv. In Trn.	1	-	-	1	-	-	-	-	-	-	-	3
Operators	111	176	110	107	-	-	-	-	-	-	-	504
Craftsmen	63	104	82	51	-	-	-	-	-	-	-	300
Inspt. & Lab. Assts.	6	12	7	11	-	-	-	2	-	-	-	38
Clerical	6	11	11	12	-	-	-	-	-	1	1	42
Others	6	5	2	3	-	-	-	-	-	-	-	16
Tech. Grads.	6	8	5	3	-	-	-	-	-	-	-	22
Total	241	370	266	232	-	-	-	2	-	3	4	1118

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
METAL PREP.												
Supv.	-	2	-	-	-	-	-	41	-	-	-	43
Other Exempt	-	1	-	-	-	-	-	32	-	-	-	33
Supv. In Trn.	-	-	-	-	-	-	-	3	-	-	-	3
Operators	-	-	-	-	-	-	-	179	-	-	-	179
Craftsmen	-	27	-	-	-	-	-	122	-	-	-	149
Clerical	-	1	-	-	-	-	-	26	-	-	-	27
Others	-	2	-	-	-	-	-	7	-	-	-	9
Lab. Assts.	-	-	-	-	-	-	-	11	-	-	-	11
Tech. Grads.	-	1	-	-	-	-	-	4	-	-	-	5
Total	-	34	-	-	-	-	-	425	-	-	-	459
SEPARATIONS												
Supv.	-	-	-	-	-	34	149	-	-	-	-	183
Other Exempt	-	-	-	-	-	3	79	3	-	-	-	85
Operators	-	-	-	-	-	190	545	-	-	-	-	735
Craftsmen	-	-	-	-	-	60	276	-	-	-	-	336
Inspect,& Lab. Assts.	-	-	-	-	-	30	75	6	-	-	-	111
Clerical	-	-	-	-	-	7	49	-	-	-	-	56
Others	-	-	-	-	-	3	13	-	-	-	-	16
Supv. In Trn.	-	-	-	-	-	1	10	-	-	-	-	11
Tech. Grads.	-	-	-	-	-	11	27	1	-	-	-	39
Total	-	-	-	-	-	339	1223	10	-	-	-	1572
MEDICAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	22	22
Physicians	-	-	-	-	-	-	-	-	1	3	8	12
Other Exempt	-	-	-	-	-	-	-	-	-	-	7	7
Technicians	-	-	-	-	-	-	-	-	1	3	14	18
Nurses	6	4	4	1	1	4	6	2	-	3	65	96
Clerical	1	-	-	-	-	-	-	-	2	7	37	47
Others	-	-	-	-	-	-	-	-	-	1	71	72
Total	7	4	4	1	1	4	6	2	4	17	224	274

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
RADIOLOGICAL SCI. DEPT.												
STAFF												
Supv.	-	-	-	-	-	-	-	-	-	-	2	2
Other Exempt	-	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	5	5
RECORDS & STANDARDS												
Supervisors	-	-	-	-	-	-	-	10	-	-	3	13
Other Exempt	1	-	1	-	-	-	2	2	-	-	5	11
Clerical	-	-	-	-	-	-	-	2	-	-	1	3
Others	14	4	7	3	-	17	25	54	5	-	13	142
Total	15	4	8	3	-	17	27	68	5	-	22	169
BIOPHYSICS												
Supervisors	-	-	-	-	-	1	6	1	-	-	-	8
Other Exempt	-	-	-	-	-	3	19	14	-	1	-	37
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	4	40	19	-	-	-	63
Total	-	-	-	-	-	9	67	36	-	1	-	113
BIOLOGY												
Supv.	-	-	4	-	-	-	-	-	-	-	-	4
Other Exempt	-	-	31	-	-	-	-	-	-	-	-	31
Clerical	-	-	5	-	-	-	-	-	-	-	-	5
Others	-	-	41	-	-	-	-	-	-	-	-	41
Total	-	-	81	-	-	-	-	-	-	-	-	81
FINANCIAL DEPT.												
Supv.	-	-	-	-	-	-	-	-	-	18	46	64
Clerical	2	-	-	-	-	2	-	-	-	98	235	337
Total	2	-	-	-	-	2	-	-	-	116	281	401
EMPLOYEE & PUBLIC REL. DEPT.												
Supv.	-	-	-	-	-	-	-	-	-	-	24	24
Empl. Rel. Counselor	-	-	-	-	-	-	-	-	-	-	2	2
Other Exempt	-	-	-	-	-	-	-	-	-	-	12	12
Clerical	-	-	-	-	-	-	-	-	-	-	60	60
Others	-	-	-	-	-	-	-	-	-	-	14	14
Total	-	-	-	-	-	-	-	-	-	-	112	112

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
UTILITIES & GEN. SERVICES												
GENERAL												
Supv.	-	-	-	-	-	-	-	-	-	-	17	17
Clerical	-	-	-	-	-	-	-	-	-	-	13	13
Total	-	-	-	-	-	-	-	-	-	-	30	30
PLANT SEC, & SERVICES												
SECURITY & PATROL												
Supervisors	6	6	6	5	-	4	9	7	5	-	4	52
Other Exempt	-	-	-	-	-	-	-	-	4	-	-	4
Patrolmen	92	48	62	47	-	72	151	76	2	-	27	577
Clerical	-	-	-	-	-	-	-	-	18	-	1	19
Seamstress	-	-	-	-	-	-	-	-	2	-	-	2
Tech. Grad.	-	-	-	-	-	-	-	-	1	-	-	1
Total	98	54	68	52	-	76	160	83	32	-	32	655
SAFETY & FIRE												
Supervisors	14	-	-	-	4	-	4	4	7	-	-	33
Engineers	-	2	1	-	-	3	-	2	-	-	1	9
Firemen	54	-	-	-	8	-	16	16	9	-	-	103
Clerical	-	1	1	-	-	1	-	1	-	-	1	5
Total	68	3	2	-	12	4	20	23	16	-	2	150
OFFICE SERVICES												
Supv.	-	-	1	-	-	1	3	1	1	-	19	26
Procedures Analysts	-	-	-	-	-	-	-	-	-	-	2	2
Ldry. Operators	-	-	-	-	-	-	2	-	-	-	1	3
Janitors & Servicemen	9	5	7	7	-	5	25	14	-	-	40	112
Clerical	-	-	-	-	-	-	1	-	-	-	44	45
Others	-	-	-	-	-	-	46	-	-	-	74	120
Total	9	5	8	7	-	6	77	15	1	-	180	308

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PURCHASING & STORES												
Supervisors	1	-	-	-	-	-	-	-	-	3	31	35
Other Exempt	-	-	-	-	-	-	-	-	23	-	29	52
Clerical	12	-	-	-	-	-	-	-	-	26	143	181
Others	19	-	2	-	-	-	6	1	-	34	82	144
Rotational Trainees	-	-	-	-	-	-	-	-	13	-	1	14
Total	32	-	2	-	-	-	6	1	36	63	286	426
ELECT. DIST. & TELEPHONE												
Supv.	-	-	-	-	-	9	-	-	3	-	11	23
Other Exempt	-	-	-	-	-	3	-	-	-	-	4	7
Craftsmen	-	-	-	-	-	28	-	-	11	-	50	89
Clerical	-	-	-	-	-	3	-	-	-	-	25	28
Operators	4	4	4	4	-	-	-	-	13	-	-	29
Others	-	-	-	-	-	2	-	-	-	-	-	2
Total	4	4	4	4	-	45	-	-	27	-	90	178
TRANSPORTATION												
Supv.	2	-	3	2	-	1	1	-	3	-	26	38
Other Exempt	-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers	-	-	-	-	-	-	-	-	-	-	167	167
Journeymen	4	1	1	8	-	-	3	-	6	-	65	88
Trainmen	-	-	-	-	-	-	-	-	24	-	-	24
Servicemen	8	-	2	-	-	-	-	-	1	-	24	35
Equip. Oper.	7	-	11	-	-	1	-	-	-	-	28	47
Clerical	-	-	1	1	-	-	-	1	-	-	25	28
Others	8	-	9	13	-	12	3	1	1	-	40	87
Total	29	1	27	24	-	14	7	2	35	-	379	518

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
STASTICAL & COMP. SERV.												
Supv.	-	-	-	-	-	-	-	1	-	-	4	5
Mathematicians	-	-	-	-	-	-	-	6	-	-	1	7
Clerical	-	-	-	-	-	-	-	4	-	-	28	32
Technologist	-	-	-	-	-	-	-	2	-	-	1	3
Business & Tech. Grads.	-	-	-	-	-	-	-	2	-	-	5	7
Total	-	-	-	-	-	-	-	15	-	-	39	54
COMM. REAL ESTATE & SERV. DEPT.												
Supv.	-	-	-	-	-	-	-	-	-	14	105	119
Other Exempt	-	-	-	-	-	-	-	-	-	-	10	10
Firemen	-	-	-	-	-	-	-	-	-	24	32	56
Patrolmen	-	-	-	-	-	-	-	-	-	16	23	39
Journeymen	-	-	-	-	-	-	-	-	-	-	143	143
Servicemen	-	-	-	-	-	-	-	-	-	-	18	18
Truck Drivers	-	-	-	-	-	-	-	-	-	-	24	24
Power Operators	-	-	-	-	-	-	-	-	-	-	32	32
Clerical	-	-	-	-	-	-	-	-	-	-	63	63
Others	-	-	-	-	-	-	-	-	-	-	41	41
Total	-	-	-	-	-	-	-	-	-	54	491	545
GRAND TOTAL	699	546	480	377	90	525	1872	1081	157	434	2833	9094

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MANUFACTURING DEPARTMENT

JANUARY 1952

METAL PREPARATION SECTION

The total production for the month was 139 tons of acceptable pieces, exceeding the forecast by three percent. The machining yield was increased 1.8 percent to 76.4 percent as a result of improved rod surfaces. This material was rolled during October, November, and December, reflecting the vendor's efforts in quality improvement.

The canning yield of 75.6 percent remained the same as that of December; however, this does not reflect a breakdown between 4 inch and 8 inch pieces. The 4 inch canning yield improved slightly, whereas the increase in production of the 8 inch pieces, coupled with the establishment of 8 inch slug canning procedures and techniques, tended to decrease the over-all canning yield.

The Melt Plant produced 43 tons of billets at a yield of 84.3 percent and a solid yield of 92.4 percent. Loss of production of the chip recovery press was again experienced this month due to mechanical failure.

REACTOR SECTION

Total maximum operating levels were 5 MW above previous high of last month. The reactor input production was 102.1 percent of forecast, and was 3.1 percent greater than the December production. The output production was 104.8 percent of forecast. The reactor operating efficiency for this period was 88.2 percent. Three reactors, DR, F, and H, operated at reduced power levels for varying times because of water conditions in the graphite moderator.

There were 20 uranium jacket failures during January requiring 311 hours of outage time for removal operations. Eight of the failures were discharged within the scram recovery time limitation resulting in a savings of approximately 200 hours of potential outage time.

SEPARATIONS SECTION

A total of 133 runs and two acid washes was started in the Canyon Buildings, and was 108 percent of forecast. In the Concentration Buildings, 130 runs and two acid washes were completed. A total of 138 runs and two acid washes was processed in the Isolation Building which was 94.7 percent of forecast. The anticipated delivery of material to the Isolation Building from the Redox plant was delayed resulting in lowered production.

The average cooling time was 49 days with a minimum of 40 days being used. The average purity of the completed charges was 98.6 percent.

Redox multicycle runs were made with 5 percent "hot" tracer material, with the initial dissolving of 100 percent Hanford level material in the A-2

[redacted]

dissolver on January 9, 1952. The anticipated full scale operation was delayed as a result of several equipment failures throughout the Redox plant.

Eight drums containing 5,146 pounds of UO_3 were shipped during this period. The UO_3 was obtained from the "cold" UNH produced in the Redox plant.

In preparing for TBP start up, homogenization of the metal waste supernate in the 101-U, 102-U, 103-U series was completed and the solution transferred to the 115-TX.

GENERAL

Organization

Effective January 2, Analytical Control functions, personnel, and facilities for the B, T, and 231 Plants, Metal Preparation Plant (except spectographic analyses), Pile Water Treatment Plants, as well as essential materials analyses and certain analytical services in direct support of operations were transferred from the Technical Section of the Engineering Department to the Manufacturing Department.

Personnel

W. N. Mobley was appointed Superintendent - Process in the Separations Section, effective January 1, 1952.

F. A. R. Stainken was appointed Superintendent - Plant Engineering Services in the Reactor Section, effective January 1, 1952.

Total on Roll December 31, 1951	3048
Accessions	205*
Separations	51
Total on Roll January 31, 1952	3202

*Includes the transfer of analytical personnel.

C. N. GROSS, MANAGER
MANUFACTURING DEPARTMENT

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MANUFACTURING DEPARTMENT

PATENT REPORT SUMMARY
FOR
MONTH OF JANUARY 1952

Richland, Washington
February 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	

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C. N. GROSS, MANAGER

MANUFACTURING DEPARTMENT

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V. D. Donihee

V. D. Donihee
Accountability Representative

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MANUFACTURING DEPARTMENT
METAL PREPARATION SECTION
JANUARY 1952

I. RESPONSIBILITY

The Process Unit assumed responsibility for Analytical Control, effective January 1, 1952. Personnel and equipment applicable to those functions were transferred from the Technical Services Section of the Engineering Department.

II. ACHIEVEMENT

Operating Experience

1. Statistics

	December	January	Year To Date
Billets Produced (Tons)	34	43	43
Bare Pieces Machined (Tons, 4")	122	109	109
Bare Pieces Machined (Tons, 8")	31	33	33
Briquettes Produced (Tons)	10	24	24
Oxide Burned (Weight Out, Tons)	4	5	5
Acceptable Pieces Canned (Tons, 4")	131	128	128
Acceptable Pieces Canned (Tons, 8")		11	11
Acceptable Pieces Canned (Total % of forecast)	104.8	103	103
Melt Plant Billet Yield (%)	84.5	84.3	84.3
Melt Plant Solid Yield (%)	92.1	92.4	92.4
Machining Yield (%)	74.6	76.4	76.4

[redacted]

Statistics (Cont')

	December	January	Year To Date
Chip Recovery Yield (%)	90.2	85.7	85.7
Canning Yield (%)	75.6	75.6	75.6
Autoclave Frequency (No./M)	.09	.07	.07
Poison Canned (No. Pieces)	3131	0	0
"B" Pieces Canned (No. Pieces)	6677	296	296
Chemical 10-66 (No. Pieces)	470	658	658
Poison, "B", Chemical 10-66 Canning (MH)	1008	140	140
Special Requests (MH)	-	190	190
305 Routine Tests (MH)	-	133	133
305 Special Tests (MH)	-	463	463
Maximum Steam Generated (M lbs./hr)	37	36	
Total Steam Generated (M lbs.)	21,102	22,143	
Steam Generated (Avg. rate lb/hr)	28.4	29.8	
Coal Consumed (Tons est.)	1,329	1,428	
Sanitary Water from 3000 Area (MM gals.)	23.3	24.3	
Total Water (Avg. rate-GPM)	522	544	
Chlorine Residual (PPM)	.50	.48	

2. Activities

Approximately 94% of the uranium machined during the month was from virgin material which was rolled during October, November and December. The higher yield resulted from improvement in the surface quality of the November and December rolled rods. Examination of pilot lots machined from the December rolling indicates further improvement in quality.

The canning yield is in line with the yield for December, 1951. The yield of four inch slugs showed an increase of .08%. However, the overall yield of four inch and eight inch slugs was adversely affected by increased frost test, non-seat, and not-canned rejects, resulting from the initial canning of eight inch slugs.

Approximately 5½ tons of eight inch slugs were canned to establish and test the best workable equipment, and to perfect operating techniques and procedures.

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.

Analysis of the five autoclave failures which occurred during the month revealed that one was believed to be the result of a defective can and four were believed to be attributable to operating techniques.

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2. Activities (Cont'd)

For accountability and process purposes, tests were conducted to determine rate of dissolution of bare uranium slugs in various process baths. Preliminary results indicate the greatest rate takes place in the AlSi canning bath and AlSi dip bath. To further improve the accuracy of accountability reports and control of process material, a study was conducted to determine the most probable experience factor to be used for the unanalyzed precipitate obtained from spent pickle acid. As a result of this study, the experience factor was revised. An analysis was made to determine the average amount of uranium removed from bare slugs by the pickling process. Validity of the experience factor being used was confirmed.

The increased production of briquettes during the month resulted from two shift operation of the melt plant and chip recovery press. The comparable low solid yield in the melt plant resulted from a nine day outage of the chip recovery press, due to mechanical failure, necessitating the backlogging of approximately 20 tons of chips.

3. Special Operations

Production Test 313-105-2-M - "Triple Dip Canning and Irradiation of Eight Inch Uranium Slugs Fabricated in Heavy Walled Aluminum Cans" (HW-22463).

Approximately 3000 pieces were canned in accordance with this test. Work is proceeding on a partial production basis although non-seating and frost-test reject rates continue to be high. At month end, 1400 pieces had been shipped for irradiation.

Production Test 313-119-M - "Omission of Vertical Agitation in the Bronze Bath" (HW-22678).

In accordance with the terms of this test, four days of production were run without agitating slugs vertically through the flux layer over the bronze bath. No abnormal reject rates were experienced.

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

The first experimental group of slugs heat treated in salt failed to transform satisfactorily due to lack of agitation of the bath. The test was discontinued pending construction of suitable mechanical equipment to improve the heat transfer.

4. Schedule Variance

Canning production was 3% above the tonnage forecast and is attributable mainly to the effective allocation of available trained personnel for routine production. Machining production was 2.8% below the tonnage forecast and is attributable to the training of a large number of new men.

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B. Equipment Experience

The chip recovery briquetting press was out of service for nine days as a result of a broken ram pressure plate and press head plate. A new pressure plate was fabricated and the head plate reinforced, pending fabrication of a new head plate.

Three slug welding transformers failed during the month and were replaced with duplicate units. The new 200-ampere units are scheduled for shipment in early March.

C. Improvements

1. Adoptions

A method was adopted for unloading uranium rods from freight cars by hydro-crane in lot bundles. This will replace the manual method of unloading and weighing individual rods and it is estimated will result in a labor saving of $6500 per year with an additional freight car demurrage charge saving of $500 per year.

A warning light was installed on 2-C canning furance to indicate when process temperatures are exceeded. This has proven satisfactory in reducing the number of off-cycle rejects. It is planned to equip the other canning furnaces in a like manner.

Adoption of process specification changes widening temperature ranges on AlSi bath, time of slug dip in tin, change of power input to frost-test, and decreased time limit on can submersion were authorized during the month.

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 - Construction started January 21, 1952. Excavation for septic tanks in progress.

Project C-433 - Expansion of 300 Area Power House and Pumping Facilities. Design approximately 79% complete. Actual construction has not started to date.

Project C-481 - Equipment for 8" Slug Manufacture. Fabrication of equipment is progressing on schedule.

2. Manufacturing Engineering

Cost Standards were developed for labor in component part preparation of the canning operation; bronze, tin, copper and flux for canning 4" slugs and Aluminum Silicate and Nitric Acid for canning of 8" slugs. These standards, with those previously developed are being consolidated into the Manufacturing Standards Manual.

Engineering studies were conducted on the following items:

a. Development of incremental canned and bare slug reject costs.

b. Design of an improved canning jack.

c. Preparation of workspace layout in connection with transfer of Instrument Tube Shop from building 717-A to 3717-B and transfer of Instrument Engineers from building 3717-B to 3707-C.

d. Operation of salt bath slug transformation and installation of production facilities.

e. Determination of feasibility of using a bar cut-off saw for canned slug finishing, eliminating facing operation.

E. Reports Issued

Number	Title	Author	Date
HW-23206	Production and Manpower Forecast, January 1952, Operations Unit, Metal Preparation Section	W. Windsheimer	1-8-52
HW-23277	Suspected SF Discrepancy in Production Lot 138-ZR, 300 Area Manufacturing Process	H. E. Berg	1-8-52
HW-23166	Instrument Application and Design Monthly Report for December, 1951	M. T. Slind	1-4-52
HW-23240	Preliminary Results on Applying the Sperry Reflectoscope to Non-Destructive Testing of Uranium Slugs	D. C. Worlton	1-10-52
HW-23265	Metal Preparation Process Committee Minutes of Meeting	E. W. O'Rorke	1-15-52

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III. PERSONNEL

A. Organizational Changes

Concurrent with the transfer of responsibility for the analytical control functions, three exempt and 13 non-exempt employees were transferred from the Analytical Unit, Technical Services Section of the Engineering Department to the Process Unit of the Metal Preparation Section.

B. Force Changes

	Monthly	Weekly	Total
Beginning of Month	72	370	442
End of Month	78	387	465
Net Increase	6	17	23

C. Safety Experience

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

D. Radiation Exposure

An exposure of 360 mrep of beta radiation as determined by the weekly film badge of a machining operator was informally investigated. Investigation determined that insufficient appreciation of the sifnificance of the radiation hazard involved contributed to the exposure. Appropriate action was taken to prevent recurrence.

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MANUFACTURING DEPARTMENT
REACTOR SECTION
JANUARY 1952

I. RESPONSIBILITY

Responsibility for the analytical control associated with reactor water treatment operations was transferred from the Engineering Department to the Manufacturing Department, effective January 2. Specifically, this responsibility was assigned to the Reactor Section, Process Unit. Included in this transfer were water control laboratory facilities and related personnel.

Formation of the Plant Engineering Services Unit continued during the month. The Reactor Section functions, (and personnel associated with these functions), of contact engineering, industrial engineering, project management and budget and costs were transferred from the Process Unit to the Plant Engineering Services Unit on January 2. Also, responsibility for administration of the Reactor Section landlord function has been assigned to this unit.

II. ACHIEVEMENT

Operating Experience

The January reactor input production was 102.1% of forecast and was 3.1% greater than the total production for December. The reactor output production was 104.8% of forecast. An increase of 5 MW over previous established maximum operating levels resulted from a redefinition of limitations due to boiling considerations, as outlined in document HW-23284, "Tube Temperature Rise Limits - Boiling Considerations". Further minor gains are expected as a consequence of this redefinition.

There were 20 uranium slug jacket failures during the month, 8 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 200 hours of potential outage time.

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Operating Experience (Cont'd)

Production Summary:

	B	D	DR	F	H	Total of Average
Reactor Time Operated Efficiency (%)	85.0	90.2	85.5	83.4	96.7	88.2
Reactor Outage Time (Hrs.)						
Plutonium Production	103.4	72.6	107.9	116.9	19.2	420.0
Production Tests	8.0	-	-	6.5	5.0	19.5
Total	111.4	72.6	107.9	123.4	24.2	439.5
Reactor Unscheduled Outage Time (Hrs.)	80.0	30.9	107.9	93.3	-	312.1
Metal Discharged (Tons)	18.70	24.43	23.96	21.20	16.68	104.97
Water Pumped - Bldg. 181 (GPM Average)	39,828	87,250		45,462	49,967	222,507
Steam Generated (M lbs.)	134,612	230,808		129,705	111.876	608,001
Coal Consumed (Tons)	9,346	16,258		9,455	7,839	42,898

Steam and water services for experimental work being conducted by the Pile Technology Unit in conjunction with Project C-424 were started on January 23 at the Building 105-D valve pit. An average 15,000 lb/hr steam demand is anticipated.

Difficulty was experienced in maintaining a flow of water through the Building 190-DR turbine exhaust system inter-condensers. This is believed to be due to restriction of the water spray jets caused by foreign material in the raw water and subsequent icing and has resulted in some decrease of steam economy. Corrective measures are being studied. This particular spray jet design is used only in the Building 190-DR installation.

Equipment Experience

The general mechanical condition of the reactor components and equipment continued good throughout the month. There were no unscheduled reactor outages resulting from equipment failure.

During January, repair of No. 7 horizontal rod and thimble at 100-F Area was continued. No. 6 rod thimble at 100-B Area, which was leaking, was replaced and the rod returned to service. The electric drive on No. 4 rod at 100-B, installed as a test prior to construction of 100-H Area, was replaced with the original hydraulic drive unit. At month end, this rod is out of service pending necessary testing.

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Equipment Experience (Cont'd)

Exploratory excavations have revealed a serious leak at the junction of the D Reactor effluent line and retention basin. A study of the condition is being made preparatory to initiating repairs.

Just prior to shutting down the DR Reactor on January 7 to remove a ruptured slug from tube 3763-DR, a decrease in reactivity and an increase in the moisture content of the reactor atmosphere were observed. On attempting to resume operation after replacing the tube and charge, it became apparent that a considerable quantity of water had entered the graphite moderator through a rupture in tube 3763-DR. The reactivity loss due to water in the moderator necessitated several changes in the permanent poison pattern. Following the resumption of operation, it was necessary to operate at reduced power levels due to distorted temperature distribution. Significant quantities of water are being removed at month end.

On January 7, process pump motors Nos. 2 and 10 at Building 190-B failed during a start-up. Both stators were replaced by spare units and the motors are ready for service at month end.

Inspection and repair of the Building 190-DR turbines by the Worthington Pump and Machinery Company's service engineer were completed on January 23.

On January 3, the Brown temperature monitor at Building 105-DR was found to be indicating temperatures approximately 4° C higher than the actual tube temperatures. Recalibration of the instrument permitted increasing the power level approximately 25 MW. More frequent calibration checks of this equipment are planned in order to minimize potential production losses from this source.

The Schramm air compressor in Building 184-H was replaced with a Worthington compressor from the 1717-B shops. The Schramm compressor was installed in the 108-D repair shop. This change was made because of excessive maintenance and unreliable service from the Schramm unit which made it undesirable for service at Building 184-H.

Improvements

Redefinition of reactor power level limitations due to boiling considerations (see document HW-23284), is expected to make possible an estimated 25 MW increase in DR and H reactor power levels. Also a similar but temporary increase at F Reactor should be possible. Gains in power level from this source are not possible where graphite temperature is the limiting factor.

Adoption of an improved method for drying P-10 slugs will result in an estimated savings of $8,000. An award was made to a Reactor Section employee for the suggestion which incorporated the idea.

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

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Manufacturing Department
Reactor Section
January 1952

Plant Development and Expansion

Reactor Section projects of greatest significance are reported below Further details concerning projects will be found in a report, "Status of Reactor Section Projects, Informal Approval Requests and Budget Items", from F. A. R. Stainken to E. P. Lee, dated January 22, 1952.

C-431 (100-C Plant)
The design of the 100-C Plant is approximately 97% complete. The construction of the water plant is 35% complete at month end compared to a revised scheduled 36%. The construction of the reactor is approximately 29% complete compared to a scheduled 30%.

C-438 (Ball 3X Facilities for B, D, DR, H and F Piles)
Directive No. HW-230, Mod. No. 4, dated January 5, 1952. has been received from the Atomic Energy Commission authorizing expenditures up to $3,650,000 for this project. The first installation, previously planned for April, 1952, at 105-B, has been postponed until July, 1952, to be consistent with present material delivery dates.

RDA-DC-3 (Improved Reactor Design)
Work continued on the development of system proposals for Working and Design Committee consideration.

RDA-DC-6 (Improved Water Plant Design)
Basic information for new water plant design is being accumulated. This information will be used by the Chas. T. Main Co. in the development of a proposal for new water plant design.

Development studies by Reactor Section personnel during January included work directed toward improved equipment and/or methods for controlling the reactors, reducing slug corrosion, handling ruptured slugs, decreasing discharge time, locating process tube water leaks, reducing outage time due to abnormal power conditions, increasing boiler efficiency of the power plants and recovering heat from the reactor effluent water. Further details concerning these studies are contained in documents HW-23451 and HW-23480.

Work performed during the month on special analytical problems included: identification of suspended solids in filtered and process water from 100-F Area; development of an accurate method of determining very small amounts of turbidity in clear well water; setting up an analysis for lignins and tannins in conjunction with a study to determine the affect of organic compounds on water filtration; and improvement of present analysis for iodides and bromides.

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Plant Development and Expansion (Cont'd)

Production tests of major plant development significance are reported below:

PT-105-313-2-M (Irradiation of Eight-Inch Uranium Slugs)
Three process tubes in H Reactor were charged with numbered and measured eight-inch slugs during the month.

PT-105-435-P (Graphite Temperature Increase of the F Pile)
The final phase of this test, in which graphite temperatures up to 450° C are allowed, was initiated on January 18. The maximum graphite temperature attained during the month was 411° 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. Since beginning use of activated silica, the beta activity of the retention basin effluent water has increased to a level comparable with the other 100 Areas. The average activity for January was 6.8 mrep/hr compared to 4.7 mrep/hr during December when aluminum sulfate was used without the aid of activated silica. Experimental work is underway to explore the possibilities of a continuous process for feeding activated silica.

Reports Issued

Significant reports issued by the Reactor Section during January were:

December monthly reports for Operations Unit (HW-23159), Process Unit (HW-23150) and Radiation Monitoring Unit Technical Report (HW-23264).

"Design Change #17, Supplement No. 1", (this report covers details of power failure relay modifications at Building 190-B), "Automatic Acid Feed Control Installation in 183-F", A. G. Dunbar to T. M. Clement, January 18, 1952.

"Considerations Resulting From Reduced Pile Water Requirements Following an Electrical Outage", - HW-23395.

"Radiation Incident Investigation, Class I, Incident No. X-5" - not documented.

"Radiation Incident Investigation, Class II, Incident No. X-4" - HW-23461.

A description of slug failures experienced during January will be contained in document HW-23413 to be issued early in February.

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III. PERSONNEL

Organization Changes

Effective January 1, 1952, F. A. R. Stainken was appointed Superintendent, Plant Engineering Services Unit.

Instrument maintenance coverage for the P-11 program was discontinued on January 2, except for minor repair services. Previously, one employee was assigned full time to this work.

Force Changes

	Beginning of Month	End of Month	Net Change
Section General	3	3	0
Operations	237	238	+ 1
Plant Engineering Services	0	18	+18
Power & Maintenance	783	795	+12
Process	30	20	-10
Radiation Monitoring	52	54	+ 2
Section Total	1105	1128	+23

The change during the month consisted of 11 terminations, 11 new hires, 2 deactivations, 3 reactivations, 32 transfers into and 10 transfers out of the Section.

In connection with the transfer of functions indicated above under "Responsibility", nine employees were transferred from the Technical Section, Analytical Unit to the Process Unit on January 2, and seventeen employees were transferred from the Process Unit to the Plant Engineering Services Unit on January 2.

Safety Experience

Major Injury No. 78 occurred in 100-B Area on January 22 when a Reactor Section electrician received a fractured left arm from a fall on ice. An Instrument employee sustained a sub-major injury on January 30 when a ladder he was ascending slipped and fell to the floor, causing him to sustain an elbow fracture. This injury occurred in 100-F Area.

Radiation Exposure

A Radiation Engineer and a Plumber-Steamfitter received overexposures in connection with the removal of irradiated uranium slugs from a discharge area catwalk at Building 105-B. Investigations of these overexposures have been held.

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Manufacturing Department
Reactor Section
January 1952

Training

A total of 24 employees are receiving on-the-job training at month end in a continuation of the program for obtaining and training qualified engineering and supervisory personnel to meet existing and future requirements. This includes 5 Technical Graduates on assignment under the Rotational Pool Program.

A training course consisting of tours and orientation lectures on the 100 Area processes and associated instrumentation was started on December 11, 1951 for Instrument Trainees. The course consists of two eight-hour sessions each week conducted by qualified craftsmen and will continue until February 5, 1952.

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MANUFACTURING DEPARTMENT
SEPARATIONS SECTION
JANUARY, 1952

I. RESPONSIBILITY

Consistent with the reorganization of the Manufacturing Department on August 1, 1951, a Process Unit was established in the Separations Section effective January 1, 1952. On this date, the responsibility for the three control laboratories for the bismuth phosphate and isolation processes including the Standards Group was transferred from the Engineering Department to the Manufacturing Department. Similarly, radiation monitoring responsibility for these facilities was transferred from the Radiological Sciences Department to the Manufacturing Department.

II. ACHIEVEMENT

A. Operating Experience

1. Production Statistics

a. Operations

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in Canyon Bldgs.	63	1	70	1	133	2
Charges completed in Conc.Bldgs.	68	1	62	1	130	2
Special charges-Conc. Bldgs.	1		3		4	
Charges completed-Isolation Bldg.	69	1	69	1	138	2
Average Waste Losses	2.6		2.6		2.6	
Average MWD/Ton	563		568			
Special charges-Isolation Bldg.					7	
Average purity completed charges					98.6	

[redacted]

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Material balance thru Isolation					100.8	
Yield through process					95.9	
Average cooling time (days)					49	
Minimum cooling time (days)					40	

b. Power

	December	January
Raw water pumped, gpm	6,654	5,941
Filtered water pumped, gpm	1,242	1,193
Steam generated, M lbs/hr	198	211
Maximum steam generated, M lbs/hr	265	321
Total steam generated, M lbs.	147,902	157,427
Coal consumed, tons (est.)	8,135	8,856

c. Waste Evaporation

	January	To Date
Gallons Processed, 200-W	611,000	4,309,260
Percent Volume Reduction	72.0	73.2
Gallons Processed, 200-E	430,000	710,500
Percent Volume Reduction	76.2	75.3

The reason for the lower production in the 200-E installation will be further investigated during February.

d. Waste Storage

	Batches
Metal Waste reserve storage capacity - T Plant	322
1st Cycle reserve storage capacity - T Plant	1545
Metal Waste reserve storage capacity - B Plant	733
1st Cycle reserve storage capacity - B Plant	287
Redox Waste reserve storage capacity	3608

Reserve storage capacity in the T Plant Area will soon be supplemented as the result of the completion of the 241TY Tank Farm.

e. Analytical Control

Laboratory	Samples	Determinations
200-E	2,726	4,814
200-W	2,811	4,659
Isolation	896	2,127
Standards	1,028	1,382
Total	7,461	12,982

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f. Redox Operation

	Started	Completed
Dissolvings	3	3
Head End cold runs	2	2
Head End tracer runs	6	5
Extraction tracer runs	2	1
PR Cans	-	9
Uranium (lbs.)	-	7282

2. Activities

a. Redox Metal Dissolving

The initial dissolution of a full charge of 100% Hanford level slugs was started in the A-2 dissolver on January 9, 1952. Monitoring of the off-gas during the subsequent full level operation of the B-2 dissolver indicated discharge of I^{131} thru the 291-S stack at a rate equivalent to 0.12 curies/24 hours. Metal solution accumulated from these operations was partially used in the preparation of 5% tracer run feed. The balance will be used in the initial full Hanford level feed.

b. Redox Organic Supply and Recovery

During the processing of the first 5% tracer run through the extraction batteries (Run S-5, started at 3:50 P.M. on 1-12-52) approximately 1500 gal. of hexone overflowed from the O-3 tank to the 276-S building sump. The spilled material was returned to tank O-2, mixed with 8500 gal. unspilled hexone, and washed according to standard procedure. The subsequent analysis indicated acceptable material (for the components normally checked) although the liquid was somewhat cloudy.

Approximately 1½ hours after the initial use of this material as extractant in the 202-S batteries, the organic recovery still instrumentation indicated instability and in a short time the still unit became entirely useless for its normal processing function. Still operation was characterized by high tower pressure differential, positive pressure in the still pot, and failure to even process water vapor at low steam flow rates. Emergency shutdown of the extraction batteries was effected at 8:00 P.M. on 1-13-52.

In the subsequent investigation, it became apparent that the spilled hexone had absorbed from the 276-S Amercoated floor, resins and pigment which were not removed by washing, and were not revealed in the usual organic analysis. The presence of these contaminants is believed to have been responsible for the abnormal G-3 still operation and unsatisfactory extraction battery performance. After full consideration of possible re-

covery, the solvent was discarded.

Following the complete cleanup of the hexone recovery and supply systems, fresh hexone was pretreated in accordance with standard procedure. At 6:00 A.M. on 1-21-52 the plutonium cycles were started, and new feed was introduced to the 1A column. By 3:00 P.M. the G-3 organic still was again under abnormal pot and tower pressures and had to be shut down. On the assumption that ingredients in the still pot were producing excessive foam, the still pot was emptied, flushed, filled with fresh 5% caustic, and again started only to fail again in a few hours.

Exploratory samples taken of the hexone feed to the G-3 still indicated that appreciable quantities of oil from an unknown source were being fed to the still. Subsequently this oil contamination was traced to the ANN adjustment tank (floating oil layer) and the associated family of scrub make-up and feed tanks.

In addition, 1A feed solutions from the head end were also suspected of oil contamination arising from the lengthy (6 hours), air sparge at the ruthenium removal step. Some oil was removed from the air sparger feed line in the pipe gallery although a check of building blow downs and oil filters in the compressor room indicated little oil entrained in the house air system.

All of this oily or questionable ANN solution in the building was discarded. After start-up of the G-3 still on January 27, the still has been operating satisfactorily.

c. UO_3 Production

Eleven pot charges of Redox UNH were processed at various pot temperature control settings. High temperature ranges produced the best powdered product, the shortest time cycle and a near specification analysis. None of the pots produced a product which met the existing tentative specifications, primarily due to the presence of impurities present in the final uranium stream from Redox.

On January 25, 1952, eight drums of UO_3 (5145.98# net weight UO_3) were shipped by A.E.C. express car to the K-25 plant at Oak Ridge, Tennessee.

3. Special Operations

a. Acid Washes - $BiPO_4$ Plants

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

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Run	Extraction	Section 12 and First Cycle	2nd Cycle	Total 221 Bldg.	Total thru Process	Prefluor B, T & T Cells
B11-12-AW2	11.0	19.0	4.2	34.2	44.6	21.[illegible]
T11-12-AW1	9.8	19.2	11.0	40.0	35.4	27.8

b. Supernate Homogenization - Metal Recovery

Recirculation of supernate from U metal waste storage tanks 101 to 103, 103 to 102 and 102 to 101 was started January 4 and continued uneventfully for 120 hours. On the basis of specific gravity and temperature instrument readings, homogenization was considered essentially complete after the material was turned over three times.

c. Absorption Equipment - UO_3 Plant

Acid plate build-up studies in the nitric acid absorber column conducted during January indicated normal operation of the bubble cap plates.

4. Schedule Variance

Actual production of regular material through the Isolation Building was 94% of the forecasted amount due to lower than anticipated Redox production. Material actually started in the $BiPO_4$ plants was 108% of the amount forecasted because some of the production was directed from Redox to these plants.

B. Equipment Experience

1. Operating Continuity

a. Separations Section facilities were placed in standby status on the New Year's holiday.

b. Operating and equipment troubles experienced in the Redox plant start-up caused sufficient delays to hinder scheduled production.

c. On January 6, an eight hour shutdown of the 440 volt power to a portion of T Plant was scheduled and carried out.

2. Inspection, Maintenance and Replacement

a. Centrifuge Replacement

A First Cycle Decontamination Cycle centrifuge in B Plant failed in service due to a defective motor or drive head bearing. The high level of radioactivity precludes its repair.

b. Damaged Waste Line

On 1-15-52, the waste line from the T Plant Concentration Building

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to the Tank Farm was bent when hit by a drag line during excavation activity as part of the Metal Recovery Project. Since jetting rates appear to be unaffected and there is no leakage, it is planned to keep the line under observation until backfilled and then mark the location with posts.

c. Reelites

On January 17, 1952, a short circuit occurred in the slip ring mechanism of the Reelite supply to the 60 hp Nagle pump motor in 103 Metal Waste Storage tank, in the U Area tank farm. The starting current for the 60 hp motor is approximately 400 amperes with an operating load of 91 amperes. The Reelite, rated at 100 amperes, is underdesigned for the frequent starting and stopping service required in the tank farm operation. After consultation with the designer and the vendor, it was decided to omit the Reelite and attach the electric feed cable directly to the submerged pump. Changes were made by plant forces to the three motors in the first cascade. The remaining 18 pumps will be altered by construction forces.

d. Gantry Crane

The Waste Metal Recovery gantry crane was damaged by a loaded tank trailer which skidded on an icy road adjacent to the crane track. The four "H" beam uprights which support the lifting mechanism and form the main structure of the crane were bent and twisted. Although a preliminary inspection indicated repairs would cost approximately $2,000 a Mechanical Maintenance foreman suggested an ingenious method to repair the crane in the field and repairs were satisfactorily completed in the field at a cost of $370. The crane was satisfactorily returned to service after being subjected to a load test which was twice as great as any load that will be applied during normal operation at the diversion boxes.

e. Air Supply to 234-5 Development Laboratory

A new 90# service air line was installed in the duct level above the Technical Development Laboratory in the 234-5 Building. Prior to this installation, the laboratory service air source was the 40# breathing air system. The installation was made to eliminate any possibility of contaminating the breathing air system.

f. Organic Condenser - Redox

During cold run processing, considerable difficulty was experienced with the unstable operation of the G-3 still, one of the most troublesome phenomena being the sudden dumping of liquid from the condenser back into the still resulting in a still overload. Following cold runs, a test was carried out to determine the effectiveness of a cross vent between the two condenser vent con-

nections on the vessel as a means of preventing condenser dumping. A temporary connection in this location proved effective and a permanent revision to the condenser was made.

g. G-3 Still By-pass-Redox

Because of a past history of unsteady operation and a potential limitation of plant capacity, it has been considered advantageous to install a by-pass line in G cell through which a portion, if not all, of the organic material flowing from the 1-0 column may by-pass the G-3 still pot. The undistilled organic passing from 1-0 directly to the G-1 receiver tank, would then be mixed with the distilled material from G-3 and the resulting mixture reused in the extraction batteries. This procedure would have the effect of increased G-cell capacity without major alteration in the equipment. Accordingly, an in-cell pipe has been attached to the G-cell wall to provide the required routing and the necessary jumper fabrication is now under way to permit completion of the by-pass. The flow of by-passed hexone will be measured and controlled, with the excess being routed into the still for distillation.

h. Coil Failure - Redox

During building shutdown, a slight change in the 1CU concentrator (F-2) pot liquid level, thought at first to be due to a leaking column letdown valve, was eventually traced to a defect in the dephlegmator coil in the concentrator tower. Under test, the leakage rate was approximately 23 gallons per hour at line pressure (115 psig). Rather than replace or repair the tower, agreement was reached with the Plant Assistance group that normal operation of the concentrator may be carried out without the use of this coil and the coil inlet has been blanked. While this failure in itself was not serious, when combined with the F-2 pot coil failure, it may be indicative of future coil failures in other locations, and points up a potentially serious maintenance and spare parts problem.

i. ANN Storage Tank Failure - Redox

At 1:00 A.M. on 1-28-52 a leak was noted in the ANN storage tank SS-113 in the 211-S area. The maximum leakage rate was estimated to be ½ gal. per minute. The leak point, later determined to be 13' above the tank bottom, was approximately 7' below tank liquid level. Pumping from the SS-113 tank into available space in the remaining two ANN storage tanks was started immediately and no more than several hundred gallons of liquid were lost before the level was brought below the leak point. The chemical soaked lining was stripped from the tank side to prevent further damage to the steel tank shell. A ring of grout under the lower tank flashing apparently prevented the chemical from seeping into the 2" oiled sand pad under the tank bottom.

A one sq. ft. section of steel tank shell and Tygon liner has been removed from the tank for examination. It has been found that the Tygon joint seal strip failed to fuse to the sheeting on installation, leaving a slit opening approximately 6" long through which the chemical eventually reached the steel tank. From the cut edge of the sample, it is known that tank shell damage is limited to a small area directly around the leak point. Present plans are to patch the steel tank and the liner, thoroughly inspect the remainder of the tank, and, if chemical consumption rates and other factors will allow, hold the SS-113 tank empty as an emergency storage in the event similar leakage is experienced in the remaining two Tygon lined tanks.

C. Improvements

1. Adoptions

a. Analytical

Starting with the January run series, the geometries of the alpha counting instruments were changed from 50.5 to 50.0%; concurrently, revised radioassay calibration factors were applied in the laboratories and revised isotope correction factors, computed from control data by members of the Analytical Unit, were applied to process data by the Accountability group. These steps were initiated to take advantage of improved analytical and counting techniques and changes in the specific activity of plutonium although they effectively reduced the batch size of material processed by 0.7%. The background data supporting these changes are presented in document HW-23100, Revised Isotope Correction, and HW-23140-R, Analytical Unit Monthly Report, December 1951.

It was found that many of the volumetric flasks employed in radioassay work were out of specifications by as much as 1%. Until this new stock is expended, corrections for calibration are being applied. A source of reliably calibrated flasks is being sought.

2. Inventions or Discoveries

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

D. Plant Development and Experience

1. Project Status

a. TBP - Project C-362

Revision 3 of Project Proposal C-362 was issued January 2, 1952 for the purpose of presenting a brief project review, a revised cost estimate, and a revised construction schedule.

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Part II of the original proposal estimated the Project cost to be $48,000,000. Revision 3 estimates the cost to be $48,800,000. The presently authorized expenditure for the C-362 project is $41,900,000 and the Revision 3 of the Project Proposal requests the additional sum of $6,900,000 to be authorized for the completion of the Project. Additional funds requested in the Part II Proposal had not been authorized, although the project was included in the Federal 1952 FY Mid-year Budget review for the amount of $48,000,000.

The Revision 3 proposed completion schedule shows a "ready for use" date of April 1, 1952 and a "construction completion" date of September 1, 1952. The "ready for use" date is that time when the last of the facilities required for full plant operation become available. The limiting facility is the 221-U Building which will not be fully available before the above date. However, it is expected that portions of the 221-U Canyon may be ready for testing and preliminary operations work during the first half of March.

b. UO_3 - Project C-361

Revision IV of the C-361 Project Proposal was issued January 15, 1952 for the purpose of revising the scope and requesting additional funds. The scope revision consists of the addition of facilities to provide for a minimum of 30 days lag storage of Redox UNH solution before processing in the Metal Conversion Plant (UO_3). Additional funds in the amount of $245,000 were requested to accomplish the work. These additional facilities were designated as Part C of Project C-361. A completion date of March 1, 1952 was set.

Revision IV was approved by the AEC on January 23, 1952. Directive HW-158 Modification #11 was issued by the AEC authorizing the above increase in scope and increasing the total project funds to $2,200,000.

The additional facilities are to consist of the following:

1) Temporary Facilities

   a) Provide sand bags around Tank X-1 in 203-U to shield this tank until the permanent facilities are constructed. Tank X-1 is to be used to store Redox UNH and to provide temporary lag storage.

   b) Provide temporary fencing three feet on each side of the 203-S to 203-U pipeline for personnel protection.

2) Permanent Facilities

   a) Provide two 50,000 gallon UNH storage tanks in the Redox area (designated as 204-S) north of 203-S. The storage tanks will be obtained by taking one 100,000 gallon nitric acid tank from 211-AU, cutting it horizontally in half,

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and transporting the two resulting shells to the Redox area for erection.

b) A suitable (7 foot high) diked area will be provided around the tanks.

c) One UNH transfer pump (an excess 20 gpm pump) will be provided along with suitable piping and tie-ins into the existing cross country UNH line from 203-S to 203-U.

d) Tank X-1 in 203-U will be used for storage of Redox feed for 224-U. Tank X-2 will be used to store TBP feed and routing from tank X-2 will be normal. Feed from Tank X-1 will be transferred by a new pump (P-C-1 spare) through a flow control valve to Tank C-1. Mixing of Redox and TBP feeds will be accomplished at Tank C-1 prior to its feed to the secondary product evaporator.

c. Final Shape Machining for RG Line - Project M-845

A Financial Closing Statement was received on Project M-845 dated January 21, 1952. This was the Final Shape Machining unit for the RG Line - 234-5 Building. Total expenditures were $12,028.94. Authorized funds were $19,500,000.

d. Final Shape Machining for RMA Line - Project M-853

Work has progressed on Project M-853 very satisfactorily. Installation of the unit in the line is in progress. Completion of this Project, with exception of instrumentation, is expected during February. The installation of instrumentation equipment is to follow in six to eight weeks.

D. Pertinent Reports Issued

Document	Title	Author
Unclassified	January Monthly Report - Separations, Power and Maintenance	R. T. Jessen
HW-23423	January Monthly Report - Separations, 234-5 Building, Operations	V. R. Chapman
HW-23422	January Monthly Report - Separations Operations	V. R. Chapman
HW-23409	January Monthly Report - Separations Radiation Monitoring	A. R. Keene
HW-23468	January Monthly Report - Separations Plant Engineering Services	C. P. Cabell
HW-23428	January Monthly Report - Separations Process	W. N. Mobley

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Separations Section

Document	Title	Author
HW-23232	Synopsis of Scheduling for the Completion of the RMA Line	R. S. Bell
HW-23341	Recuplex Economics Study	A. Bradway, Jr. R. H. Chesworth J. C. Whipple

III. PERSONNEL

A. Organization Changes

Effective January 1, 1952, coincident with the establishment of the Process Unit in the Separations Section, W. N. Mobley was appointed Superintendent of the new unit.

Effective January 1, 1952, responsibilities for the operation of T and B Plants were combined under one Chief Supervisor, E. A. Foskett.

B. Force Changes

1. Number of employees on roll

	Monthly	Weekly	Total
Beginning of month	280	1309	1589
End of month	279	1298	1577
Net Increase	- 1	-11	-12

2. Personnel Changes

	Monthly	Weekly	Total
Transfers in	2	13	15
Reduction of Force	0	0	0
Transfers out	-5	-15	-20
Reactivates	0	1	1
New Hires	0	7	7
Terminations	0	-13	-13
Weekly to Monthly	2	-2	0
Removed from Payroll	0	-2	-2
Monthly to Weekly	0	0	0
Net Increase	-1	-11	-12

C. Safety Experience

1. Major Injury

On January 11, 1952, an employee of the 200-W Area Mechanical Maintenance group was walking from the Change House to the Badge House at the conclusion of the day shift. He slipped and fell on the snow covered ice causing fracture of the upper bone of his left arm. The

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man returned to work the following Monday, but was later confined to his home because of the serious nature of the injury coupled with the employee's age, which is 62 years.

D. Radiation Exposure

1. I^{131} Emission

Total stack emission of I^{131} from the Separations Plants averaged 2 curies per day.

2. Investigations

There were two Class I radiation hazard investigations held by the Separations Section during the month. One involved clothing contamination and the other radiation exposure to personnel amounting to about twice the daily permissible limit.

3. Redox Building Radiation

Extensive radiation surveys showed conditions satisfactory throughout the building on the advent of full level Hanford slugs.

Surveys have revealed that sample box shielding may be inadequate in some instances, particularly at box joints. Additional shielding will be added as required on the basis of portable instrument and film survey results.

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TECHNICAL SECTION

JANUARY 1952 2/11/52

SUMMARY

Pile Technology Unit

The total force of the Pile Technology Unit at the end of January was 343. This may be compared with 337 for December and 345 for November. The corrosion group, formerly a part of the Metallurgy Sub-Unit, was transferred to the Pile Engineering Sub-Unit.

Decontamination of the building housing the reactor for critical mass studies has been completed and the building sealed prior to evacuation.

The small scale Xe^{135} production apparatus is being constructed and tested. New measurements of the resolution of the crystal diffraction neutron spectrometer apparatus have been completed. Other work included studies of the C^{12} absorption cross-section and calculations of the control requirements of 3220 tube pile.

In the exponential pile program equipment has been standardized and measurements begun in the seven and one-half inch lattice assembly. Theoretical analysis indicates that in this lattice the graphite temperature coefficient will be about one-half of that in the standard lattice and the metal coefficient about 20 percent higher.

Calculations show that the concentration of U^{237} in irradiated uranium is almost independent of total exposure and is proportional to the local power density at which the radiation occurs. Additional work is continuing on the build-up of heavy elements during pile operation.

A revised ion chamber for shielding studies of Brookhaven concrete has been fabricated. Measurements of the induced radioactivity in other concretes after irradiation in the Test Pile have been completed.

Additional calculations of the diffusion length of the Savannah River Test Pile graphite have been made. The latest result, 57.5 cm., should be more reliable than the previous value; it differs, however, from experimental measurements of a similar graphite and theoretical calculations as stated in a previous report.

The radiation properties of a special graphite considered for use in future piles are being studied. Measurements of physical properties of irradiated graphite are continuing; at present there is no explanation for the variation

in values for the thermal conductivities of the core samples. The final series of samples for the graphite burnout studies have been charged; interpretation of the results from the previous experiments will be difficult because of the temperature variation at F Pile.

Recommendations for an increase of about three to four percent in the power levels of DR and H Piles have been possible as a result of recent studies on boiling limits. No difficulties have been experienced with the time-delay relay in the Panellit circuit of the B Pile.

The 105-D flow laboratory, the film test apparatus, and the recirculation facility were placed in operation during the past month. Preliminary results indicate that an increase of approximately fifty percent in the filter rate may be obtained if activated silica and alum are substituted for ferric sulfate in the treatment of the pile water.

An examination of some of the process tubes from the wet zone of F Pile has shown the presence of corrosion products and some evidence of pitting on the outside of the tubes. The underwater examination of normally discharged slugs is continuing, and the various types of corrosion attack are being classified. Studies of the effects of heavy metal ions and high temperature on the corrosion of aluminum are continuing.

A slug rupture at DR Pile caused a severe water leak with a consequent limitation of the pile power level. A total of twenty ruptures occurred during January; of these, nine discharged easily and eleven were stuck. Work is progressing on a method to detect ruptured slugs by means of a scintillating crystal gamma ray spectrometer.

Although the power levels and exposure levels have been changed during the year making any interpretation of ruptured slug data difficult, some preliminary correlations between the different types of ruptures and pile operation variables have been made.

Tests of 63S and other alloys which may be substituted for the 2S aluminum are continuing. The presence of silicon in these alloys is being evaluated to determine the corrosion resistance and effects on physical properties.

Experiments with the pressurized charging machine have shown that in some cases the slugs were cocked both horizontally and vertically. It has been suggested that this condition may be present in the piles and may contribute to the rupture of slugs, since it is possible that the can may be in contact with the tube and in this manner cause localized overheating.

The construction and procurement of equipment for the radiometallurgy and plutonium metallurgy laboratories are proceeding. The design and construction of equipment for examination of ruptured slugs has been completed.

Experimental studies of uranium rods have shown a correlation between the degree of preferred orientation and the rolling temperature. Measurements of mechanical and physical properties of beta-transformed uranium are being continued; additional information will be obtained through the use of thermal cycling equipment which has been designed and constructed.

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During the past month the conditions for a frost test suitable for testing the thick-walled slugs have been determined; approximately 6000 eight-inch slugs have been canned and tested. Welding and facing techniques are being studied in an effort to reduce the large number of eight-inch production slugs which are frost-test rejects. Additional work includes studies of welding, unbonded canning, hydrogen content of aluminum-silicon alloy, mechanized canning, and salt bath heat treatment.

The special irradiations are proceeding routinely. Some samples of a ten percent lithium-aluminum alloy are being irradiated. They will be examined to determine the amount of warp resulting from exposure and the effect of composition on tritium yield.

Separations Technology Unit

There were no significant changes in $BiPO_4$ process or operation during the month. Iodine emitted from the stacks of B and T Plants averaged 3.5 to 4.0 total curies per 24 hour day. Plans were made for processing 8 runs per month through B Plant on a 2-shift basis. The B Plant waste evaporator operated at 77.5 percent volume reduction during the month but evaporation rates fell from 582 gal./hr. to 366 gal./hr. A production test for the evaluation of the Pu IV oxalate was started in the RG Line with satisfactory results to date.

In the Redox plant 5 percent activity runs were completed with adequately low losses and decontamination factors. The plant lost some time when Amercoat paint inadvertently became mixed with the solvent. Operation at a 4T/day level was found to be satisfactory for a 48 hour period. At month-end, plans were underway for starting the first runs at full activity levels.

In the Metal Recovery plant, the homogenization of the 101-U cascade supernates was completed and the supernate from 103-U transferred to 115-TX. At month-end preparations were being made for the first shakedown tests on the sluicing operation. A 2-1/2 ton lot of UO_3 was shipped to K-25 for processing and evaluation. Preparations for adding 100,000 gallons of lag storage between Redox and UO_3 were under way to permit decay of U^{237} activity.

Development activities have continued in the support of contactor design for Recuplex. Specifications for both pulse columns and stacked extractors are now available. Purex studies with CCl_4 diluent have been started in pulse columns and extensive corrosion studies are underway to determine the existence of a chloride corrosion problem during the nitric and recovery step. The Hot Semi-works was carried to 62 percent completion.

In the research laboratory, excellent HTU's and capacities were demonstrated for the Recuplex process in one-inch columns using double-faced plates. It has been determined that fission product decontamination decreases for acid-deficient scrub conditions. Resin coupling studies of 2BP streams with Dowex-50 show promise of providing a final plutonium solution of high purity and concentration.

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In the 234-5 laboratory, the coupling of Redox 2BP streams to 234-5 by one Pu IV oxalate precipitation shows promise. A project proposal for the engineering design and procurement for Recuplex is under preparation and will be submitted to the A & B Committee during March.

Analytical Unit

Use of Redox analytical methods and equipment during the month in support of process start-up runs indicated need for modifications or improvements in a few cases. It was noted that Saran tips on the sampling pipets caused a reduction of permanganate in oxidizer solution samples; Polythene and Teflon caused no such interference and one of these materials will be substituted. Routine operation showed that a faster radiodetermination of plutonium in IAW would be helpful, thus stimulating an investigation designed to eliminate the one-half hour polymer destruction period in the procedure. Interference from the high sodium content in measuring the pH of neutralized waste solutions led to the substitution of a volumetric procedure for determining excess caustic, and a search for suitable pH electrodes.

Capacity of the 222-S Building Analytical Laboratory to handle heavy Redox and UO_3 Process sampling schedules has been enhanced during the month by reduction to practice of important time saving procedures such as determination of uranium by density calibration and nitric acid by pH calibration, and by revision of the fluorimetric procedure for determination of low-level uranium. Installation of a second remotely operated primary sampling line in the laboratory during February should eliminate occasional instances of dangerously long delays in reporting results on priority samples.

The mass spectrometer and sample preparation equipment for the isotopic analysis of UO_3 were installed in the 222-S Building laboratory and will be available for routine analyses by mid-month. The procedure for determination of specific surface area of UO_3 was found to yield results that varied to some extent with the operating techniques; employing a procedure duplicating that used at Oak Ridge, close agreement with Oak Ridge results was obtained.

Microscopic examination of UO_3 showed that material of unsatisfactory properties and chemical purity produced at Hanford contained an appreciable quantity of reddish crystals whose properties closely resembled those described in the literature for uranium oxide hydrates. The hydrochloric acid-insoluble material, which was presumed to consist solely of U_3O_8 (based on Mallinckrodt Chemical Works' experience with purer product), was found to contain the reddish colored crystals; as a result, an alternate procedure for determining tetravalent uranium is being investigated.

Control laboratory analyses of UO_3 samples are indicated by precision of duplicates and material balance summations to be under good control, taking into account the fact that determinations requested on UO_3 samples have not comprised all significant components of the relatively impure material produced to date.

The G.E. mass spectrometer was introduced into routine service for analysis of P-10 materials after installation of an improved automatic focusing device. Subsequently, the mechanical magnet scanning device of the Consolidated mass spectrometer was replaced with an electromagnetic scanning unit

that provides more efficient operation. It is expected that this work completes all analytical research and development associated with the P-10 program.

Using uranium as a stand-in, precisions of ± 0.20% for duplicate x-ray photometric determinations of plutonium in plutonium metal have been obtained. The procedure is relatively simple and requires one hour of analytical time, as contrasted with a two-hour period required for analyses according to the presently employed volumetric method.

Examination has revealed the fact that the presence of beta radiation tends to decrease the alpha counting rate observed from an alpha-emitting sample. This effect is presumed to result from the strongly fluctuating background caused by the beta radiation. Quantitative evaluation of the error thus introduced in the radioassay of plant dissolver solution is now in progress.

Following an investigation of methods for eliminating interferences present in various process solutions, the program for determining the distribution of americium-curium in Bismuth Phosphate Process streams was completed.

The first quarterly report was received describing work carried out under a subcontract let to Reed College; a comprehensive literature survey is reported describing promising techniques for separating mixtures of radioactive elements into sub-groups, and the results of preliminary scoping experiments are presented.

Technical Services Unit

Equipment Design loads were very heavy during January. The month was largely devoted to preparation and installation of gloved boxes and remote control equipment for the Redox Analytical and Plant Assistance Laboratory, Building 222-S. The first "Analytical Line" has been in operation most of the month, although necessary adjustments are still being made. The second "Analytical Line" is nearing completion. Multicurie cell outfitting at the Redox Laboratory is continuing with the fabrication of various access panels. Protective coatings are being applied in the Head-End Treatment Cell.

The "Hanford Slave" manipulator, complete except for small adjustments, was photographed and final drafting is in process. These manipulators are being considered for use in the cells of the Radiometallurgy Building.

A remote cutoff device for metallurgy specimens, which was developed in the Mechanical Development Shops under RDA TC-5, is being tested. Development of techniques for making teflon seals and metal-to-ceramic brazing continued.

Procurement of materials for Phase II construction in the Redox Analytical and Plant Assistance Laboratory, Building 222-S, continued but no actual construction activity is in progress.

Formal notice to proceed with the design of the interior of the Mechanical Development Building in the Works Laboratory Area was issued January 3 to the Dix Steel Building Company. Under the terms of this contract the Dix Company will perform AE services in connection with the interior design (Phase II) for $17,000 and, if required, will provide field engineering services for an additional $5,500. The contract allows four months for design completion.

Concrete work has been completed on the footings and foundations for the Radiochemistry and Library and Files Buildings, but further construction is being held up pending the arrival of the structural steel. Footings and foundations for the Radiometallurgy and Pile Technology Buildings are virtually complete.

Excavation for the waste and utility lines for the Works Laboratory Area is progressing. The main water line from the 3000 Area is being installed. The exterior finishing of the Badge House is nearing completion.

Effective January 1, 1952, the Mathematics Sub-Unit was transferred to the Utilities and General Services Department.

O. H. Greager

Manager, Technical Section

OH Greager:dg

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February 7, 1952

PILE TECHNCLOGY UNIT

JANUARY, 1952

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VISITORS AND BUSINESS TRIPS

Visitor	Date	Address	Purpose
J. F. Eckel	1-11/15-52	KAPL	Consultation on graphite and metallurgical consultation
F. H. Croninger	1-11/15-52	KAPL	Consultation on graphite and metallurgical consultation
J. H. Manley	1-18-52	Univ. of Wash.	Consultation on physics problems
J. W. Ryan	1-18/23-52	GEL	Discuss irradiation on electrical installations
R. A. Koehler	1-21/23-52	GEL	P-10 Consultation
P. C. Gogiages	1-22/24-52	GEL	P-10 Consultation
T. J. E. Glasson	1-30/31-52	KAPL	Observe the design of hot laboratory
P. M. Boothe	1-30/31-52	AEC:Schenectady	Observe the design of hot laboratory

Name	Date	Place Visited	Purpose
P. F. Gast	1-3/4-52	WAPD	Consultation on reactor reactivity changes
J. E. Faulkner	1-3/4-52	WAPD	Consultation on reactor reactivity changes
	1-7/8-52	KAPL	Discuss cross-section measurements
	1-9/10-52	ANL	Discuss cross-section measurements
M. Altman L. E. Foster	1-7/8-52	Pacific Scientific Co. Portland, Ore.	Discussions on the design of an electric analog
R. M. Fryar	1-7/14-52	General Chemical Co. Tech. Serv. Lab.	Discuss water treatment problems

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Name	Date	Place Visited	Purpose
L. D. Turner	1-9/10-52	KAPL	Discuss radio-metallurgy laboratory facilities
	1-11-52	WAPD	
	1-14-52	ORNL	"J" Slug examination
R. J. Schier E. A. Eschbach	1-15-52	ORNL	Discuss new fuel element development program
	1-16-52	Battelle Memorial Institute	
	1-17-52	WAPD	
	1-18-52	KAPL and GEL	
	1-19-52	E.I. duPont deNemours	
	1-21-52	Brookhaven Nat'l. Lab. AEC:NYOO	
	1-22-52	Mass. Inst. of Tech.	
	1-23-52	Sylvania Electric Products Company	
	1-24-52	ANL	
	1-25-52	Ames Laboratory	
	1-28-52	Battelle Memorial Institute	
W. L. Schalliol	1-18/19-52	KAPL	Metallurgy of uranium
	1-19-52	Allegheny Ludlum Steel	Observation of uranium rolling
	1-16/17-52	Battelle Memorial Institute	Al-Si and creep Al investigations
W. T. Kattner	1-19-52	Allegheny Ludlum Steel	Discuss metal fabrication development program
	1-19/21-52 1-23-52	AEC:NYOO	

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Name	Date	Place Visited	Purpose
W. T. Kattner	1-24/25-52	Simonds Saw & Steel	Discuss metal fabrication development program
	1-26-52	Bethlehem Steel Co.	
J. W. Riches	1-24/25-52	Simonds Saw & Steel	Observation of uranium rolling
	1-26/27-52	Bethlehem Steel Co.	
J. W. Goffard	1-28/30-52	Aluminum Co. of America	Follow-up on ultrasonic wetting methods
	1-29/31-52	KAPL & GEL	
J. A. Berberet	1-28-52	KAPL	Discuss experiments with shielding materials
	1-29/30-52	Brookhaven Nat'l. Laboratory	
	1-31-52	New York City	Attend Physical Society Meeting
R. S. Dalrymple	1-29/31-52	GEL & KAPL	Corrosion discussion and attend Symposium on replacement of copper by aluminum
D. C. Pound	1-29/30-52	New York City	AEC Meeting on Scintillation Counting
	1-31-52	New York City	American Physical Society Meeting
R. S. Paul	1-29/30-52	Wash., D.C.	Scintillation Counter Symposium
	1-31-52	New York City	American Physical Society Meeting

ORGANIZATION AND PERSONNEL

	December	January
Physics	43	45
Pile Engineering	76	87
Metallurgy	67	61
Pile Applications	71	71
P-10	66	65
Administrative	14	14
	337	343

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Physics: A physicist was hired and one transferred to Pile Applications. A technical graduate transferred in from Radiological Sciences and one transferred in from Pile Applications Sub-Unit.

Pile Engineering: A chemical engineer transferred in from Project Engineering Unit; a chemist and a mechanical engineer terminated. Two chemists and one chemical engineer transferred in from Metallurgy Sub-Unit. Four technical graduates transferred in from Metallurgy Sub-Unit and two transferred in from Reactor Section, Process Unit. A laboratory assistant terminated, a new laboratory assistant was hired, and one transferred in from Metallurgy Sub-Unit. A technologist transferred in from Metallurgy Sub-Unit and a stenotypist transferred in from Office Services Unit.

Metallurgy: Two chemists, a chemical engineer, and four technical graduates transferred to Pile Engineering Sub-Unit. One technical graduate transferred to Technical Services Unit, one transferred from Technical Services Unit, one from Design and Development Unit, one from Power and Maintenance Unit, and one from Separations Technology Unit. One technologist and one laboratory assistant transferred to Pile Engineering Sub-Unit.

Pile Applications: A physicist transferred in from Physics Sub-Unit, an engineer assistant transferred in from P-10 Sub-Unit, a technical graduate transferred to Reactor Unit, and one technical graduate transferred to Physics Sub-Unit.

P-10: A chemical engineer and one laboratory assistant terminated. An engineer assistant transferred to Pile Applications Sub-Unit, a technical graduate transferred to Plant Utilities and General Services, and one technical graduate transferred in from Purchasing and Expediting Unit. Two laboratory assistants were hired.

Administrative: A general clerk terminated and one transferred in from Engineering-Accounting.

CRITICAL MASS

The laboratory building has been decontaminated insofar as is possible. All major sources of activity have been eliminated. Doors and other building openings have been sealed. This building and the surrounding area are being enclosed by a fence appropriately marked. It is anticipated that the area will be evacuated within the next month.

Work continued on the preparation of the final report on the criticality measurements.

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IMPROVED PILE STRUCTURE

Exponential Pile Experiments

Work continued on the facilities at 189-D. The isolated power supply for the counting equipment was connected to the area emergency power system. The noise level in this power source is higher than desired for accurate counting, but to date this has not been a serious source of trouble. An eight foot partition was erected separating the P-12 area from the adjacent corrosion studies equipment to prevent water damage in the event of tubing or fitting failures.

Counting equipment for the investigation of the neutron flux distribution across a slug and process tube has been set up and standardized. A preliminary measurement has been made by means of a short section of process tube, with slugs and water annulus, exposed in the Test Pile. Suitably placed gold foils gave a measure of the thermal flux variation through the assembly.

Equipment has been standardized and measurements begun in the seven-and-one-half-inch lattice spacing assembly. It is planned to make measurements of the neutron flux distribution by means of BF_3 counters, indium foils, gold foils, and fission counters in an attempt to find the cause of the discrepancy previously noted between measurements made with BF_3 counters and indium foils.

Calculation of the diffusion length of the Savannah River graphite using normal sigma pile harmonic corrections has been completed for the second source position, and a value of 57.5 cm. obtained. This should be more reliable than the value of 62 cm. calculated for the first source position, since the correction factors are very much less important, and the measurement in the second case was carried out over eight lattice units instead of four. This value is longer than that reported in HW-21793 from a sigma pile measurement of very similar graphite, but is shorter than the value obtained by image theory calculations using the same set of Savannah River measurements and reported in HW-23135. Neither discrepancy can be satisfactorily explained on the basis of present knowledge.

General Lattice Design

Work continued on the apparatus for the small scale production of Xe^{135} in the Test Pile. Considerable time was taken in eliminating minute leaks from the gas handling equipment. Minor alterations in design were made to achieve more reliable operation.

Work was also done on the design and procurement of equipment for use in the full-scale production of this isotope for the cross-section measurement at DR Pile. Responsibility for installation of the generator slug in the

pile and the metal lines to carry the sweeping gas to the experimental level has been tentatively delegated to the Special Irradiations group while the slug itself and data for the determination of shielding requirements will be provided by the Experimental Physics group.

The most promising methods for the assay of the Xe^{135} sample appear to be that of high geometry gamma ray counting by means of a NaI phosphor surrounding an aliquot of xenon and that of coincidence counting of the simultaneous gamma and beta rays emitted in the Xe^{135} decay process. Information regarding a possible angular correlation between the simultaneously emitted beta particle and gamma photon is required to evaluate the feasibility of this latter method of xenon assay. The necessary equipment for such a measurement has been fabricated and is ready for installation with the Test Pile apparatus.

The resolution of the crystal diffraction neutron spectrometer has been measured using NaCl crystals, giving the values below:

E (ev)	Δ E/E
10.0	1.01
1.0	0.31
0.1	0.095
0.01	0.025

The slit system which controls beam divergence is being redesigned to improve resolution. A crystal holder for the second axis of the spectrometer is being fabricated to allow limited use of the spectrometer as a double crystal type.

Work continued on the determination of C^{12} absorption cross section by measurement of the increase in relative C^{13} concentration in highly irradiated carbon. A sample enriched in C^{12} has been sent to Argonne National Laboratory for the measurement of its exact isotopic concentration by mass spectrographic methods. It is felt that the exposure necessary to obtain sufficient increase in C^{13} concentration is so great that a flux higher than that obtainable at Hanford should be used. The possibility of making this measurement in the Materials Testing Reactor at Arco is being investigated.

Large Scale Pile Structure

Detailed calculations on the control requirements for the "X" program have been completed and are reported in HW-23323. This report contains tables giving the region of control for various total amounts of control, effective radius of various control elements, the amount of control resulting from optimum arrangement of the different control elements, and the amount of control that can be obtained from the arrangements of elements that have been proposed.

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At the request of the Area Engineering group, an analysis has been made of the distortion produced in the front-to-rear flux distribution of the piles when a control rod is inserted. The purpose is to assist in determining the power densities at which various slug ruptures have occurred. The results obtained are in agreement with activity measurements for a particular case. The work will be described completely in a forthcoming report.

The possibility of measuring the amount of air removed from the circulating gas during the initial operation of a new pile is being investigated. Such a measurement would be helpful in the interpretation of critical buckling measurements.

Work continued on the build-up of heavy elements during pile operation. The principal difficulty arises from the choice of effective neutron cross sections for U^{235}, U^{238}, and Pu^{239}. Accurate measurements have been made for particular neutron energies, but the uncertainty in the energy spectrum of Hanford pile neutrons is so great that large errors in effective cross sections are possible. Calculations have been made of the activity in irradiated uranium which is due to U^{237}, as a function of accumulated exposure and power density. It was found that the principal mode of formation is from the (n, 2n) reaction on U^{238}. The concentration is almost independent of the total exposure and is proportional to the local power density at which the exposure occurs. The calculated activity is in agreement with the rough measurements which have been made on process samples.

Further attention has been given to the reactivity-temperature coefficients to be expected in a seven-and-one-half-inch lattice pile. The analysis which indicated a graphite temperature coefficient in a seven-and-one-half-inch lattice of the same sign but only half the amplitude of that in the present design was verified. The metal temperature coefficient was also calculated for the revised lattice. This coefficient turns out to be of the same sign and about 20 per cent greater magnitude than that observed in the present lattice.

SHIELDING STUDIES

Preliminary measurements of the gamma ray attenuation in Brookhaven concrete have been made in the test well at DR Pile, using graphite wall chambers and film detectors. Detector difficulties were encountered, requiring redesign of the chambers. The revised chamber has been fabricated and calibration plans are under way. Apparatus is also being assembled for measuring the attenuation of the high energy gamma rays from the $O^{16}(n,p)N^{16}$ reaction on pile cooling water.

Samples of magnetite and limonite concrete were irradiated in the Test Pile and measurements made of the reactivity effect and induced radioactivity in order to determine the effects to be expected with similar samples in the 105-Piles.

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Calculations have been made of the gamma and neutron flux to be anticipated in the proposed C Pile viewing room. Additional measurements are being taken at the H Pile water window so that the actual dosage rates can be more accurately predicted.

OPERATIONAL PILE PHYSICS

Enrichment Studies - C Pile

Studies to determine the most effective method of enriching the C Pile have been initiated. If specific power at C Pile is restricted to the same specific power as H Pile, reactivity histories during and following start-up of DR and H Piles indicate that about ten kg of U^{235} would be required to enable C Pile to approach H Pile power level at the point of minimum reactivity after start-up. This quantity of enrichment would also compensate for the enlarged water annulus. Other possible bases for enrichment are also being considered. The technical specifications for the enriched material have been determined and steps taken to initiate procurement procedures.

Long Term Gains Study

The equations describing the build-up of samarium 149 in the pile, and its reactivity effect, were put into a form suitable for IBM analysis and the various constants have been determined. The IBM analysis is now being done.

Instrument Development

Tube Temperature Recording Facilities: The IBM Summary Punch installation at DR Pile required some servicing and calibration during the month. A necessary redesign of several components is now underway. Equipment to provide accurate temperature calibrations has been designed and is being fabricated.

The A and B Committee has approved an appropriation of funds to procure and install Flexowriter equipment which will automatically record the exit water temperature rise for B Pile. Fabrication of auxiliary components at Hanford is 50 per cent complete as is the delivery of components being supplied by vendors. Installation of equipment, exclusive of the Flexowriter, will be initiated next month. Flexowriter delivery is expected on May 12.

Measurement of Neutron Fluxes in Hanford Piles: Preliminary scoping of the problems related to measuring the neutron flux in the Hanford piles has been completed. The initial work will be based on the interpretation, in terms of neutron density and neutron density changes, of induced radioactivity in appropriate isotopes. Basic equipment required for these measurements has been requisitioned.

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Diffusion Length Measurement - C Pile: The planning of the measurement for determining neutron diffusion length in the C Pile has progressed as anticipated. The techniques to be employed have been established and steps have been taken to procure the large amount of equipment required. The BF_3 filled proportional counting tubes have been designed and fabrication has started. A suitable polonium-beryllium neutron source is also available.

Ruptured Slug Detection: The completed installation of the water line to the near side water sample room at H Pile will allow efforts, designed to demonstrate the feasibility of using the scintillating crystal gamma ray spectrometer for ruptured slug detection, to progress. Preliminary measurements to establish background are in progress as are preparations for a uranyl-nitrate test.

Scintillating Crystal Gamma Ray Spectrometer: A detailed analysis of all the spectrometer components was made in an effort to improve the resolution. The resolutions obtained thus far ($\sim$ 13 per cent) are satisfactory for most applications but are somewhat poorer than the best obtained off-site ($\sim$ 9.5 per cent). Improved resolution is expected from refinements in the crystal geometry, the optical system, and the photomultiplier.

Test Pile Calibration: Analysis of the calibration data already obtained has been continuing throughout the month.

Several large discrepancies in the selsyn rod position indicator have been found by comparison of indicator readings with actual rod positions as measured with a precision cathetometer. Work on the BF_3 control system is progressing with the completion of the electronic control circuitry which is now being adjusted.

Preliminary results have been obtained for the density calibration of graphite.

GRAPHITE STUDIES

Pile Graphite - Distortion

The bore diameters of a tube channel at the F Pile and at the D Pile were measured during the month. The results showed the same erratic distortion of the process tube that has been measured and reported previously for many other tube channels. A summary of all process tube diameters measured to date will be presented in graphical form in the Technical Activities Report.

Pile Graphite - Sampling

Process tube channel 1585-D was mined and an attempt was made to remove core samples. This test was carried out in conjunction with the regular monitoring program.

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Pile Graphite - X-Ray Diffraction

X-Ray diffraction line shape studies are continuing on samples previously removed from various positions in the piles. The line shapes given by graphite samples irradiated in capsules in a cooled metal-loaded process tube are similar to line shapes observed for graphite samples irradiated in the cooled B Pile test hole. In contrast to this, the diffraction line shapes given by tube block graphite samples removed from the piles show a marked difference; this must be attributed to environmental differences between capsule or test hole exposure and exposure as moderator graphite at the tube block position.

Pile Graphite - Thermal Conductivity

Core samples removed from the tube blocks of the H Pile have thermal conductivities considerably lower than would be expected on the basis of correlations made with samples exposed in cooled test holes and at controlled temperatures. The accuracy of the measurements previously reported is being checked as a possible explanation of the difference; two experimental checks to date have failed to resolve the problem, and indicate that the core conductivity measurements are valid.

Graphite Exposures

Special TS graphite samples received from the National Carbon Company have been prepared for exposure in capsule and test hole locations. The capsule samples have been charged and test hole specimens will be charged within the month. Results from these exposures will determine the radiation properties of this grade of graphite, which is the most likely candidate for future pile use.

Controlled Temperature Exposure of Graphite

Excessive variations in the temperatures of graphite samples exposed in the B Pile between 100° C. and 250° C. necessitated readjustment of the temperature controls. It is not believed that these variations will materially affect the results from this important in-pile experiment; and in view of the risk of future fluctuations and the need for the data which will be obtained from this experiment, the samples will be discharged at the next shutdown. Exposure on these specimens will be approximately 500 MD/CT. A new series of samples will be charged immediately and a second facility is planned.

In-Pile Graphite Burnout Studies

Graphite specimens were charged in two process tubes at the F Pile to obtain weight loss data for exposures at temperatures of the order of 425° C. One stringer of graphite specimens was placed in an empty process tube channel

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in the presence of pile gas. The second series of samples was charged in aluminum tubes with pure gases flowing over the specimens. Samples will be exposed to pure carbon dioxide, pure carbon monoxide, and a mixture of five per cent carbon monoxide and 95 per cent carbon dioxide. The specimen s which had previously been exposed under these later conditions were removed. The erratic temperature history at the F Pile over the past several months will make interpretation of results very difficult.

Gas Reaction Measurements

Laboratory studies are continuing on the kinetics of reactions between carbon dioxide, carbon monoxide, and graphite. Studies made in a static system indicate that pile grade graphite does not catalyze the decomposition of carbon monoxide into carbon dioxide and oxygen at temperatures between 400° C. and 700° C. Similar static studies on the reaction rate between carbon dioxide and graphite at temperatures of about 900° C. are in progress.

Surface Studies

Surface area determinations are being made on samples removed from the same graphite bar to determine if the surface area is a homogeneous property. Three determinations on a WSF graphite gave comparable results. Micro-pore size distributions and surface area measurements of the TS graphite samples were made. The surface area is about 0.6 square meters per gram, which is about twice that of normal CSF graphite. The pore size distribution of TS graphite is similar in most characteristics with other artificial graphites; however, the initial measurement indicated the predominance of pores in the regions of 60 to 80 Å which may be characteristic of this grade of graphite.

Thermal Annealing

A review of the data accumulated from thermal annealing experiments is in progress and some empirical correlations have been made. It is anticipated that continuing studies of this nature will be valuable in assigning possible mechanisms to the phenomena of annealing.

HEAT STUDIES

Boiling Limits

Two documents recommending new boiling limits for the piles were issued during the month. They are "Boiling Limits", R. G. Vanderwater, HW-23251, and "Tube Temperature Rise Limits - Boiling Considerations", R. G. Vanderwater, HW-23284. The former document provides a discussion of the effects of boiling in a process tube and of the theory and experimental data upon which limits are based. In addition, it makes recommendations for permissible tube powers versus header pressures. The latter document presents the limits in terms of permissible

tube water temperature rise versus header pressure. The temperature rise data were presented since the tube powers are limited by temperature rise in practice. Under the recommendations the power levels of the DR and H Piles are expected to be increased an average of about three to four per cent. The B, D, and F Pile power levels are generally limited by graphite temperatures; no immediate change in the levels of those piles is anticipated.

Slightly different temperature rise limits are recommended for the B, D, and F Piles than for the DR and H Piles. This difference arises from the fact that different inlet nozzles are used on the respective groups of piles. For a given header pressure and Panellit pressure, the water flow through the tubes at the former piles is different from the flow at the latter. For a given temperature rise, the tube power varies with the water flow.

Allowances are made in the new recommendations for changes in inlet water temperature, for tube elevation in the pile, and for film build-up in the tubes. The general net effect of these allowances is to permit slightly higher power levels than have been permitted in the past.

Panellit Time-Delay Relay

Additional data on the performance of a time-delay relay in the Panellit circuit of the B Pile have been obtained. The relay has now been in operation, with the delay time set at three seconds, for a period of 39 days. During the initial portion of the period, the relay was used only to record data. Since January 14, 1952, the relay has been connected into the No. 2 Safety Circuit. No emergency shutdowns or unusual difficulties were experienced with the relay during this 39-day period.

The relay was "function-tested" while shutting down for a ruptured slug on January 26, 1952. A Panellit gauge was purposely tripped in order to actuate the time-delay relay. After the Panellit circuit was held open for three seconds, the relay successfully caused the pile to be shut down.

The original production test authorized use of the relay in the No. 2 Safety Circuit. A supplement which authorizes use of the relay in the No. 1 Safety Circuit has been issued. It is anticipated that the change will be made in February.

An additional ten relay units have been procured. Two units will be installed in the Panellit circuit of each pile as soon as necessary electrical changes have been made. Two relays are to be used in parallel at each pile so that a failure of one will not result in an unnecessary shutdown.

Process Specifications

Process specifications covering the heat transfer aspects of pile operation were completed and issued during the month. The specifications are contained

in "ROUGH DRAFT - Process Specifications - Irradiation of Uranium and Other Materials in the Hanford Piles", G. E. McCullough, HW-23279. Specifications are given on (1) water flow reductions and shut-off following pile shutdown, (2) permissible tube power limits based on boiling considerations, and (3) cooling requirements for the control rods and thermal shields.

Scale Formation on Slugs

Slug surface temperatures depend, among other things, on the thickness and thermal conductivity of the scale which is formed on the jacket surface. Experiments are in progress to determine the temperature effect of this scale.

The experiment consists essentially of two parts: (1) scale is formed on a surface with ordinary process water at approximately the temperature encountered in the pile and (2) tests are conducted on the surface to determine the thermal resistance of the scale.

At the present time insufficient data have been obtained to draw conclusions.

WATER STUDIES

105-D Flow Laboratory

The 105-D flow laboratory was placed in operation during the month. The test to determine the optimum pH for dichromate-free process water is now in operation. Dichromate-free water with pH values of 6.2, 6.7, 7.2, and 7.7 is being supplied to two mock-up process tubes, with one tube operating at 95° C. and the other at 65° C. Some operational difficulty is being encountered with the equipment. The principal difficulty is with the acid addition system and with excessive iron pickup. No significant data are yet available from the tests.

Fundamental Film Formation Studies

The film test apparatus was also placed in operation during the month. The first run with this apparatus utilized process water with an average Reynold's Number of 40,000 and an outlet temperature of 80° C. It is hoped that this and subsequent experiments will give a more complete understanding of the fundamental aspects of film formation. To date the test has not been in operation sufficiently long to reveal any significant trends.

Production Test 105-473-P - The Use of Commercial Aluminum Sulfate for 100 Areas' Process Water Coagulation

The activated silica and alum tests at 100-F Area continued during the month. Filter capacity tests were started and it was found that by the use of activated silica as a coagulation aid a filter rate of 4.45 gpm/sq. ft. could

be obtained for this period of the year compared to a filter rate of 2.36 gpm/sq. ft. for ferric sulfate treated water. Because of the hydraulic limits of the filters, it appears this value is probably the maximum which may be obtained. This value may decrease as the river water turbidity increases during the coming months.

An erratic increase in fringe zone Panellit pressures at the F Pile was noted during the month. This erratic increase in the fringe zone tubes was accompanied by an increase in effluent pile water beta activity. The increase followed a diatomaceous earth purge which immediately preceded the start of the activated silica addition. Although no firm explanation of the sudden and rapid increase in Panellit pressures is available, it is suspected that the increases are caused by the purge material. Considerable cross header strainer plugging was noted during the purge, and it is believed that this material slowly washed through the strainers and was plated out in the low velocity tubes. No Panellit increases have been observed in the central zone tubes.

Sodium Dichromate Elimination Tests

The sodium dichromate elimination tests at the H Pile continued during the month. It is planned to circulate a supplement to the Production Test which will authorize premature discharge of the four experimental tubes at the March outage. It is felt the experiment should be discontinued as soon as reliable corrosion data can be obtained from the test.

Corrosive Effects of Heavy Metal Ions on Aluminum

The heavy metal ion tests continued during the month. Recent data indicated an increase in corrosion rates due to heavy metal traces; no significant differences in corrosion rates were found between trace concentrations of copper, silver, chromic, lead, or stannous ions. In the presence of these trace elements, 2S aluminum appears to undergo a uniform rate of attack, while the 72S aluminum is subject to the pitting type of attack.

High Temperature Corrosion Test

The high temperature corrosion test was shut down during most of the month. The shutdown was necessitated by a severe loss of heat exchange capacity which resulted when the exchangers became excessively fouled with calcium carbonate. The corrosion data from this test indicate rates of attack about one-tenth that normally found in process water. It is not yet known whether this lower attack is due merely to removing the calcium carbonate from the water or whether it results from an accompanying pH change.

Other Corrosion Tests

The construction of the 50-tube corrosion mock-up is partially complete, and it is expected that this facility will be placed in operation during the coming month. The induction heating facility has been in operation during the month.

Calibration tests to determine slug surface temperatures and heat rates have been completed. The first long term corrosion tests with this facility were begun on January 28.

Chemical Removal of Film

The apparatus for testing various chemical purging agents is now operating in the 105-H sample room. This apparatus will determine both the film-formation-inhibiting properties and purging properties of various chemical solutions. No significant data are yet available. The weighed tube apparatus continued in operation during the month with no significant change in operating characteristics.

Recirculation

Installation of the experimental recirculation facility in the 105-F flow laboratory was completed during the month. The system has been flushed and tested for leaks and capacity. The first test using steam condensate with a total solids content of about six ppm was begun on January 28.

A request has been made for authorization to purchase and install demineralization equipment which will be used with the laboratory recirculation facility. The laboratory tests and the deionization equipment will determine if this treatment is necessary for pile use.

MECHANICAL STUDIES

Charging and Discharging Program

As reported previously, it is not possible to backseat a charge of slugs with full water flow in the tube. An X-ray study was made to determine why the slugs cannot be backseated. These X-ray pictures, taken both vertically and horizontally, showed the slugs to be badly misaligned in the tube. Some were raised up at one end only, while some were up against the tube along their entire length. Since four-inch slugs were used in the first case, the test was repeated using eight-inch pieces. Similar X-ray pictures showed the eight-inch pieces to be cocked also, although not so severely as the four-inch ones. This study will be continued as soon as a more suitable commercial X-ray machine is obtained. The machine used to date has been borrowed from the Medical Department and is not well adapted to this work.

It has been suggested that this slug cocking phenomenon may be present, in some degree, in the piles; and if so, it may be a contributing factor in slug ruptures. Pictures of ruptured slugs, where the failure was in the side of the can, indicate that the can may have been in contact with the tube which might have resulted in a local "hot spot". X-ray studies

are to be made of tubes charged under conditions similar to pile conditions to determine to what extent cocking may be occurring in actual pile tubes.

Horizontal Control Rods

Study is continuing on the horizontal rod gland seal for the C Pile rod. The most satisfactory combination tested to date employed rubber "O" rings and CS graphite bearing blocks. This combination was tested through 20,000 cycles with fairly good results. It appears that if it were possible to lubricate the rod, the seal would operate more satisfactorily but no lubricants are known which will stand up under the prolonged irradiation to which the horizontal rods are subjected.

Construction of the full-scale horizontal rod mock-up is being resumed since the necessary drive equipment has been removed from the B Pile and the C Pile prototype parts have arrived.

Vertical Safety Rods and Third Safety System

Testing of the VSR shock struts for the C Pile has continued. It has been determined that a 0.336 inch orifice in the piston will decelerate the free falling rod in 5.56 inch distance. The maximum deceleration was approximately 200 g's at the instant of impact. This high rate of deceleration stresses the pins in the rod assembly beyond a safe working limit. This can be corrected by use of a variable orifice or additional pins.

A graphite erosion test is in progress to determine the extent of graphite damage resulting from repeated use of the 3X balls. This is of special interest if a ball 2X is to be considered.

Studies are continuing on the best possible lubricants for use on the VSR seals. The installation of a "Molykote" lubricated silicone seal was scheduled for January 28 at the D Pile but the installation had to be postponed because of a broken section in the flexible rod. Samples of silicone rubber containing five per cent "Molykote" have been received. These will be tested to determine if compounding the rubber with this dry lubricant will reduce its coefficient of friction to a point where it will not require external lubrication.

Some difficulty is being experienced by the vendor who is fabricating the boron steel balls for the ball 3X systems. Inspection of the balls indicates a considerable amount of cracking as a result of the cold heading operation. Dropping tests conducted with samples of these cracked balls indicate they will not fracture during use as a result of these flaws. These tests consisted of dropping the balls 40 feet on a steel plate ten times. It appears that if the nickel plate covers these cracks so as to prevent corrosion, the balls will be acceptable for use.

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Slug Damage Tests

The in-pile slug rib damage tests, Production Test 105-468-P, originally provided for charging 12 charges of metal through the F Pile under different conditions. Nine of the 12 planned charges have been accomplished but, because of scheduling difficulties, the remaining three have not been done. During a recent start-up at the F Pile, it was necessary to discharge five charges of green metal to load poison columns. These five charges will be substituted for the remaining three on the planned test. Comparisons are to be made between the microscopic method used for measuring depth of scratches on this test and the dial gage method used during the inspection of pieces in the 300 Area manufacturing process. Maximum scratch depth measured to date during this test has been 12 mils.

Process Tube Assembly Distortion Tests

Tests are continuing to determine the nature of the operational difficulties which will result from continued growth of the graphite at the front and rear of the piles. Results to date indicate the bowing of the tube in the gun barrel will not seriously hinder the passage of slugs so long as the graphite block does not fracture at the end of the gun barrel. Further tests will be run on the 305-A mock-up since it most closely simulates actual pile conditions.

Rear Face Television Monitoring

Orders have been placed for the rear face television equipment and delivery is expected during March. The designs for these tests are approximately 75 per cent complete.

METALLURGY OF URANIUM

Fabrication

An experimental lot of uranium rods obtained from billets that had been rough-rolled by Allegheny-Ludlum Steel Corporation and finish-rolled at temperatures of 508° C. to 615° C. in a continuous mill at the Bethlehem Steel Corporation are being evaluated. X-ray diffraction data indicate a definite trend toward a lower degree of preferred orientation with an increase in the rolling temperature. Further tests have been arranged to determine the conditions desired for an experimental rolling of 30 tons of metal for Hanford at Allegheny-Ludlum and Bethlehem Steel during the month of February.

Four tons of Simonds rolled uranium rods were beta heat-treated at the Lackawanna mill of the Bethlehem Steel Corporation. The rods were immersed, without agitation, from six to ten minutes in a salt bath at various temperatures in the range from 710° C. to 750° C. and were then water-quenched.

The long immersion time was to assure transformation of the rods. A production test for irradiation of this material was written.

Two powder metal compacts that had been produced from metal previously tested in the 305 Pile were received from Sylvania. Results of the 305 Pile test indicate that no appreciable contamination occurred during the processing of the Hanford slugs into powder metal compacts.

Mechanical and Physical Properties

A yield strength of 36,000 psi (0.2 per cent offset) was obtained for beta-transformed uranium tested in compression as compared to the 30,000 psi yield strength obtained in tension.

The coefficient of thermal expansion of as-rolled and beta-transformed uranium is being determined on a large number of samples. When samples become available, differences in expansion characteristics which are caused by changes in rolling temperature will be determined.

Thermal cycling test equipment, in which the uranium is heated in a vacuum by passing an electric current through the sample, was designed and constructed to provide information concerning the dimensional instability of uranium.

Alloy Program

Work was continued on the investigation of uranium-chromium alloys and of uranium-aluminum alloys. Several melts were cast for an experimental study of rolling and heat treating of these alloys.

METALLURGY OF PLUTONIUM

An informal request for alterations to the 234-5 Metallurgical Laboratory was forwarded to the Atomic Energy Commission after approval by the Appropriation and Budget Committee. The alterations will provide a permanent X-ray diffraction laboratory, a room for the metallograph and the Tukon hardness tester, office space, improved darkroom facilities, and space for installation of laboratory furniture.

Preliminary design is underway to provide an inert atmosphere in the metallurgical laboratory hoods, a contamination barrier between operating and maintenance areas, and certain alterations to provide adequate security for plutonium metal in the laboratory.

X-ray diffraction data for a sample of 70-58 fluoride powder indicate that it is isomorphous with $CrF_3 \cdot 4H_2O$. The crystal system is pseudo cubic with a_o approximately equal to 16.4 Å.

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All equipment for the vacuum type interferometer has been completed. In a trial run made in air, excellent photographic records of the moving fringes were made on 35 mm. film.

METALLURGY OF HANFORD STRUCTURAL MATERIALS

Aluminum Alloys

Tests on four cast slugs of 63S aluminum alloy in the 305 Pile indicated that the inhour losses were about equal to the maximum tolerated in 2S alloy slugs tested in the same manner. Work is progressing toward the completion of tensile and metallographic specimens for testing the effects of irradiation on the age hardenable 63S alloy.

A study is being made of the feasibility of substituting an alloy of magnesium and high purity aluminum for the 2S aluminum alloy presently in use. Although the tensile strength of these alloys increases with the magnesium content, above 2.5 per cent magnesium, the workability and weldability characteristics are poor. By taking advantage of the fact that the presence of silicon as Mg_2Si substantially increases the workability and weldability of aluminum-magnesium alloys, it is hoped to obtain suitable alloys containing up to five per cent magnesium. The addition of silicon may also improve the resistance of these alloys to corrosion in process water. A series of aluminum-magnesium alloy rods were made up by casting and hot working. Although some difficulty was experienced in hot-working the five per cent magnesium alloy, it is felt that this condition can be corrected with proper working techniques and suitable adjustment of the silicon content.

Process Tubes

To determine the effects of operating temperatures on the mechanical properties of process tubes, tensile specimens of 2S-H14 aluminum were heated at temperatures up to 250° C. and held for different lengths of time. It was found that the yield strength, at 0.2 per cent offset, of the samples did not drop below 20,000 psi until after 24 hours at 150° C., six hours at 200° C., and one hour at 250° C.

CORROSION

100-Areas Corrosion

Although the examinations of process tubes from the wet zone of F Pile are not complete, it was observed that there existed on the outside of the length of tube in the rear face gun barrel a continuous, firmly adherent film of corrosion product. On the portion of the tube extending from the gun barrel

to as much as six and one-half feet into the graphite, there existed a film of corrosion product and evidence of pitting attack. On nearly all of the Van Stone flanges received for observation, defects, cracks, and pitting attack were present. No evidence of serious corrosion was noted on the interior of the tubes.

Results from the recent examination of seven process tubes from 105-F have been summarized in a progress report, Document No. HW-23342.

A study was made of the 200-unit slug pallets for the eight-inch slugs. These pallets, constructed of plywood and masonite, appear to be ideal for canned slug storage because their open construction allows air to circulate around the slugs. Laboratory tests have been started at 27° C. and at high humidity to determine the corrosive attack on slugs in contact with unpainted plywood and the suitability of selected liner materials.

Flow cup corrosion data on eutectic aluminum-silicon alloy with varying impurity content in process water are being evaluated. Although the preliminary results indicate that tin contents up to 2.6 per cent result in approximately the same rate of attack as observed on virgin Al-Si; no valid conclusion can be drawn at present since there was a wide variation in the corrosive attack upon different samples containing the same amount of tin. At present the samples are being analyzed to determine whether some other constituent in the alloy could account for the discrepancies noted in the data.

Three cold-canned (unbonded) slugs of aluminum-jacketed aluminum-uranium alloy, similar in composition to "J" alloy except that normal uranium is present rather than U^{235}, were exposed to pile process water at 20° C., 70° C., and 90° C. for an 1176-hour period. To determine the effect of moisture penetration into the slug, four holes were drilled into each can. Visual examination of the three slugs and preliminary measurements indicate that no swelling of the cans occurred during the test period. The jackets were covered by a uniform film but no pitting was observed.

The corrosion of 2S-H14 aluminum coupled to graphite was determined for varying times of exposure in tap water at room temperature and under reflux at boiling temperature. It was noted that all the specimens in the room temperature tests exhibited signs of pitting and blistering, whereas the specimens in the boiling water tests were subject to general attack.

200 Area Corrosion

Samples of plate representing one heat of ferritic chromium stainless steel, Type 430, corrosion tested in the as-welded and welded-annealed conditions, showed good corrosion resistance in Redox process streams under a number of exposure conditions. On the basis of tests in boiling 65 per cent nitric acid, this steel exhibited corrosion resistance inferior to that of an austenitic chromium-nickel stainless steel, Type 347.

Corrosion tests for the 200 Area metal waste storage facilities continued during the month. Specimens of AISI 1010 steel exposed in a boiling synthetic metal waste solution have shown evidence of minor attack after 96 hours exposure.

CANNING DEVELOPMENT

Eight-Inch Canned Slug Program and Frost Test

Approximately 6000 eight-inch slugs have been canned in the thick-walled cans. Production was delayed while conditions for a satisfactory frost test were being determined. Sufficient reject slugs were frost-tested to fix 38 KW power and a track speed of 5.2 inches per second as the conditions required for a usable test at 9600 cycles. The test was checked by destructive examination of many slugs rejected because of failure to pass the frost test or for other reasons. The slugs that had been made on a production basis and previously tested at 42 KW were re-tested at 38 KW. About 35 per cent of these pieces showed melted areas indicative of a fractured compound layer near the caps. About five per cent showed the diffuse melted area that is characteristic of an eccentrically canned slug.

Eight-inch production slugs now show about five to nine per cent frost test rejects, the majority of which are fractured bonds near the cap. Several methods of slug facing and slug welding were used in an effort to minimize mechanical torque and thermal stresses and thus reduce the number of these rejects. These fractured-end rejects are revealed after welding but not after facing. This, however, does not mean that the bonding layer, facing, or the change of can wall thickness and cap thickness are not the cause of the rejects since conditions favoring fracture of the bond may be introduced prior to welding.

Eight-Inch Slug Welding

Tests on welding of the eight-inch slugs at high amperages indicate that it may be possible to produce a satisfactory weld for these slugs at two passes at six rpm and approximately 135 amperes as well as at three passes at four rpm and 85 amperes, the current practice.

New Fuel Element Development

A tentative program for the basic investigations of uranium-aluminum bonds obtained by hot pressure canning has been set up. An evaluation of the effects of the following variables on the bonds will be made: time, temperature, pressure, slug and can surface, and atmosphere.

One sandwich of aluminum-uranium-aluminum was made. Two solid dies, one split die, and a vacuum die were designed and are being fabricated for experimental hot pressure canning.

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The bonding layer between the aluminum jacket and the uranium slug formed by hot pressure canning technique was studied by the X-ray powder diffraction method. Eight layers of the bond gave identical patterns and were interpreted to be UAl_3. Other possible components were not present in sufficient quantitites to be detected by the powder method.

Hydrogen in Al-Si and 2S Aluminum

Careful analyses of Al-Si samples from the canning and dipping pots have shown only 1.3 ppm of hydrogen present. The average recorded relative humidity near the Al-Si pots, during the period these samples were taken, was twenty per cent.

Salt Bath Heat Treatment

Preliminary production runs of uranium slugs in a salt bath indicated the need for better control of agitation in the bath to insure complete transformation. The necessary equipment is being procured by the Metal Fabrication Section.

Penetration Etch

Tests were made on the effects of acid concentration, acid temperature, and immersion time on the etching of the Al-Si. Details will be reported in Document HW-23229.

High Tin Content Slugs

Slugs with high tin content in the braze were exposed to the atmosphere at 500° C. for periods up to four days. During this period no slugs exhibited evidence of distortion or blistering. This is preliminary work in an attempt to confirm the mechanism of slug blistering suggested by experience at the Oak Ridge National Laboratory.

Corrosion of Materials in Molten Al-Si

A ceramic-coated steel plate and Hastelloy "C" were tested in a molten Al-Si bath for a period of 16 hours. General attack of their surfaces was found and it was concluded that those materials were unsatisfactory for use as tongs or slug baskets. The fabrication of the low carbon steel tongs has been completed in preparation for use in the canning line.

Canning Process Mechanization

The main drive shaft of the prototype canning machine, which seized in the initial test, was freed, and a satisfactory lubricant was found and tested in subsequent trials. An attachment was added to prevent adherence of Al-Si to the capping tongs.

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A table model of a mechanism to effect either lead-dip pre-heat or Al-Si dip treatment of slugs and their subsequent transfer and insertion into sleeve-encased cans in the canning machine has been completed. A full-size working model of this mechanism is being developed.

Process Specifications

The rough drafts of the Al-Si and Unbonded Canning Process Specifications have been completed. Final revisions will be made as soon as comments are received from the Manufacturing Department.

Process Changes

Four process changes pertaining to 313 Building operations were issued. The changes relate to percentage of silicon temperature of the Al-Si canning pot, frost test calibration, sleeve-can submersion time, and tin dip time.

RADIOMETALLURGY

Irradiated Slug Studies

A report, Document No. HW-23351, which describes the types of failure that were observed on the first hundred ruptures shows that the type 1 (cap) rupture has accounted for 38 per cent of the total.

One hundred sixty-one normally discharged slugs were examined through underwater viewers. Sixty-three of those examined were canned in August, 1950, and the rest were canned in March, 1951. Approximately 40 per cent of the slugs showed evidence of weld corrosion, 40 per cent exhibited donuts, and 15 per cent were rippled. The one warped slug which was found was shipped to 111-B for further investigation.

Equipment

The equipment that is necessary to strip the cap and portions of the jackets from irradiated slugs has been completed and set up in the 111-B Building. Equipment for removing the water from the canned ruptured slugs, examining the entire rupture, and recanning the failures was designed, and construction of the equipment was completed.

The semi-automatic device for canning ruptures in tin cans was received. It will be modified to accommodate the special cans required in the dry storage unit.

Two aluminum single crystals were grown in the laboratory for use to decrease the intensity loss suffered in the second diffracting position of the double crystal X-ray spectrometer.

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Pile Technology Unit [redacted]

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TRITIUM PRODUCTION

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TRITIUM DEVELOPMENT

Process

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Engineering

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SPECIAL IRRADIATIONS

High Pressure Water Channel - ANL-M-140

The behavior of water, prototype fuel, and structural materials is being investigated under conditions simulating those of the Shipboard Thermal Reactor as closely as is possible in the Hanford Piles. Operation during January was routine.

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 on January 26.

Fission Chamber Life Test - DPW-M-101

A life test under pile conditions is planned to evaluate the possibilities of using fission chambers for monitoring pile neutron flux. The instruments and auxiliary equipment have been received and the charging schedule is being arranged.

Creep Test of Fuel Pins, KAPL-M 105 - Production Test 105-400-P

The third Knolls Atomic Power Laboratory fuel pin creep assembly was charged into the F Pile on January 27 and is performing satisfactorily. No indication of creep had been detected at month end.

Electrical Resistivity Measurements of Cu_3Au, 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 electrical resistivity of the ordered specimen has increased indicating that it is becoming disordered while that of the disordered specimen has decreased slightly indicating that a certain amount of ordering may be occurring.

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

A continuous measurement of thermal conductivity of uranium-zirconium alloy is to be made under pile irradiation. Charging of the test slug has not been possible because of operational difficulties at the assigned pile.

Heater Test for Graphite Thermal Conductivity Determination, KAPL-M-109

This test will check the performance of two types of heaters which have been proposed for use in a test for the continuous determination of graphite conductivity under pile irradiation. The slug assembly and associated equipment have been received and tested and a production test prepared.

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

An additional set of four samples has been prepared and will replace that now being irradiated in the B Pile at the next shutdown. A second set is being redesigned to provide individually controlled heaters.

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 annulus tube facility is being fabricated for the initial low temperature tests.

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. Design work is continuing on the slug and associated equipment.

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

A production test has been written for charging a uranium slug containing a central thermocouple to measure the effect of film build-up, amount of heat generation after shutdown, and effect of water shut-off after pile scram.

One thermocouple slug and three annular slugs have been canned, machined, frost tested, and are being autoclaved.

Controlled Gas Atmosphere Experiment, Project C-410

Various repairs and revisions are being made in the test equipment prior to installation on the X-1 level of the DR Pile. The gas equipment will be used to investigate the equilibrium reactions of various gases with graphite samples exposed in the pile under carefully controlled conditions. It will then be used to investigate the rate of reaction between the gases which show a change in their composition when exposed to graphite under neutron bombardment.

This gas analysis system is being revised, repaired, and checked for leaks prior to installation on the X-1 level of the DR Pile.

A special test-hole facility will be installed to maintain a constant temperature in the graphite sample containers. This has been received from the General Engineering Laboratory but was found to have a short in the wiring system. A preliminary study is under way to determine the best way to correct this defect.

The welding difficulties in fabricating the graphite sample containers have continued and no completely satisfactory holder has been made.

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An analysis of the possibility of using a gas thermal-conductivity cell for the determination of N_2 or He in the pile gas is being made.

Status of Special Irradiations

Monthly statistics on the Special Request Program are tabulated below:

P-10-A pieces charged	85
P-10-A pieces discharged	152
P-10-A pieces being irradiated	251
Special Request Samples charged	8
Special Request Samples discharged	54
Samples on hand awaiting charging	183
Samples now being irradiated	434
Samples awaiting shipment	24
Samples shipped during January	64

B Hole Test Facility Reactivation

An attempt to remove the six stuck samples in B hole test facility was partially successful in that two samples (and possibly, a third) were removed on the January 23 shutdown. The facility has been left dry pending further sample removal attempts and repairs.

Irradiation of Ten Per Cent Lithium-Aluminum Samples, DPW-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. One tube was discharged after an exposure of 270 MWD and decay and gamma energy data are being determined for a central piece. The pieces are to be examined for warp resulting from pile exposure.

Pile Neutron Flux Investigation

Mound Laboratory has determined the polonium content of two irradiated columns of bismuth slugs by calorimetric methods.

Remotely-Operated Test Hole Facility

General design requirements and a suggested schematic layout have been prepared for a proposed remotely operated test hole facility at C Pile.

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PROCESS CONTROL

Pile Operations

B, D, F, and H Piles maintained average operating conditions during the month. The F Pile water leak has decreased considerably since the December shutdowns when all tubes were pressure tested. Present water removal rates of approximately ten gallons per day are diminishing to the rates normally expected.

A severe water leak at DR Pile on January 7, 1952, following a slug rupture in Tube 3763-DR, continues to limit the pile power level by severe distortion of the flux distribution. The estimated 250 inhours absorbed by the water has been largely compensated for by discharge of most of the permanent flattening loading. Transient operation has been handicapped by such severe shadowing of control rods by the wet zone that more than one temporary poison push per shutdown has been required for recovery to the maximum power level possible. The situation has been further aggravated by two additional ruptured slug outages since the leak occurred. Approximately two weeks elapsed before appreciable rates of water removal were obtained. The present rate of water removal is 20 to 25 gallons per day.

Of the 20 ruptures which occurred between January 1 and 31, nine were discharged easily and 11 were stuck.

Production Test 105-435-P, which is being conducted to determine the density change from graphite oxidation (burnout) as a function of graphite temperature and exposure, is continuing. New samples were charged on January 18 with a scheduled change in graphite temperature limit. A previous temperature limit of 415° C. has been relaxed to a maximum of 450° C. The 410° C. limit on graphite, "C" test hole, and thimble thermocouples has been relaxed to a maximum of either 410° C., or the maximum existing temperature on the burnout samples, whichever is higher. The maximum sample temperature for the last operating period of Production Test 105-435-P can thereby be attained.

Unusual Operating Conditions

The following unusual operating conditions of general technical interest occurred during the month.

Two of the ruptured slugs which occurred at the DR Pile during the month were not detected by the beta water monitors.

After the startup on January 19, it was observed that the thermocouple on Tube 4076-F, which monitors outlet water temperature, was indicating temperatures about 10° C. higher than those on surrounding tubes. Inlet tube pressure was normal, and instrument checks of Panellit pressures and thermocouple

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RUPTURED SLUG DATA

Tube No.	Date of Failure	Days in Pile	Canning Date	Tube Power at Failure	Position In Tube (From (Front)	Type of Failure
1471-DR	1-3-52	239	4-12-51	374 KW	*	——
2582-B	1-6-52	278	2-23-51	348 KW	*	Cap
3763-DR	1-7-52	243	4-23-51	362 KW	4.8	Compound Cap
3686-B	1-10-52	324	2-5-51	269 KW	*	Cap
2585-F	1-11-52	275	3-8-51	304 KW	42	Compound Cap
0978-DR	1-11-52	179	6-23-51	349 KW	44	Split
1166-F	1-12-52	249	4-17-51	401 KW	48	Compound Cap
0864-D	1-13-52	270	1-9-51	318 KW	*	Cap
2462-D	1-15-52	272	4-3-51	342 KW	*	Compound Cap
1560-DR	1-16-52	252	4-11-51	353 KW	30	Split
2961-B	1-16-52	245	4-5-51	247 KW	15	Compound Cap
2562-F	1-17-52	291	2-27-51	359 KW	22	Split
2669-B	1-25-52	254	4-28-51	342 KW	*	Cap
0860-B	1-25-52	352	12-26-50	249 KW	35	Compound Cap
2082-F	1-27-52	263	4-14-51	386 KW	48	Cap
2787-D	1-27-52	326	**	291 KW	28	**
2076-DR	1-28-52	236	4-30-51	356 KW	*	Cap
2777-D	1-30-52	252	***	335 KW	*	***
0770-F	1-30-52	134	8-23-51	354 KW	43	Split
0666-F	1-30-52	343	1-23-51		*	Cap

* Position not known
** Stuck in tube
*** Pushed into chute gate with other metal

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e.m.f. verified the readings. A continuity check of the thermocouple leads showed normal resitance between the thermocouple leads, but the circuit was open to ground. This would indicate that the juction is no longer attached to the wall of the thermocouple well, but no explanation can be given for the rather large relative increase in the e.m.f. of the thermocouple.

Ruptured Slug Correlation: Ruptured slug data include confusing variations because of changing parameters of operation during 1951. The power levels have been raised from 25 to 60 per cent in the various operating areas. Exposure levels were increased 50 per cent. Group VIII metal replaced much of the Group VII metal in the 240 and 285 orifice zones when the Group VII metal reached exposure level and was discharged. To add further complication, at least two distinct mechanisms of failure are apparent. Despite these variables, sufficient data are available to determine the conditions most favorable to slug rupture.

An exponential increase of rupture rate with exposure is indicated by preliminary work. The frequency of ruptures showing uranium cleavage increases exponentially with tube power at a much greater rate than that for ruptures showing only damaged cans. A comparison of the performance of Group VII metal and Group VIII metal is being made.

Thorium Program

Most of the thorium now in the piles will be discharged during February to meet the initial offsite request. During the month, the in-pile inventory of thorium dropped to approximately 1000 pieces. Reactivity losses from large metal pushes and from the DR water leak were compensated for by discharge of thorium.

All P-10 material which will have an exposure in excess of on or before March 1, 1952, will be released for processing. The low-exposure and unexposed material will be used to provide flattening flexibility to the extent of inhour maximum to be distributed among all the piles as required. The bulk of the reactivity used for flattening will continue to be invested in thorium. A total permanent inventory of 1000 thorium pieces divided between the five piles is considered the maximum amount which is consistent with reasonable flattening flexibility and with U^{233} production.

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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Pile	B	D	DR	F	H	Totals
Control Rod Excess (inhours)	140	155	91	148	180	
Xenon	665	663	616	691	710	
"B" Program	110	99	100	90	100	499
Dummy Columns	10	41	35	79	5	170
"P" Columns	0	0	0	0	0	
Hot Reactivity	1269	1350	1006	1317	1350	
Co Allowance	-360	-416	-200	-449	-228	
Cold, Clean Reactivity	909	934	806	868	1122	

The cold, clean reactivity for DR Pile was reduced by water in the pile. Otherwise, the light phase of the metal-discharge cycle would be reflected by a high cold, clean reactivity. H Pile is nearing the peak of its reactivity cycle at this time.

Lattice Conductance: Calculations of the lattice conductance at D Pile are now being made with the assumption that the power level along the front-to-rear axis of the pile is a cosine distribution and with actual flux traverses obtained from radiation measurements of numbered solid aluminum dummies. Dual calculations are carried out for comparison purposes, but future calculation will probably be based on actual power distribution as closely as this can be measured. If a substantial reduction in the scattering of the data results from this application, this method will be adopted at the other piles.

Water Leaks: A study of existing methods of drying the pile after a water leak is being made. The present method, operating the pile, leaves the interior of the wet zone at low temperatures and with very little heat generation. The seriousness of the corrosive attack on the outside of the process tubes under these conditions at F Pile suggests that more rapid removal of water would be desirable. A proposal has been made to the Operations Unit that the water recirculation system be used to dry the pile. This equipment, which is provided on existing piles, would circulate hot water through the pile and maintain temperatures of the order of 60° C. to 80° C. This method appears to provide more control than "fission heating", which was used in the early F Pile leak and has the advantage that the ends of the process tubes are heated as well as the center. The principal disadvantage is the contamination problem which results from circulating the water from the rear face to the front. The proposal is being considered.

* Pieces

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Slug Corrosion: Slug weight-loss data were taken from three tubes containing a total of 80 pre-weighed slugs. Slug powers and local water temperatures were calculated from radiation levels rather than from an assumed cosine distribution of slug power. This has reduced the scattering of the data from an individual tube to about ± five per cent at high slug powers.

The highest corrosion rate measured to date is 34 milligrams per operating day. The weld bead on this particular slug was badly attacked, but only slightly lower corrosion rates were noted on slugs which had sound welds.

Special Measurements - Test Pile: The reactivity coefficient for 63S aluminum was measured for a limited number of samples. These preliminary measurements indicate no significant difference between 63S and 2S aluminum. Conclusive proof is dependent upon the radial growth calibrations and the testing of additional samples.

Test Pile measurements on the samples submitted indicated that, reactivity-wise, there is little difference between regular uranium and powder metallurgy compacts made from powdered uranium metal. These were single slug tests, however, and small differences may be hidden in the ±0.02 ih standard deviation inherent in present measurements.

Regular metal testing proceeded routinely during the month. The TDS value of uranium egg samples obtained from Mallinckrodt continues to be high with all four lots tested during the month yielding a TDS greater than 17. One lot of the Hanford uranium eggs tested gave a TDS of 14.

PLANT SERVICE WORK

X-ray diffraction patterns were made on four samples of unknowns from process tubes at 100-F. The analyses indicated the presence of iron carbonate and the oxides of aluminum, silicon, and iron.

Two additional samples of 304 ELC and 347 stainless steel were received from the MJ-4 project to investigate the effects of scarfing using compressed air and carbon electrodes. Evidence indicated that carbon was introduced into the 304 ELC by the carbon electrodes during scarfing. Little or no carbide precipitation was found in the type 347 stainless steel sample.

Two samples of 1.2 per cent carbon drill steel, which were machined or cut by a new process called "Method X" at Firth Sterling Steel and Carbide Corporation, were received from Technical Services to determine the effects of this cutting method on the surface metal. A hardened skin one to two mils in thickness was found on the sample which was designated as rough-cut while less than an 0.5 mil thickness existed on the smooth-cut sample.

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INVENTIONS

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

Inventor	HW No.	Title
L. W. Lang	HW-22960	Report of Invention - The Use of Helium^3 and/or Tritium as a Reactor Control.
L. W. Lang- E. A. Eschbach	HW-22964	Report of Invention - The Use of Lead in an Extraction Vessel to Decrease the Loss of Gases Extracted From Irradiated Lithium Alloys.
L. W. Lang	HW-22969	Report of Invention - The Use of Fractionation in Extraction of Gases From Irradiated Lithium Compounds.
L. W. Lang	HW-22977	Report of Invention - The Use of Nuclear Reactors for Tritium Storage.

Signed: G. E. McCullough
G. E. McCullough
Manager, Pile Technology

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February 6, 1952

SEPARATIONS TECHNOLOGY UNIT

MONTHLY REPORT
JANUARY, 1952

VISITORS AND BUSINESS TRIPS

R. C. Feber, Knolls Atomic Power Laboratory, visited Hanford January 7-11 for Redox consultations and Redox plant inspection.

C. G. Munger and Sheldon Dunning, American Pipe, Amercoat Division visited here January 14-21 to demonstrate recent developments on protective coatings.

P. C. Bogiages, General Engineering Laboratory, visited this site January 22-24 for conferences on mechanical development.

George Watt, Consultant from the University of Texas, visited Hanford January 21-26 for research and development consultations.

Wayne H. Keller, Mallinckrodt Chemical Works, visited here January 28-30 for technical consultations.

C. M. Slansky visited the Idaho Operations Office, Arco, Idaho for consultations on laboratory operations January 4-5.

W. C. Schmidt visited National Blower, Tacoma, Washington January 6-17 to supervise packing of a filter for the Hot Semiworks.

J. T. Stringer visited Schenectady, New York for conferences on the Long Range Bearing Program and attended a Sleeve Bearing Committee Meeting in Erie, Pennsylvania January 23-25.

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Cornelius Groot and F. J. Leitz visited Brookhaven National Laboratory January 23-25 for conferences on separations processes. Mr. Groot also visited Oak Ridge National Laboratory January 28-31 for consultations on separations methods.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	December	January
Administration	2	2
Special Assignment	4	3
Research	43	41
Chemical Development	86	82
Process	43	45
	178	173

Research: One Tech. Grad. was transferred to Pile Technology and one Engineer Assistant was terminated.

Development: One Chemical Engineer was transferred to Technical Service, one Chemical Engineer, one Mechanical Engineer and one Laboratory Assistant B was terminated.

Process: One Technical Assistant to the Manager was transferred from Administration and one Tech. Grad. was transferred from Technical General.

Administration: One Technical Assistant was transferred to Process.

$BiPO_4$ PLANT ASSISTANCE

Canyon Buildings - 221

Ventilation air - Suppression of radioiodine evolution into Canyon Building exhaust ventilation air has continued at both B and T Plants with 5×10^{-4} M mercuric nitrate concentration in dissolver solution. No further change in mercuric nitrate concentration is planned at this time. At T Plant radioiodine evolution into Canyon Building Exhaust ventilation air averaged 1.3 curies I^{131} per 24 hours per 905 curies dissolved based on 14 samples for the period December 12, 1951 through January 5, 1952 when a concentration of 5×10^{-4} M was maintained. Total iodine evolved for the plant as measured at the stack 50 foot level was 2.3 curies per 24 hours for the same period based on 12 samples. At B Plant the radioiodine evolution into Canyon exhaust ventilation air averaged 1.06 curies per 24 hours per 1309 curies dissolved based on 59 samples from the period October 3, 1951 through December 20, 1951 using 5×10^{-4} M mercuric nitrate. Total radioiodine evolution for the plant as measured at the 50 foot level of the stack averaged 1.3 curies per 24 hours for the same period.

Air flow measurement - T Plant - A forty-two point pitot tube traverse was made of the air flow in the sand filter duct work at T Plant. From these measurements

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a flow of 17,000 cubic feet per minute was calculated at a measured pressure drop of 4.9 inches of water for the sand filter.

Revision of Batch Size Make-Up Calculation - B and T Plants - The equation used to calculate the maximum ATTC plutonium total counts (Pu TC) allowable for each run was revised to conform to revisions in the isotope correction factor, ASP counter geometry, and the specific activity of Pu^{239}. The net effect of the correction was to decrease the product in the starting batch by approximately 0.7 per cent, and increase the material balance through Isolation by approximately 0.7 per cent.

Dissolver Heel Removals - B and T Plants - Dissolver heels at B and T Plants were removed for year end inventory purposes. Uranium heels were found to range from approximately 0.4 tons to 3.4 tons per dissolver with a total of 7.9 tons from the four dissolvers. The metal at T Plant assayed 401 g/t compared to 448 g/t for that at B Plant. A total of 3426 grams of product was accounted for.

Metal Waste Storage Tank Temperatures - B and T Plants - The waste temperature in 105 TX has started to decrease from the maximum reading of 238° to 240°F which prevailed from December 4, 1951 through January 10, 1952. A peak of greater than 240°F was probably reached during this period since the temperature dial for the thermohm has a maximum reading of 240°F. Since this maximum value was probably exceeded, the temperature reading for 105 TX may no longer be reliable. Temperature in the tank approximately six inches below the liquid surface level remained at 210°F from December 17, 1951 through January 13, 1952 and decreased to 205°F at month end.

A study of metal waste tank temperatures was made from which the future temperatures of the currently hot metal waste tanks were estimated. The results of the study are shown in the following tabulation.

		Predicted Metal Waste Tank Temperatures					
	Max	Date at	Temp, °F at	Predicted Temp, °F			Predicted
Tank No	Temp, °F	Max Temp	1-1-52	1-1-53	1-1-54	1-1-55	Mo-Yr at 135°F
101 BX	216	7-1-51	192	157	135	121	1-54
104 BX	210*	2-1-52*	205	167	141	125	5-54
101 TX	190	7-1-51	178	144	127	116	6-53
105 TX	240	2-1-52*	240	190	155	134	12-54

*Assumed

Waste Evaporators - T and B Plants - The waste evaporator at T Plant operated routinely during the month. The sludge volume in the evaporator has been fluctuating between 1200 and 1500 gallons during December and January. Overall evaporation rates are averaging 625 gal per hour with a reduction in volume of 75.6 per cent. The log beta decontamination factor remains at 4.0.

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The waste evaporator at B Plant operated at 77.5 per cent reduction. The average evaporation rates fell from 582 gal/hr starting with run No. B-12-01-E1 to 366 gal/hr on Run No. B-12-01-13. The sludge in the evaporator had increased to 820 gallons. Steam flow and evaporation rates diminished as each run progressed indicating poor heat transfer from the steam coils to the liquid.

Concentration Buildings - 224

Production Test 224-B-6 - Runs B-11-12-F-35 through D-47, 13 runs were processed as control runs. No barium sulfate additions were made to the bismuth phosphate by-product cell for these runs. The average final log gamma decontamination factor and PR can radioactivity side reading was 6.77 and 68 mr/hr, respectively. Runs B-11-12-D-48 through B-12-01-DR-H-D-28, with barium sulfate additions to A Cell, had an average final log gamma decontamination factor of 7.42 and PR can radioactivity side reading of 13 mr/hr. The data at T Plant averaged 7.50 and 14 mr/hr for 66 runs with barium sulfate additions. On the basis of this and previous production test data, the barium sulfate additions to the bismuth phosphate by-product cell will become standard.

Isolation Building - 231

Production Test 234-5, Pu IV Oxalate - Hydrogen ion and complete spectrochemical analyses are being obtained on fifteen batches of AT solution for processing in the Purification Building under Production Test 234-5. Following these runs, ten runs will be prepared for shipment under the standard $BiPO_4$ Plants batch size.

Production Test 231-14 - Filter Boat Process - Production Test 231-14 is being prepared for issuance. This Production Test will demonstrate the use of the filter boats designed for the Purification Building RM Line and will test the following processes:

1. Redox and $BiPO_4$ Runs; two peroxide cycles, second cycle precipitate filtered into boat and washed with methanol prior to shipment.

2. $BiPO_4$ Runs; two peroxide cycles and one Pu IV oxalate cycle. Oxalate precipitate filtered and washed with dilute nitric and oxalic acid prior to shipment to Purification Building.

3. Redox Runs; one peroxide and Pu IV oxalate cycle.

4. Redox Runs; one Pu IV oxalate cycle.

The advantages of the oxalate process are the elimination of the use of methanol and the higher bulk density of the oxalate precipitate; however, the inability of the oxalate process to decontaminate from lanthanum requires two peroxide precipitations for $BiPO_4$ runs. Should the process be made routine, it may be possible with some piping changes, to make the third cycle (oxalate) in the ST-2 tank.

Separations Technology Unit

$BaSO_4$ Precipitation - Barium sulfate precipitated in both the P-1 and P-2 tanks during the processing of Run B-11-12-B-69. The solids were slurried out of both tanks to CT-1 and the N-2 filter was cleaned out. Approximately 49% of run was returned to the Concentration Building while the second and third cycle supernatants solutions recycled an additional 25 per cent. The AT solution of this run contained 6.1 grams of iron per liter. Since purity was 93.5 per cent, the run was processed through a third cycle. A satisfactory purity of 98.8 per cent with an iron concentration of 2.5 grams per liter was obtained.

Barium sulfate also precipitated while processing Run B-11-12-B-70. However, recycle was 7.4 per cent and no difficulties with purity were experienced.

PURIFICATION AND FABRICATION BUILDING PLANT ASSISTANCE

RG Line

Purification - Production Test 234-5, plutonium IV oxalate process, was initiated at month's end. The preliminary results indicated satisfactory loss to supernate and wash solutions (ca. 0.25 per cent) and precipitate densities of 0.4 g Pu/ml.

Hydrofluorination - The material from the foregoing test has produced a free flowing solid with better than average density (ca. 1.6 g/ml) upon hydrofluorination. Assay of the plutonium fluoride for fluoride by a new and incompletely proven procedure has permitted calculation of the degree of conversion to PuF_4; it was assumed that the balance of the material was PuF_3. The results have given a range of calculated conversion values of 61.4 to 93.4 per cent.

Reduction - The Production Test material had not reached reduction at month's end. The addition point of chemical 70-58 was changed to the reduction operation vs. casting operation due to the poor distribution of 70-58 observed coincident with the resumption of Model 110 production. The average yield for reduction (to 1-25-52) was 97.2 per cent.

Miscellaneous - The measured pressure increase in a standard sample can containing 160 g of product was 62 lbs/sq in after 62 days. There is some evidence that recombination of the gaseous products is occurring as the calculated gas evolution rate per gram of plutonium has dropped from 0.40 ml/day initially to 0.30 ml/day during the 48th to the 62nd day of storage.

RM Line

A filter boat fabricated from Inconel vs. platinum originally provided has been checked for mechanical operability.

The Task III, reduction, equipment was studied to determine the likelihood of drawing MgO sand into the vacuum system during evacuation. It was observed

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that a 1/16 inch diameter orifice provided sufficient flow restriction to eliminate entrainment. Smaller cans (I.D. = 3.312 inches) have been designed for the operation; this will reduce the MgO requirement from 550 - 600 gm to 300 - 350 gm.

Mass accumulation problems for Task IV operations were discussed with Drs. P. F. Gast and W. J. Ozeroff on January 17. Two castings per furnace may be made safely in the Task IV RM Line furnaces but an unapproved geometry could exist during this operation when a second furnace loading and the general and express conveyors were simultaneously carrying production material by this location. Procedures insuring adequate control to preclude this occurrence are being prepared.

Task VI and VII -

Quality Control

Process Recovery

A catalytic decomposition of 50 per cent hydrogen peroxide (probably caused by contamination with iron during the processing operations) occurred during two runs and, in one instance resulted in a contamination spread (200,000 to 500,000 d/m) with room 223. To minimize the possibility of a future occurrence, the processing of oxalate supernatants has been restricted to current material (SN-2 solutions) and the use of 15 per cent hydrogen peroxide until a separate feed tank for the addition of peroxide to the evaporator has been installed.

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The feed tank will be constructed from saran and saran will be used for the associated piping.

The glass lining in the Hood No. 30 evaporator failed during Run 20 and resulted in the discharge of less than 1 gram of plutonium to the retention pond.

REDOX PLANT ASSISTANCE

Plant Performance

Three "cold" and two 5 per cent activity level 3-1/8 ton head-end scavenging-centrifugation metal feed preparations were made. These feeds were processed subsequent to the installation of plows in the centrifuge to improve cake washing and removal. Plow effectiveness, after four cake washes, has been demonstrated in the resultant low uranium cake losses which averaged less than 0.05 per cent (0.5 per cent before plows) of the feed uranium for the five runs. Plutonium losses, as indicated by the results obtained from the two tracer level runs, have been 0.15 and 0.18 per cent of the feed plutonium. Cake removal from the centrifuge has been accomplished by water slurrying and plowing at 10 rpm speed. About 100 gallons of water are required to remove the cake. Data obtained on beta and gamma scavenging effectiveness of the cake are inconclusive for these initial runs. Ruthenium removal by oxidizer sparging, however, has indicated a D.F. between 55 and 100.

One "cold" uranium solvent-extraction run was made operating three uranium and three plutonium cycles at a 2.75 t/d uranium processing rate. Uranium waste losses from 1A and 1B columns averaged 0.15 per cent of the feed and 0.16 per cent contamination of the plutonium with uranium, respectively. Other uranium extraction column losses (2D and 3D) were less than 0.01 per cent, and stripping column losses (1C, 2E, and 3E), less than 0.001 per cent of the feed uranium. No waste loss data were obtained on the plutonium extraction cycles since non-irradiated metal was being processed.

The first 5 per cent tracer level solvent-extraction run was started on 1-12-52 operating two uranium and three plutonium cycles at a 2.5 t/d uranium processing rate. This run was terminated after 28 hours of operation when the hexone distillation column became inoperable due to the inadvertent introduction of impurities (Amercoat 23 paint dissolved in the hexone). Extraction performance data obtained during the brief period of operation, however, indicate column waste losses comparable with those obtained during "cold" operation.

Process Chemistry

Laboratory tests were run on the Amercoat-contaminated Redox Plant hexone in search for (1) a method of cleaning the hexone still, and (2) a treatment to restore the hexone to usable condition. It was found that the film of residue deposited when the contaminated hexone was evaporated to dryness could be readily removed by warm 10 per cent $Na_3PO_4 \cdot 12H_2O$ solution, and this was recommended for use in cleaning the hexone still. The amounts of residue from several samples of paint-contaminated hexone were found to vary from 110 to 190 mg/liter, depending upon the source of the sample. Uncontaminated hexone (plant pretreated) left a residue of 41 mg/liter, while that which had been contaminated and then laboratory pretreated left a residue of 75 mg/liter.

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The feed to the hexone distillation column (the IOO Stream) was found to contain an oil residue resembling lubricating oil. Refractive index measurements were made on a series of such oil residues, and were found to correspond very closely to indices for many of the 9 samples of lubricating oils used in 202-S Building, which could conceivably have entered various process streams.

The performance of a laboratory glass bubble-plate distillation column simulating the Redox Plant hexone still (G-3) did not produce foaming difficulties when operated with pretreated hexone or contaminated IOO, with C.P. caustic or G-3 bottoms, or with H_2O or NaOH added to the column. Flooding was observed when liquid hexone reached the pot, and one flood occurred at the feed plate. It has, however, not been possible in the laboratory to correlate hexone impurity content with "foaming" in the plant.

Redox Technical Manual Index

A detailed subject index for the Redox Technical Manual (Document HW-18700) has been completed. At the month's end this index, designed to facilitate the use of the manual for reference, was being processed through classified files for incorporation into each copy of the manual.

URANIUM RECOVERY PLANT ASSISTANCE

241-U Tank Farm Operations

Homogenization of the supernates in the 101-U underground waste tank cascade, and transfer of supernate from TK 103-U to TK 115-TX were completed preparatory to the sluicing operation. The pump in TK 103-U failed during the transfer of supernate to TK 115-TX. The cause was determined to be worn electrical power contacts on the cable drum, and the transfer was completed after the worn parts were replaced.

221-U Plant

The various phases of 221-U Building construction are 60 per cent complete overall.

Inspection of the RC Column in mock-up revealed an apparent inadequacy in perforate plate supporting. A pulse test using water is planned to determine whether additional plate supports are required.

Comment issues of the 221-U Building operating procedures, and a proposed plan for "cold" uranium shakedown runs have been submitted to the Separations Section for comment.

224-U Plant-UO_3 Conversion

Nineteen UO_3 calcination runs using feed solutions from Redox shakedown runs were completed. The best product quality was obtained with pot operation at 600°C furnace heat. Moisture (0.55 per cent), nitric acid content (1.3 per cent), and bulk density of the UO_3 powder, however, were still out of the existing tentative specification for this material (tentative specs.: 0.1 per cent H_2O, 0.6 per cent HNO_3). One lot of UO_3 originating from these runs has

Separations Technology Unit

been shipped to Oak Ridge to check its acceptability in K-25 operations.

Sand bags have been placed around TK-X-1 to provide the necessary shielding for temporary storage of Redox UNH containing U^{237}. Preparations are also being made for the erection of a 100,000 gallon lag storage between the Redox and 224-U Areas for the aging of Redox UNH containing U^{237}.

Process Chemistry

A section of Tirex flexible cable destined for use on the sludge pumps, was received in the laboratory, and is being tested for the resistance of its sheathing to immersion in underground waste. It is being tested in synthetic material (incubated metal waste from 321 Building) pH = 10.5, at 80°C.

REDOX AND METAL RECOVERY DEVELOPMENT

Process Studies

A working committee consisting of Manufacturing, Design, and Technical personnel was appointed to resolve the radiation hazard generated by the presence of U-237 in the Redox uranium product. It was concluded that the Redox uranium should be "aged at least thirty days before calcining to the oxide. To provide the re-

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two "C" Extractor flooding determinations. These runs were made after elimination of the air binding caused by the mis-orientation of some of the light-phase sampler tubes, as indicated in last month's report. The previously reported Fenske extractor results were obtained before positive elimination of this air binding and, hence, must be considered unreliable. In general, Murphree stage efficiencies for uranium transfer varied 70-90 per cent in the "A" contactor and 50-70 per cent in the "C" contactor. Flooding capacities for the "A" contactor were in the range 500-800 ml/min total phase flow and about 1800 ml/min for the "A" contactor.

Purex Solvent-Extraction Studies (Stacked Extractor) - Seven Purex-process solvent-extraction studies, with CCl_4 as the diluent and with "cold" (unirradiated) uranium, were carried out in the 20-stage (600-ml/stage), Fenske Stacked Extractor. These included one IA Extractor and three IC Extractor efficiency studies, and one IA Extractor and two IC Extractor flooding studies. The highlights of the findings were as follows:

1. Under conditions which are not necessarily optimum (agitator amplitude = 0.31 inch, frequency = 400 cycles/minute) approximate Murphree stage efficiencies were 90 per cent for the IA Extractor and 60 per cent for the IC Extractor. (These Murphree stage efficiencies are based on aqueous-phase concentrations for the IA Extractor and on solvent-phase concentrations for IC.)

2. At a mixer frequency of 400 cycles/minute and amplitude of 0.31 inch, the IA Extractor flooded at about 500 ml/min, sum of both phases. The IC Extractor operated under these agitation conditions at 2000 ml/min, sum of both phases, without flooding.

Purex Solvent-Extraction Studies (Pulse Column) - During the month nine Purex-process solvent-extraction studies, with CCl_4 as the diluent and with "cold" (unirradiated) uranium, were carried out in a simple 3-inch-diameter glass pulse column in 321 Building. These included one IA Column and two IC Column H.T.U. determinations, and two IA Column and four IC Column flooding studies. The highlights of the findings are as follows:

1. In the IA Column extraction section an H.T.U. of about 0.6 foot was obtained at a volume velocity of 800 gal/(hr)(sq ft), sum of both phases, and an amplitude-frequency product of 57 in/min, with a "standard" perforated-plate cartridge (stainless steel plates with 0.125-inch-diameter holes, 23 per cent free area, plates spaced 2 inches apart.)

2. In the IC Column H.T.U.'s of 1.3 and 1.0 feet, respectively, were obtained with water and with 0.03 M HNO_3 as the ICX (aqueous extractant), at a volume velocity of 1500 gal/(hr)(sq ft), sum of both phases, at an amplitude-frequency product of 67 inches/minute, with a "standard" cartridge. In general the H.T.U's are 30-50 per cent lower than those obtained previously with hydrocarbon diluent and flooding capacities are slightly higher.

Mechanical Development

Purex corrosion studies have been initiated to determine the extent of corrosion which might be expected to occur in Purex waste evaporators and accessory

equipment when using a CCl_4 solvent diluent in the extractant process streams. High corrosion rates may occur because of the decomposition of CCl_4 (either through hydrolysis or instability to radiation) and subsequent formation of chloride ion. A simulated, semiworks scale, submerged steam coil, waste evaporator has been operated for 75 hours boiling a simulated, concentrated Purex waste (8.4 M HNO_3, 0.24 M $NaNO_3$, 0.154 M $Fe(NO_3)_3$, 0.285 M Na_2SO_4) at a boil-up rate of 6 to 7 lb/hour (boiling temperature = 114 to 116°C, vapor temperature = 108 to 110°C, Δt (steam to boiling liquid) = 23 to 25°C). The overhead vapors containing 160 g/l HNO_3 are totally condensed and recycled to the bottom of the concentrator. Chloride ion is added to the concentrator solution (which is replaced daily). Over the 75 hour operating period the chloride ion concentration in both the bottoms liquid and the condensate has varied from 0.007 to 0.013 g/l, nominal 0.010 g/l (10 ppm) in the bottoms liquid. Metallurgical samples of Type 304 ELC, 309 SCb, 347, and 430 stainless steel are suspended in the concentrator in both the boiling liquid and in the vapors. Water cooled tubing samples of Type 302, 304, 347 and Carpenter 20 stainless steel are exposed to the condensing vapors. Weighed sections of Type 304 ELC and 347 steam tubing are exposed to the boiling liquid. The samples will be examined after 150 to 200 hours operation. The overall heat transfer coefficient (steam to boiling liquid) is 500 to 550 Btu's/(hr)(sq ft)(°F) under the conditions of operation.

Pump Development

Johnston Production Pump, TBP Process, P-8-2, one of the TBP production plant deepwell turbine pumps equipped with Graphitar No. 41 process-solution-lubricated sleeve bearings completed 147 days operation in a concentrated, neutralized RAW at 80 ± 2°C. Over the test period the maximum increase in clearance, measured diametrally between the bearings and the journals, ranged from 24.3 mils at the top liquid throttle bushing to 72.4 mils at the foot bearing. Two bearings and two wear rings were broken. Over the test period, leakage of process solution past the liquid throttle bushing increased from 0.01 gal/hour at shut-off (46 lb/sq in ga) to 198 gal/hour at shut-off (36.5 lb/sq in ga). This Leakage was equivalent to 9.5 per cent of the usable flow at the process operating conditions for the pump. This concludes the testing on this pump which has been returned to the vendor. The high rate of wear leading to breakage of some of the Graphitar bearings and wear rings, is attributed to the presence of precipitated components (solids) in concentrated, neutralized RAW. The performance of these deepwell turbine pumps with Graphitar bearings is entirely satisfactory when handling clear solutions, as has been reported previously. The high rate of wear of Graphitar in the presence of solids was the reason for choosing boron carbide bearings for those TBP production plant pumps which are required to handle process solutions containing solids.

General Engineering Laboratories Motor-Pump, a 5 horsepower, stainless-steel-encased electric motor close-coupled to a Peerless regenerative turbine pump has been operated surrounded by air instead of liquid. This operation which stimulates the operation of an in-line pump has been carried out pumping water having an entering ambient temperature of 58.5 to 62.5°F. At a minimum flow rate of water through the pump-motor of 0.386 gal/minute the temperature of the solution rose from 60°F at the inlet to 102°F at the outlet. The average temperature of the exposed motor wall was 92°F. At higher flow rates the

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temperature rise decreased. Thus at a flow of 1.25 gal/minute the temperature rise was 14°F, and at 5 gal/minute, the rise was 4°F. The motor-pump is being converted to drive a 10 inch diameter propeller type agitator at 1750 rev/minute.

Instrument Development

Potter Electronic Flowmeter, (nominal range of 0.3 to 3 gal/minute) has reproduced the original calibration (within ± 1 per cent) after 50 hours operation at a flow rate of 2 gal/minute. The rotating element of the meter has been found to stick when flow is started gently. Under these conditions, no flow indication is given up to 25 per cent of the range of the instrument. As the flow rate is decreased flow indication becomes erratic at 12 per cent of the range and ceases at 11 per cent. The instrument has been returned to the Tower Equipment Company.

Vitro Magnetic Induction Flowmeter No. 5, nominal range of 0.4 to 3 gal/minute, has been recalibrated twice over a 6-week period. Within the range of 0.8 to 2.7 gal/minute the first recalibration agreed with the initial calibration within ±1.2 per cent. At 0.34 gal/minute the deviation was -4.5 per cent. The second calibration agreed with the original within ± 2.2 per cent over the range of 0.44 to 2.6 gal/minute.

Materials Testing

Epon RN-34, Mirawal, Duralon 36, Modified Phenoline #3, and Amercoat 1574 completed 15 days immersion in 15 per cent TBP in CCl_4 at room temperature, with insignificant change in weight. Under the same conditions Homolite CR-39 and 100, and Alsynite increased 0.5 per cent in weight but were visually unaffected.

Samples coated with Amercoat 1574 were contaminated with 4 year old $BiPO_4$ waste acidified on the sample with 10 per cent HNO_3. After contamination the samples were air dried. Using tap water as a swab decontaminant, decontamination factors of 1.2×10^3 were obtained. Using 5 per cent Versene + 1 per cent NaOH the D.F. was 3.1×10^4. Samples which were force dried under infra red lamps and decontaminated with 10 per cent HNO_3 gave D.F.'s from 6.1×10^2 to 1.3×10^3. The force dried samples showed some evidence of chemical attack.

Program X

In conjunction with RDA-DC4, tentative overall dimensions were supplied for production-plant size pump-mixer settlers. The length-diameter relationships of pulse legs were also developed for pulse columns in a production-size Purex plant. This information was supplied to permit a relative study of construction techniques and costs.

In conjunction with RDA-DC7, a material balance flowsheet was computed for the Purex process on the basis of a plant processing 8.3 tons of uranium per day, at an irradiation level of 600 MWD/T. The rough draft was submitted to the Design and Development Unit for drafting and publication. Process and utility flow data were submitted for inclusion in the Process Flow Diagrams currently in preparation.

Separations Technology Unit

Hot Semiworks

Construction of the Hot Semiworks is 62 per cent complete. On January 10 the Office Building, 2704-C, was accepted with minor exceptions. Piping in the Solvent Handling Building is 50 per cent complete. Piping and instrument work has been started in the Aqueous Make-Up Building and Pipe Galleries.

Polyethylene flame spraying of cell walls was started. However, when preliminary tests showed that this coating was not acceptable, the polyethylene was removed. The subcontractor was requested to submit an estimate for substituting Amercoat 1574 in place of polyethylene on cell walls.

The Hot Semiworks manual is 80 per cent complete in rough draft and 18 per cent complete in final copy.

SEPARATIONS PROCESS RESEARCH

Recuplex Column Research

Continuing the 1" x 65" pulse column studies on the Recuplex Process, a total of nine "A" column runs have been made using 1" spaced Kel-F coated compound plates of 0.040" hole diameter and 23 per cent open area. Transfer unit heights (HTU_{ow}) of 0.75 to 1.25 feet were obtained over a range of 100 to 1000 gal/(hr)(sq ft) volume velocity (sum of both phases) with aqueous phase continuous under flowsheet 12A conditions.

The effect of flow ratio on stage heights is also being investigated in order that high reflux ratios may be used to increase product concentrations. Preliminary results on the "A" column indicate that over an aqueous to organic flow ratio range of from 3 to 10, the effect on HETS and HTU is negligible.

Recent work toward improving the life of fluorothene coated column plates has involved sand blasting the steel surface prior to addition of the fluorothene coating. Scratch tests indicate that the metal to plastic bond is improved by this treatment; life tests of these plates are under way.

Recuplex Process Studies

The method proposed in last month's report for the recovery of plutonium from the silica cake involved treating the cake with hydrofluoric acid and centrifuging off the plutonium bearing solid. This material was then treated with aluminum nitrate solution to dissolve plutonium fluoride. In three experiments the plutonium recovery was 86, 87 and 89 per cent. In the fourth, 31 per cent recovery was obtained, the remainder being held up in an insoluble residue. On the basis of these results, the method cannot be recommended without further investigations.

The recovery of plutonium from large crucibles used in the slag and crucible recovery and Recuplex studies was completed during the month, giving the final analyses of five large crucibles received from the Separations Section last year. Of the 31.8 g Pu charged to the crucibles and associated slag, only 19.1 g or 60 per cent was found in all fractions. Of the plutonium found,

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1.6 g was associated with the silica, or 5 per cent of that charged to the crucibles. On the basis of these analytical data, it is believed that 60 per cent is a fair estimate of what was actually present in the crucible and associated slag.

As the solvent (15 per cent TBP in CCl_4) for the Recuplex Process is allowed to stand containing appreciable concentrations of plutonium, it has been shown previously that a slow rate of hydrolysis occurs forming dibutyl and/or monobutyl phosphates. These products complex plutonium strongly and, thus, interfere with the stripping steps. Therefore, experiments have been performed to test the clean-up of this solvent when washed with sodium carbonate solutions. A solution was prepared for this test by allowing a 15 per cent TBP-CCl_4 solution containing 3.4 g/l Pu to stand for one month and then stripping with 0.1 M HNO_2 reducing the plutonium concentration to 0.4 g/l. Solvent treatment consisted of contacting the stripped organic with a fifth volume of 0.5 M Na_2CO_3. This solvent clean-up procedure reduced the plutonium to a low value in 15 minutes. The removal of the last traces of plutonium in the solvent appears to be more difficult.

Alternate Solvent Extraction Processes

Work continued on the replacement of part of the $BiPO_4$ canyon process with a solvent extraction unit, as described in some detail in last month's report (HW-23140-H), to permit a greatly increased production capacity. A sample of 14-4P (product cake solution from first cycle) was run through a one-cycle Recuplex-type countercurrent extraction procedure. A gamma decontamination factor of greater than 10,000 was obtained on the plutonium fraction, yielding a product whose gamma activity corresponded to about 1.6 times that of pure plutonium. The product obtained when using 19-4P as a stand-in for 14-4P gave a product containing only about three times the gamma activity of pure plutonium, thus explaining the relatively low decontamination factor of 60 obtained in that experiment as reported last month.

The above experiment on 14-4P demonstrated that a small extraction unit can eliminate the second decontamination cycle, the 224 Building operations and the 231 Building operations.

Purex Decontamination as a Function of Acidity

In an earlier report of this series (HW-22610-H) data were presented for acid deficient conditions and ANN salting agent which were believed to indicate that improved decontamination could be obtained when employing the Purex solvent, viz., 30 per cent TBP-AMSCO 125-90W. Later (HW-23140-H) difficulties were encountered with full activity level studies which were believed to be due to dichromate present to establish the plutonium in the +6 oxidation state. Now, a series of experiments designed to give conclusive data on acid deficient Purex, with and without the presence of dichromate, have been completed. The decontamination factors obtained at full activity level for gamma and beta activity indicate that acid deficient conditions do <u>not</u> greatly improve decontamination factors. Furthermore, dichromate addition completely ruins decontamination when employing 30 per cent TBP-AMSCO 125-90W as the solvent. Gamma

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decontamination factors ranging from 12.6 to only 1460 were obtained in the presence of dichromate, compared to 5-8 x 10^4 in its absence. Since plutonium must be in the +6 oxidation state in order to insure its extraction from acid deficient solutions, this adverse effect would seem to rule out acid deficiency entirely. Cerium(IV) nitrate, which will oxidize plutonium, extracts into the organic phase under acid deficient conditions and, therefore, is not a satisfactory oxidizing agent for this purpose.

Solvent Studies

Three more phosphonates and two phosphinates have been synthesized and are being tested. When the two remaining phosphinates are made, syntheses in the phosphorus-compound group will be finished. Considerable testing remains yet, in particular, plutonium distribution, fission product decontamination and stability. The three new phosphonates, dibutyl n-decanephosphonate, dibutyl hexadecanephosphonate and diethyl hexanephosphonate, all show excellent extraction for uranyl nitrate.

Resin Coupling

Laboratory experiments are being carried out to demonstrate the feasibility of using a Dowex-50 resin column for the concentration and decontamination of plutonium bearing streams, e.g., Redox IIBP, IIIBP, Purex IIBP, etc. Of the seven runs performed, plutonium waste losses have been found to be very low, viz., 0.01-0.02 per cent, when plutonium feeds of ca. 1.0-1.5 g/l Pu have been used (10 g Pu total). The eluate volume fractions containing 90 per cent of the total plutonium have been averaging only about 40 g/l Pu (it is assumed that ca. 10 per cent of the plutonium will be left on the resin or recycled to process). Since a plutonium concentration of 40 g/l is the minimum which can be used in the 234-5 building with the present 234-5 equipment and batch size, it is desirable to obtain a higher concentration of product. Much higher plutonium concentrations are expected pending more favorable resin column design.

The effect of increasing nitric acid in the plutonium feed has shown that the absorption capacity decreases ca. 1.9 fold as the acid concentration is increased from 0.2 M to 1.3 M, and would, in all probability, make it more difficult to elute the plutonium at high concentration from the resin.

Preparation of Plutonium Fluorides Using Freons

Experiments utilizing plutonium(III) oxalate and Freon 12 (CCl_2F_2) have indicated easy and rapid conversion to PuF_3 by the three steps: (a) drying of plutonium(III) oxalate slurry in a stream of argon for 2 hours at 110°C, (b) vacuum drying to anhydrous $Pu_2(C_2O_4)_3$ at 225°C and (c) fluorination of $Pu_2(C_2O_4)_3$ by Freon 12 at 400°C for 1 hour. The product is a free flowing powder. Weight changes observed on a one gram scale indicate 99.7 per cent conversion to PuF_3. On the basis of experience in earlier experiments with cerium, a 1-2 per cent of $PuCl_3$ is suspected.

The addition of 3 to 20 per cent oxygen to Freon 12 during fluorination fails to produce any product other than PuF_3 below 450-500°C. At higher temperatures conversion to plutonium oxide becomes evident. However, the plutonium

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oxide produced in this manner at 500°C is not reduced to PuF_3 upon further treatment with Freon 12 at temperatures below 500°C. The strong reducing conditions in the fluorination reaction with Freon 12 are further illustrated by treatment of vacuum dried (150°C, 1 hour) samples of plutonium(IV) oxalate, precipitated at either 0°C or 80°C, with 3 per cent oxygen in Freon 12 at 400°C. Again, the reaction produces PuF_3. The product is free flowing and the conversion yield is the order of 99 per cent.

Reaction between vacuum dried (room temperature or 150°C) plutonium(IV) oxalate and Freon 114 ($C_2Cl_2F_4$) takes place rapidly at 800°C with considerable formation of carbon and what appears to be tetrafluorethylene and its polymers. Plutonium(III) fluoride is formed in the reaction but is caked and has a tendency to stick to platinum. Much or all of the plutonium oxalate is, of course, converted to the oxide as the reaction boat is brought to 800°C. (before the admission of the Freon 114).

Behavior of Mercury in the Redox Process

The addition of mercury (II) nitrate to process solutions of the Bismuth Phosphate Process has greatly reduced the amount of radioiodine evolved from these solutions. In the event that it should appear desirable to reduce iodine evolution from Redox Process streams by this method, a knowledge of the distribution of mercury(II) nitrate in the Redox Process would be necessary. The results of a few preliminary experiments are reported here.

Mercury was partially (66 per cent) carried on MnO_2 precipitated from a simulated dissolver solution containing 10^{-3} M $Hg(NO_3)_2$. Studies with preformed MnO_2 indicated that the mercury was not adsorbed on the surface of the solid particles.

Batch extraction studies involving synthetic feed solutions containing mercury(II) nitrate showed that mercury is extracted into hexone under column IA feed plate conditions; the distribution coefficient, E_D^Q, is ca. 1.4. Under IB feed plate conditions E_D^Q is 0.7 and, at the IC feed plate, E_D^Q is about one. These results indicate that any mercury present in Redox feed would be distributed throughout the process. Since the presence of mercury in UNH streams entering the UO_3 Plant would be undesirable, particularly during the calcination step, it seems inadvisable to consider using mercury in Redox Process streams.

In preparing some of the solutions used in the above studies, it was found that large amounts of mercury(II) nitrate will dissolve in hexone. In fact, a solution has been prepared having a mercury to hexone mole ratio of 1.2. Studies are under way to determine the nature of the reaction involved.

Decontamination of Redox Concentrator Distillates by Ion Exchange

About 15,000 gallons of simulated Redox concentrator distillates (at pH 4.5) per cubic foot of resin have now been passed through a column of hydrogen-form Dowex-50 without decrease in the gross beta decontamination factor obtained, namely, about 20. In a similar run with the feed at pH 2, about 7,500 gallons per cubic foot of resin have been treated without decrease in the gross beta decontamination, again a factor of 20.

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Passage of the effluent from the Dowex-50 column operating at pH 2 through a column of activated charcoal (mesh<20 >6) gave a gross beta decontamination factor of about 40 as compared to 100 obtained on passing this solution through a similar column of hydroxyl-form IRA-400 resin.

234-5 PROCESS DEVELOPMENT

Redox Coupling

Purity of 2BP and 3BP from Redox Plant Cold Runs - Analysis of samples of cold 2BP and 3BP solution obtained from Redox runs S-2, S-3, and S-4 (using unirradiated uranium slugs) indicated that the chromium in 2BP (0.62 g/l in Run S-2, 0.15 g/l in S04) was the only contaminant present in high enough concentration to be a possible source of trouble in the peroxide coupling process.

Plutonium Peroxide Precipitation - Precipitation of plutonium peroxide from 3BP solution (10 g/l Pu, 6.45 M HNO_3) following adjustment to 2.0 N in HNO_3 resulted in normal waste losses (3-5 per cent) when sodium hydroxide was used for neutralization of the excess acid. When potassium hydroxide was used, the losses were 11 and 22 per cent; further, the low solubility of potassium nitrate caused danger of an excessively high potassium content in the precipitate, although the large crop of potassium nitrate crystals, formed when the partially neutralized solution was cooled, redissolved when the hydrogen peroxide was added for the strike.

Plutonium(IV) Oxalate Precipitation - 3BP solution was processed satisfactorily by a single plutonium(IV) oxalate strike to give a high purity cake which hydrofluorinated normally. The resulting fluoride was reduced with a 96.1 per cent yield of metal.

Two synthetic 3BP solutions prepared by spiking cold redox 3BP solution with 10 g/l Pu were processed through single plutonium(IV) oxalate strikes. In one run the oxalate slurry was settled, the supernate removed by decanting, and after each of the three washes, the precipitate was settled and the supernate decanted. Waste losses were 3.5 per cent. The final settled slurry was hydrofluorinated without filtering to give a reduction yield of 96.1 per cent. In another run the oxalate slurry was filtered, and the cake washed on the filter, using 1/6 as much wash solution as was used previously. Waste losses were 0.7 per cent but further washing would have been desirable since the fluoride produced was off-color.

Coupling Process for 2BP at 60 g/l Pu - Plutonium(IV) oxalate and plutonium peroxide were precipitated from aliquots of a solution which simulated the Redox product expected from a continuous evaporator (60 g/l Pu, ca. 2 M HNO_3, 6 g/l Cr). The oxalate precipitation resulted in a low waste loss and a satisfactory fluoride which was reduced to metal with a 96.7 per cent yield. The peroxide was difficult to wash free of the chromium and gave a fluoride which was reduced to metal with a yield of only 81.5 per cent.

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Recuplex

At a meeting held on January 15, 1952, representatives of the Separations Section of the Manufacturing Department and the Technical Section of the Engineering Department agreed that on the basis of the comparative economics of processing the wet chemistry supernatants and 234-5 Building recycle streams by the existing Bismuth Phosphate facilities or by the Recuplex process (the most probable payoff period for the Recuplex facility would be slightly over one year) that the Technical Section would sponsor a project proposal providing for the installation of the Recuplex equipment in the 234-5 Building. In view of the developmental nature of the program, it was further agreed that the Technical Section would maintain sponsorship through the installation and initial operation of the facility. The preparation of the project proposal has been initiated.

Slag and Crucible Dissolution - Freshly formed plant scale slags derived from the reduction of UF_4 with a sulfur booster have proven to be hard, compact, and slow to dissolve in nitric acid. Four procedures were employed to dissolve the material with the following results: 1) Eight molar nitric acid at boiling temperature for 24 hours; 2) Boiling water produced disintegration of the mass in ca. 6 hours; 3) Boiling 5 per cent caustic required about 10 hours for disintegration - the subsequent dissolution in nitric proceeded rapidly (ca. 1 hr.); 4) Calcination in air at 500-600°C did not improve solubility of the material in nitric acid.

Solution Preparation Equipment - A dissolver, head tank, condensers, filter, cooling tank, and storage tank have been completed for a ten-gallon-scale slag and crucible solution preparation facility. This equipment is being installed in the semiworks hood in room 187.

"Mini" Unit Operations - One 3/8 inch, twelve-stage "Mini" mixer-settler and one 1/2 inch "Mini" have been completed, and initial testing with cold solutions has begun. Some preliminary tests on the 3/8 inch "Mini" using the system water-chloroform-acetic acid indicate that the over-all efficiencies of the unit range from 30 to 95 per cent, depending on the feed to solvent ratio, when the total throughput is about 300 cc/hour. The flooding capacity of the 3/8 inch unit is estimated to be about 500 cc/hour total throughput when the impeller speed is 2600 RPM. Variations in impeller speed from 2000 to 2600 RPM cause little difference in performance.

Miscellaneous Recovery Operations

Caustic Scrubber Solutions - The caustic scrubber solution from RG Line Hoods 5, 6, and 7 contains too much iodine for direct recycle to 224, but may be prepared for such recycle by acidification, addition of hydrogen peroxide, and removal of the iodine by distillation in the 234 supernatant recovery system.

Cannister Recovery - Two gas mask cannisters, used as filters on the vacuum lines in RG Line hoods, have been dissolved and found to contain 0.04 and 0.563 grams of plutonium.

The cannisters were removed from the hoods December 15, 1951. Each cannister contains 92.5 gm (3.43 mole) Al and 37.7 gm paper and allied material.

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Crucible Shop

Crucible shop construction was completed and the shop was accepted during January.

During the month [redacted] crucibles were formed and fired at 1800°C. Surface carbon was removed by refiring at 2200°F.

Ceramic plates made to conform (approximately only) to the mating face of the 110 male piece were produced during the month. This is the first step in attempting to make a crucible for casting pieces approximately to shape.

234-5 Laboratory Construction Progress

Room 185 ("hot" lab) was accepted from Construction during the month, although operation of the mechanically controlled dampers on the hood is faulty due to the installation of too light flexible shafts by the vendor. This situation will be remedied by General Electric.

Room 189 (decontamination hood) is essentially complete.

Hoods 1 through 9 have been informally accepted with minor exceptions to allow General Electric personnel to begin work on the installation of equipment within the hoods.

Piping has been completed and accepted on panels A and B (hydrofluorination and reduction controls) and electrical and instrumentation work is progressing.

INVENTIONS

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

INVENTOR	TITLE
W. L. Lyon	The use of sulfur as the "booster" in preparation of plutonium metal by the bomb method.

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WITH DELETIONS

R. B. Richards

R. B. Richards, Manager
Separations Technology Unit

2/8/52

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ANALYTICAL UNIT

JANUARY 1952

VISITORS AND BUSINESS TRIPS

B. H. Englehardt of the Perkin-Elmer Corporation, Norwalk, Connecticut, spent January 14-16 modifying the Model 21-152 infrared spectrometer.

T. G. Will, Consolidated Engineering Corporation, Pasadena, California, spent January 7-31 installing the Consolidated Engineering Corporation mass spectrometer.

S. T. Powell and C. J. Christy of Charles T. Main & Company, Boston, Massachusetts, was here January 23 inspecting the corrosion laboratory.

B. F. Rider and E. L. Bernier of KAPL and the du Pont Company, respectively, spent January 28-31 in consultation on the development of counting instruments and inspection of Redox control laboratory operations.

R. J Brouns and J E. Meinhard spent January 28-31 at Coates Chemical Laboratories, Louisiana State University, Baton Rouge, attending the fifth annual L S U. Analytical Symposium.

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Analytical Unit

ORGANIZATION AND PERSONNEL

Personnel totals in the subdivisions are summarized as follows:

	December 30	December 31	January 31
Analytical Service	326	207	185
Analytical Research	40	40	38
Administrative	3	3	3
Unit Totals	369	250	226

Effective January 2, responsibility for analytical process control of the B and T Plants, 231 Bldg. operations, the Metal Preparation Plant (excluding spectrographic analyses) and pile water treatment operations, and essential materials analyses, and certain general analytical services in direct support of Manufacturing Department operations were transferred from the Engineering Department to the Manufacturing Department. Personnel of the Service Sub-Unit transferred with these functions were 119 non-exempt employees, effective December 31, 1951 and 25 exempt employees, effective January 2, 1952.

Minor personnel changes within the Service Sub-Unit were the terminations of one non-exempt and one exempt employee, the transfer of one Rotational Trainee to Technical Services Unit and the reactivation of three non-exempt employees returning from leaves of absence. In addition, one non-exempt employee and one Rotational Trainee were transferred from the Research to the Service Sub-Unit.

ANALYTICAL RESEARCH

Redox Process

Analytical methods developed for control of the Redox Process were employed routinely during the month in support of process shakedown runs. The large majority proved adequate, although modifications were required in several cases. Low laboratory values for permanganate in H-4 oxidizer solutions were found to be due to the Saran sample pipet tip which caused a reduction in permanganate content of samples of 5 to 30% in one hour; steps were taken to replace the Saran tips with Polythene or Teflon which did not cause such a reduction. In order to save time the assay procedure for IAW samples is being reviewed with the hope of eliminating the one-half hour period originally proposed for the destruction of plutonium (IV) polymer. Difficulty was encountered in determining the pH of highly alkaline neutralized waste solution, presumably because of the effect of high sodium content on the glass electrode. To eliminate thid difficulty, a procedure for titration of excess free caustic has been introduced and a group of glass electrodes has been ordered for test purposes.

A study was initiated to determine the effect of conversion electron and x-ray emission on the evaluation of Redox plutonium beta decontamination.

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Since this effect is quite large, it follows that it has an appreciable influence on the decontamination factors calculated from the measurement data or, conversely, that it has a bearing on the fission product tolerance value in plutonium product. If, in contrast to previous practice, a thin gold absorber is employed in beta measurements to eliminate counts from conversion electrons and x-rays, Bismuth Phosphate Process P-1 samples exhibit a counting rate about 1/40 of the maximum proposed for Redox plutonium product. The P-1 transfer cans, however, have mr readings of as much as 1/2 to 1/4 of the permissible tolerance. It is thus apparent that a change of measurement method to yield true fission product beta determinations must be accompanied by a corresponding change in the decontamination factor.

A standards procedure whereby blind standard samples are introduced to the laboratory via the operating engineers was initiated. Eighteen synthetic samples, representative of six separate Redox streams, were analyzed by the laboratory. Results for specific gravity and calculated results for uranium and aluminum were excellent. Volumetric results for nitric acid exhibited poor precision and accuracy; the method was subsequently replaced by one involving the measurement of pH. Radioassays for plutonium on several standards yielded low results and stimulated a re-examination of the analytical procedure.

Metal Recovery Process

A mass spectrometer and sample preparation equipment for the determination of uranium isotopes in UO_3 product were installed and at month's end were being tested with standard samples. It is expected that the technique will be available for routine use by mid-month, although further equipment testing and evaluation of factors will be required. Several standard UO_3 samples were received from Oak Ridge and analyzed for specific surface area. It was noted, as with Hanford material, that a prolonged evacuation period tended to increase the observed specific surface. Analyses employing a three-hour evacuation period, as employed at Oak Ridge, yielded excellent check results, as indicated in the following summary:

SPECIFIC SURFACE AREA

Oak Ridge, $m^2/g.$	Hanford Long Outgassing Period $m^2/g.$	Hanford Three-Hour Outgassing Period $m^2/g.$
1.50	1.68	1.50
1.04	1.19	1.12

With the hope of explaining the cause of the high specific surface, nitrate content, and water content of Hanford UO_3, a group of samples was examined microscopically. Oak Ridge and Mallinckrodt material consisted of yellow, amorphous crystals, having a diameter greater than 10 microns and showing no extinction under crossed nicols. Hanford material, on the other hand, consisted mostly of yellow particles of less than 4 microns diameter and

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contained appreciable quantities of deep orange to ruby red crystals that tended to show some extinction under crossed nicols. The yellow crystals dissolved readily in 6 N hydrochloric acid, whereas the reddish crystals dissolved only slowly. The reddish crystals were present principally in oxide showing unsatisfactory chemical composition and mechanical properties and were observed to compose most of the hydrochloric acid insoluble material that should represent only U_3O_8. The properties of the colored crystals were typical of those described in the literature for various hydrates of uranium oxides.

In view of the microscopic examination reported above and of the fact that determination of U_3O_8 by insolubility in hydrochloric acid although accurate on Mallinckrodt UO_3 is not reproducible with the impure Hanford product, an alternate procedure is being investigated. This involves complete dissolution of the sample and spectrophotometric determination of tetravalent uranium. A mixture of phosphoric and sulfuric acids in water was found to dissolve the sample most readily; the presence of formic acid during the dissolution was found to prevent the oxidation of tetravalent uranium by the nitric acid in the sample, although it was observed that the formic acid tends to increase the height of the absorption peaks.

In preparation for the start-up of the TBP Process, the infrared spectrophotometer to be employed for TBP determinations was relocated during the month in the process control laboratory.

P-10 Process

The G.E. mass spectrometer has been installed and placed in routine service for the analysis of P-10 samples. Prior to acceptance of the instrument, an improved focusing mechanism was installed; the device provides automatic focusing at each of the m/e peaks 2, 3, 4, 6, and greater than 10. After transfer of the routine load to the new instrument, the Consolidated mass spectrometer was modified by replacing the mechanical scanning mechanism with a considerably improved electromagnetic scanning device. Comparison of results obtained with the two instruments shows satisfactory agreement; a small bias does exist, and it is considered that the G.E. instrument results are more accurate because the factors were more recently determined.

234-5 Process

Using uranium as a stand-in, excellent precisions have been obtained with the x-ray photometric procedure for the assay of plutonium in plutonium metal product. The precision at the 99% level for the average of a pair of determinations is ± 0.20%. For a single determination the precision associated with instrumental readings is ± 0.16%; that for the correction due to impurities is 0.06% and that for the overall analysis is ± 0.29%. According to the proposed procedure, the sample is dissolved in a fixed amount of 3 N hydrochloric acid, made to volume, and measured on the instrument. Measurements are made according to the differential technique whereby the sample is measured against a standard reference solution; an added improvement results from taking a pair of readings with the standard-process sample combination interchanged with respect to the two beams of the double beam

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instrument for the second reading. According to this procedure, employing two measurements each on the top and bottom samples, the assay can be completed in one hour, whereas the present volumetric analysis requires two hours.

Pile Technology Problems

Further consideration of spectrochemical methods supports the previous observation that considerable improvement may be effected by their application to pile water analyses. The sodium content of samples, which is in the order of 1.5 p.p.m., can be determined in several minutes with the flame photometer with a precision of ± 0.2 p.p.m.; the presently employed colorimetric procedure requires about three hours of analytical time. Similarly, the calcium content, of the order of 25 p.p.m., can be determined in several minutes with a precision of ± 2 p.p.m., and thus replace an indirect method in which calcium is determined as the difference between the measured calcium plus magnesium content and the measured magnesium content of the water. The flame photometric technique is less sensitive to magnesium, although further examination may show it to be suitable for this purpose. In parallel with this work spectrographic procedures employing the newly developed porous cup solution excitation technique are being examined. Standard plates for quantitative evaluation of magnesium and calcium were prepared for this purpose.

The infrared moisture analyzer to be employed for in-pile graphite burnout studies was returned from the manufacturer and is being tested. Continuous operation during a 10-15 hour period revealed a variation in response of only ± 0.12% absolute. The instrument is exceptionally sensitive to temperature fluctuations but has been designed to minimize error from this source. Preliminary tests indicate that the measurement scale was not properly calibrated by the vendor; samples containing 0.74 and 2.2% moisture yielded results of 0.74 and 1.9, respectively. Although the instrument is designed to exhibit no response to carbon monoxide, it was noted that introduction of this gas drove the recorder completely off scale. In final application for continuous measurement it is proposed to occasionally zero the instrument after complete evacuation of the sample cell. Since the scale calibration adjustment is less readily made, consideration is being given to introducing a device that supplies a standard test signal; this would serve to calibrate all but the optical and sensing elements.

A special dissolver solution prepared from selected slugs from the H pile was decontaminated and analyzed for plutonium isotope composition in support of Pile Technology studies. The results obtained were in agreement with those previously reported for AT solution derived from this special dissolver solution; thus indicating that no mixing of batches occurred during 221, 224 and 231 Bldg. process operations.

General

Initiating a study of the application of scintillation counters to the continuous in-line monitoring of gamma content of process solutions, tests were

made to determine the effect of remote recording. A scintillation counter and pre-amplifier were connected to an amplifier and recorder by 200 feet of shielded cable. Measurements with this system employing a radium source showed that the gamma counting rate was 1% below normal. No electrical interference was observed, and the background was normal. In other tests it was found that under simulated operating conditions only 4% attenuation of gamma counting was observed when the rays were allowed to pass through 1 1/2 inch of water.

Work is underway on the development of techniques for continuously measuring the pH of radicactive process streams. Difficulties of concern in Hanford applications are deterioration of glass electrodes by radioactivity and errors resulting from the high sodium content of neutralized waste solutions. Studies of the stability of equipment and of electrodes in non-active solutions and of the magnitude of the salt error have been initiated; a group of electrodes of different properties have been ordered for test with active solutions; and preparations have been made to erect a cave for testing electrodes in active solutions.

Additional studies of the effect of beta radiation on the measurement of alpha counting rate with conventional ASP counters further supported previous evidence that the beta radiations tend to reduce the alpha counting rate. Examinations have been made using paired half discs containing beta and alpha emitters, respectively, and with an alpha pulse generator. Examination of oscillographic patterns shows that the effect of beta radiations is to produce an oscillating background; it is proposed that alpha counts superimposed on valleys in the fluctuating background are eliminated. Synthetic samples of dissolver solution appear to yield alpha counting rates that are of the order of 0.5% low because of this effect no exact correction to process assays can yet be defined, however.

Experience in the control laboratory with the use of passivated stainless steel discs in the radioassay of plutonium supported previous research conclusions. Mounted samples from various waste streams that would tend to corrod normal stainless discs have no effect on the passivated discs and give essentially quantitative alpha counting measurements.

The previously reported modification of the americium-curium procedure that allows its application in the presence of various interfering substances has yielded excellent results and was shown to be suitable for application to hexone-containing streams. By application of this procedure, the program for determining the distribution of americium-curium in various Bismuth Phosphate Process streams was completed.

A Bausch and Lomb direct reading emission spectrometer was previously purchased by Hanford with the intent of employing it for continuous analysis of P-10 streams. The instrument was initially employed for P-10 development work at KAPL and has now been sent to Hanford and installed in the 3706 Building. Examination showed that it was in very poor operating condition; fourteen or fifteen electron tubes -- representing nearly all of those in the instrument -- were bad and required replacement; a capacitor and a relay

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were found to be shorted; and a slow recorder response was observed under certain operation conditions. The various difficulties were corrected, and steps have been taken to obtain an excitation source suitable for use in conjunction with the instrument.

In the hope of eliminating a large group of cyanogen bands that appear in the ultraviolet region and block out many spectrographic emission lines of analytical interest, studies were made on excitations in a nitrogen-free atmosphere. Two different arc enclosure assemblies were prepared and excitations were performed in helium-oxygen atmospheres. In the presence of 100% helium a strong suppression of the emission lines was observed; in the presence of excess oxygen the sample was observed to burn too rapidly. A mixture containing 80% helium and 20% oxygen was found most suitable. Other tests determined the optimum flow rate and established the fact that no background interference resulted from contamination of the chamber walls.

Experimental aluminum-silicon sample discs cast at a reduced temperature yielded mechanically perfect discs that were metallurgically homogeneous; these discs are being examined spectrographically to determine uniformity of composition and thus analytical applicability.

A group of standard alpha counting discs was counted on each of the control laboratory alpha counters to determine the uniformity of the counters; the precision of any single group of readings was ± 0.6%, and the geometry of all counters was found to fall within the standard limits. Excellent agreement was obtained in a test in which a dilute plutonium solution was submitted to each control laboratory for radioassay.

The first quarterly report was received describing progress on a research sub-contract let to Reed College. The research problem involves development of a general scheme for separating and determining trace quantities of radioactive isotopes. Considerable literature work has been done to define a group of successive separations that appear to be applicable. The various distillation, precipitation, and extraction techniques were tested with milligram quantities of nonactive elements, and limited tests were made with active isotopes.

ANALYTICAL SERVICE

Work Volume Statistics

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

	December*		January	
	Samples	Determinations	Samples	Determinations
Process Control - 234-5	669	4,698	684	3,806
Process Control - Metal Preparation	638	899	617	1,302
Research & Development Programs	1,077	1,638	1,[illegible]	2,535
P-10 Control	489	4,890	751	7,510
Water Quality, P-13	199	903	446	1,475
Redox, TBP, UO_3	627	1,734	470	1,395
Process Reagents	238	468	526	1,195
Essential Materials	128	660	21	44
Special Samples	424	6,118	398	4,479
Totals	4,489	22,008	5,305	23,741

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- Work performed in laboratories transferred to the Manufacturing Department on January 2 has been excluded to permit direct comparison with January work volume.

100-300 Area Services

Increased P-10 production during the month resulted in a workload which exceeded the capacity of one mass spectrometer using standard operating procedures. By decreasing the pumpout time between like samples from 20 to 7 minutes and averaging background readings before and after the sample readings, the laboratory was able to keep on schedule and not hold up operations. This was a temporary expedient which will no longer be necessary now that the General Electric and the Consolidated-Nier Mass Spectrometers are both available for control use.

Several interesting special service problems were completed. A boron powder observed to ignite from a spark was submitted by Safety and Fire Protection and found to contain 7% powdered magnesium. Tests were made on a wire pulling compound for Design and Construction Services Unit to determine if it would react with the wire insulation. No harmful reactions were observed. Twenty-one samples of a mixture of cerium fluoride, calcium metal and sulfur from the RM line in the 234-5 Building were analyzed to compare the uniformity of composition with mixing time.

The short supply of nickel will apparently necessitate the use of 14-18% chrome instead of nickel-chrome steels at Hanford. In preparation for this, samples of chrome steel have been procured and analyzed by wet chemical methods in order that known spectrographic standards may be on hand when specification analyses are needed. Several alloys of aluminum and magnesium were obtained from the metallurgy Sub-Unit and analyzed by wet chemical methods to develop spectrographic standards for use in assisting Pile Technology in their studies of pile tube coatings.

Determination of the fluorine content of experimental plutonium fluoride products by pyrohydrolysis appears to offer more promise than analyses by dissolution and hydrofluorosilic acid distillation. According to reports, many rare earths, uranium, thorium, alkaline earths and fluorides have been analyzed rapidly by the pyrohydrolysis method with errors of less than 1% of the fluoride present. Steps have been taken to obtain necessary equipment for this method.

A large increase in analytical service for Pile Technology Unit resulted from the start-up of certain phases of the water quality studies in 100-D Area. Close analytical and technical assistance was rendered.

222-S Bldg. Laboratory

Training on methods for fission product, plutonium and fluorometric uranium analyses; UO_3 specification analyses; and operation of the analytical sampling line equipment continued during the month. Although these fill-in exercises are valuable, only experience under steady plant operating conditions can yield the maximum of laboratory efficiency.

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Analytical Unit

Material balance summations of specification analyses on UO_3 samples provide evidence that the analyses are in good control. On two samples of UO_3 received from Oak Ridge summations were greater than 99%. Summations for 19 samples of Plant UO_3 on which spectrographic analyses were performed in addition to the standard determinations of UO_3, U_3O_8, NO_3^- and H_2O averaged ca. 99.2%, a reasonable value considering that all significant components of this relatively impure product have not been determined, e.g., Al, O in phosphate and impurity element oxides, etc.

The pH method replaced the titration method for the determination of nitric acid on head-end samples starting with Run S-5. With this change, a saving of approximately 30 minutes of analytical time per determination was realized. Analytical Research personnel are currently preparing calibration data for use of this method on Redox stream samples. It is too early to assign precision values for the method, but two determinations on blind HLF test samples indicated good accuracy.

The laboratory received the first supernatant samples from the slurrying and blending of the metal waste sludge in the 101U cascade of the 241-UR tank farm. Uranium, sulfate, phosphate and sodium determinations were requested and no difficulty was experienced. No difficulty is expected with the uranium and specific gravity determinations on the daily sample now being taken during homogenization.

During cold feed preparation studies Separation Technology Unit personnel noted that H-4 samples (Oxidizer) taken with standard Saran pipettes were generally lower in $KMnO_4$ concentration than similar samples taken in glass equipment. This suggested reduction of $KMnO_4$ in the sampler tip, the consequence of which is the reporting of fictitiously high values for heat-kill during the H-4 oxidation. Analytical Research personnel found that the Saran pipette tips reduced the $KMnO_4$ 30-50% within one hour, but Teflon or Polythene had no effect. Accordingly, a small supply of Teflon pipette tips were fabricated by Technical Shops for immediate use and a larger order for Polythene tips, which are less affected by heat and are easier to fabricate, has been placed with a vendor.

Sampling in the analytical sampling line continues to be one of the major problems and a potential source of delayed results on priority samples. Only one line is in operation and considerable difficulties have been experienced with the oil displacement sampler because of Redox slurry samples plugging the pipette and with the falling drop specific gravity apparatus because of faulty electronic controls. Construction and installation of the second analytical line - which will eliminate the possibility of delayed results on priority samples - has suffered several unfortunate delays; it is now expected to be available shortly after the middle of February.

The two fluorimeters are operating satisfactorily after several mechanical improvements were made. The remaining major difficulty at this time is a "memory" effect (i.e., a tendency of the instrument to give high readings on a low sample after exposure to a high level sample) which is being studied by Instrument Development. The analytical time required for uranium fluorimetric analysis on the IAW and IBP sample was reduced from 45 to 25 minutes

and the radiation and quenching problems were eliminated by the use of a hexone extraction prior to preparation of the sample melts. Three methods are now in use for uranium fluorimetric analyses: (1) internal standard method (UF-1a) for samples of unknown composition, (2) hexone extraction before preparation of sample melt (UF-2a) and direct conversion of instrument reading by means of calibration chart for standard stream samples and (3) direct mount (UF-3a) and direct conversion of instrument readings for samples of low activity having no ions which interfere with fluorescence of uranium.

Prior to processing of irradiated metal, uranium in the H-7 (metal storage) sample was determined by a volumetric method (UV-3a). A blind test sample supported suspicions that in control laboratory use and at the small sample volumes permissible with hot samples the accuracy of this method was not satisfactory. To improve the accuracy and also reduce the analytical time required it was decided to calculate the uranium content of H-7 samples from the density. Blind HLP test samples submitted by Analytical Research have shown that determination of uranium concentrations by density calibration is a rapid and accurate method for use on head-end samples.

The apparatus for surface area determination on UO_3 Product was installed during the month and is now in control use. Depending on the water and nitric acid content, which effect outgassing time, approximately 4-6 determinations/24 hours can be made on the single unit.

The Consolidated mass spectrometer for isotopic analysis of UO_3 product was received during the month. Installation and testing are expected to be complete by February 11 when it will be needed for control use.

Experience to date has shown that analytical times for analyses made in gloved boxes are 30-50% greater than preliminary estimates. However, plutonium contamination control has been excellent during the tracer runs, and it is hoped that the man-hours saved as a result of improved contamination control will offset the extra analytical time required for gloved box work. There is some concern, however, over the radiation exposure to the hands in the gloved box and the inability to monitor readily within the box poses a problem which at this time is unsolved.

234-5 Bldg. Laboratory

Laboratory results for radiochemical plutonium assay on runs started on or after January 1, 1952 were reported on a basis of a 50.0% geometry (HW-23100).

Because of high impurity content in the six special buttons prepared from scow cleanings, floor and furnace sweepings, etc. the plutonium content had to be obtained by radiochemical methods rather than by chemical assay.

Data is being obtained on the precision and accuracy of the boron determination using Los Alamos' method of separating plutonium from the boron. If this separation, which is more rapid than the one currently in use, does not adversely affect the precision and accuracy of the method, a savings of ca. 100 man-hours/month, based on present sampling frequencies, may be realized by

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using it in place of the present method of separation.

The number of titrations per metal casting sample (MC-1 and MC-2) for the chemical assay of plutonium (Method PU-V-2a) was first reduced from + to 2 and then discontinued because of the relatively large variation (± 0.3% at 99%) between sample cuttings.

Studies on the recovery or plutonium from laboratory wastes derived from P-4 samples have indicated that it is not economically feasible to strive for the purity necessary for return to the 231 Building process. Instead, the plutonium solution will be freed of chlorides and returned to the E-4-RC tank of the 224 Building. Current work indicates the same procedure will be applicable to the titration wastes deriving from the chemical assay of plutonium metal. The remaining major recovery problem is the recovery of plutonium from the cupferron extraction wastes. Modifications were made in the collection of these wastes so that the volume collected and subsequently prosessed can be reduced by a factor of 3 or 4.

The recovery of plutonium from laboratory waste solutions continued during the month with a total of 750.825 grams returned to the 231 Building process.

Investigations have revealed that the sensitivity of the carrier distillation method for boron could not be increased by using the larger grating (36,600 lines/inch) on the spectrograph. Although the density of the spectrum lines for some concentrations of elements was increased, so was the visible background which eliminated any relative increase in the contrast between the lines and the adjacent background.

Methods Control

A comparison was made between the revised isotope correction factor (HW-23100) adopted on January 1, 1952, the factor in use prior to the substitution (HW-20581) and factors calculated from current chemical and radio analyses. Tabulated below are the comparisons:

Run Series	B-11-11	T-11-11	B&T-11-11	B-11-12	T-11-12	B&T-11-12
No. of Determinations	73	80	153	67	68	135
Av. % Diff. from Previous Factor (HW-20581)	+2.37	+2.11	+2.23	+2.93	+2.32	+2.62
Av. % Diff. from Revised Factor (HW-23100)	+0.65	+0.46	+0.55	+1.36	+0.96	+1.16
% Precision, Individual	±5.18	±5.21	±5.19	±5.33	±6.05	±5.69
% Precision, Average	±0.61	±0.58	±0.42	±0.64	±0.74	±0.49

It has been very difficult to find a satisfactory reference solution for the falling drop specific gravity method which has a viscosity of approximately 75 millipoise and a specific gravity of 0.9 to 1.7. The one now being used is prepared by mixing a low density solution of 150 parts mineral oil and 115 parts fuel oil with a high density solution of one part alpha bromo napthalene and seven parts tetra bromo ethane. The only difficulty is that the fuel oil which must be light in color is difficult to obtain.

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Analytical Unit

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

Safety and Special Hazards Control

In the 234-5 Bldg. Laboratory at 11:30 AM on January 13, 1952 a fire was discovered in Hood 2 in Room 155. The room was unoccupied at the time and it is presumed that the fire started either from a short circuit in the hot plate electrical cord or from reagents (30% H_2O_2 and/or 70% HNO_3) which had been spilled previously on the diaper paper and caused spontaneous ignition. Steps have been taken to prevent recurrence of fires from either cause.

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

Data on laboratory surveys and contamination are presented below:

	234-5 Lab.	100-300 Labs.	222-S Lab.
Hours Survey Time	90	25	0
Non-Regulated Items Found Contaminated	73	0	0
No. Cases of Floor Contamination	2	0	0
Cases of Hand Contamination	2	0	0
Air Contamination (Above 3.0×10^{-11} ug Pu/cc)	2	0	0
Total People on Guided Work	36	0	0
Per Cent Guided Work Time	3.8	0	0

The above tolerance air samples occurred in Room 143 and 134 of the 234-5 Bldg. Laboratory. There was no known or apparent cause for these high air samples and routine operation proceded in the areas during the month without any reported unusual or special hazards problems.

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 January, 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	

FWA:ltc

Signed: F. W. Albaugh
F. W. Albaugh
Manager, Analytical Unit

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TECHNICAL SERVICES UNIT

JANUARY 1952

2-18-52

VISITORS & BUSINESS TRIPS

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

Business trips of Technical Services personnel were as follows:

T.W. Gore spent January 7-10 at the Farrel Birmingham Co. plants at Ansonia-Darby, Connecticut, and Buffalo, New York, discussing the major design requirements and specifications for the special equipment being fabricated for the new Radiometallurgy Building in the Works Laboratory Area.

ORGANIZATION AND PERSONNEL

Personnel totals in the several subdivisions are summarized as follows:

	December 31, 1951	January 31, 1952
Laboratory Engineering	73	82
Technical Information	86	91
Mathematics	29	-
Administrative	4	2
Unit Totals	192	175

The Mathematics Sub-Unit was transferred to the Utilities and General Services Department effective January 1, 1952.

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	December No. of Jobs	December Man-Hours	January No. of Jobs	January Man-Hours
Work Done on Jobs Completed	P-10	6	174	3	22
	Pile Tech. (Incl. P-12) (a)	31	544	31	510
	Separations Tech.	16	578	25	413
	Analytical	13	460	20	466
	Technical Services	20	653	12	338
	Others	9	109	6	24
	Sub-Totals	95	2518	97	1773
Work Done on Jobs Not Completed	P-10	2	164	5	370
	Pile Tech. (Incl. P-12)	9	190	8	463
	Separations Tech.	9	144	8	100
	Analytical	6	317	5	250
	Technical Services	10	558	10	537
	Others	3	26	3	25
	Sub-Totals	39	1399	39	1745
Total Work Done			3917		3518
Work Backlog:					Man-Hours To Complete
Jobs Started	P-10	2	27	5	77
	Pile Tech. (Incl. P-12)	9	299	8	265
	Separations Tech.	9	96	8	196
	Analytical	6	461	5	154
	Technical Services	10	604	10	503
	Others	3	31	3	190
	Sub-Totals	39	1518	39	1385
Jobs Not Yet Started	P-10	1	12	2	460
	Pile Tech. (Incl. P-12)	12	486	13	371
	Separations Tech.	0	0	2	203
	Analytical	5	59	5	49
	Technical Services	6	275	4	154
	Others	0	0	3	661
	Sub-Totals	24	832	29	1898
Total Backlog			2350		3283 (b)

(a) P-12 designates the Exponential Pile Project.
(b) Does not include 412 man-hours cross-ordered to other shops.

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The shop is operating on a 3,283 man-hour backlog which represents approximately 18 working days with present forces. All assigned personnel are on a normal five-day work week schedule. Sixty man-hours assistance were received from other plant shops, while 210 man-hours were received on cross-orders from other plant shops.

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

Pile Technology

Fourteen neoprene gauntlets varying from 12" to 48" overall length were fabricated by modifying commercially available neoprene bellows. The work required modification of an existing rubber mold and the design and fabrication of two special mandrels. The bonding technique applied was developed by the Technical Shops and has become an integral part of the shops service.

Twelve mercury traps were fabricated and partially assembled in the shop. These units were constructed from stainless steel, and were Heliarc welded, degreased, pickled and leak tested before delivery. Twelve man-hours of shop overtime were required to complete the order on the required schedule.

Fabrication has been started on six additional Teflon seated, spring loaded, electrically actuated, pneumatically operated Skinner Valve adapters for the P-10 Metal Lines. The Teflon seats and springs required for these adapters are shop developments.

Fabrication of three dry test nozzle sets was started and was approximately 75% completed. An estimated total of 350 man-hours will be required for the work. Two of the sets will be used in Graphite Research and Development programs; the third set will be used by Argonne National Laboratories. The work requested involves modification of special front and rear face nozzles; and the fabrication of special steel shielding slugs with 180° spiral grooves, allied charging equipment, fittings, parts and sealing mandrels. The units will be leak tested and degreased before delivery.

Fabrication of the heavy duty steel table and lead collimator blocks to be used in radiation attenuation studies was started. The requested table has a 1" thick steel boiler plate top and is 18" wide and 8' long. The top is supported by 3" channel iron legs and bracing. The unit was so designed that it may be leveled by shims. The finished weight of the table is approximately 700 pounds. The 8" x 8" x 12" lead collimating blocks were cast and are being machined by the shop. Work is approximately 50% complete.

The resurfacing of a set of rolls for the Metallurgy Laboratory Rolling Mill has been started. The rolls are fabricated of heat treated steel which has work hardened. It has been necessary to make initial cuts through the extremely hard case, using a tool post grinder. The balance of the work will be done with a carboloy tool bit. The rolls are approximately 78% complete.

Separations Technology

Two Kellex-type door stops were fabricated on an emergency basis for Chemical

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Research. The door stops are fabricated from 6" diameter stainless steel round stock and are approximately 6" long. The stainless steel step-plug is held in place by a removable bolt and bail. A high polish was necessary on all surfaces for ease of decontamination.

A second 9' gloved box is being fabricated. This box is similar in many details to the 9' unit now in use in the 300 Area. It is fabricated of plywood and will be equipped with Homolite windows set in neoprene gaskets. The job techniques required for machining of Homolite have been developed by the Technical Shops.

Analytical Unit

Considerable machinists' assistance was furnished in connection with the Bldg. 222-S start-up. This work has included the adjustments to and final installations of parts for the Analytical Line and the fabrication of a second modified Oil Displacement Primary Sampler.

Technical Services

Shop personnel have worked closely with Laboratory Equipment Design engineers in the development of a remote cut-off box. The unit at present consists of a very small high speed AC motor driving a gear reduced work head which may be moved laterally. The unit is also capable of longitudinal movement and will use standard high speed slitting saws. Speed reduction is from 2,700 RPM motor input to a 0.25 RPM saw speed.

Further machinists' assistance was furnished in the development of the Hanford Slave Type Manipulator.

Cross-Orders from Other Shops

A 200 man-hour cross-order was received from the 300 Area Instrument Shop for the fabrication of a Flexowriter control unit. The unit is fabricated from 1/8" x 2" S. aluminum. It must be air and dust tight and is equipped with refrigerator type door seals. The unit is being Heliarc welded. All surfaces must be reasonably free from scratches and imperfections. The unit ultimately will be installed in the 105-B Building for use in Pile Application studies. The work is approximately 80% complete.

New Machining Tools and Equipment

Due to the increasing demand for Heliarc and inert gas welding, a flowmeter, an economizer and additional copper lines have been installed so that the two assigned welders may do this type of work simultaneously. A high frequency starter for the DC unit was added to enable the shops to weld thin walled tubing without danger of burn through.

A Wheelco Capacitrol Temperature Controller was obtained for use with the rubber molding press and the Teflon heating shoes.

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Work on the Teflon Jointing Program has been continued and several apparently successful Teflon welds have been obtained. One weld measuring approximately 1" x 8" was produced. Sections on this weld will be tested to determine the effects of this bonding technique. A second method which involves imbedding a very fine (.003 diameter) nichrome heating element in a butt type joint is under investigation. It has been reported that repair type welds using this method are possible in as little as one hour's time. Samples of a Teflon dispersion paint were received on January 22 and will be used for further experiments on this program.

The equipment for the metal-to-ceramic brazing program has been completed and assembled. It is expected that actual experimentation will be started as soon as the equipment can be thoroughly tested.

Glass Shops (Bldgs. 3706 and 222-S)

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

Jobs Completed	December	January
New	70	73
Repairs	21	10
Revisions	4	25
Total	95	108

Seven of the above jobs required quartz fabrication. At the present time, the shop has the backlog of 27 jobs which will require approximately 13 man-days to complete.

On January 7 a glassblower was transferred from the P-10 program (108-B Bldg.) to Bldg. 222-S. Glassblowing service is being provided in Bldg. 222-S in conjunction with building start-up and will be continued if needed.

The training program for glassblower trainees and mechanics in the Bldg. 3706 Shop is showing satisfactory progress.

The completion of the Quartz Room in the Bldg. 3706 Glass Shop is still awaiting delivery of the new glass lathe. This lathe is currently scheduled for February delivery.

Equipment Design

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

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al Services Unit

	December		January	
	Engineering	Drafting* & Misc.	Engineering	Drafting** & Misc.
Pile Technology	34	311	44	391
Engineering	17	203	--	86
Metallurgy	--	--	10	26
P-10	--	--	--	--
Pile Applications				
Separations Technology	36	8	50	80
Development	61	377	72	517
Research				
Analytical	126	993	176	1019
Service	8	34	--	60
Research				
Technical Services	--	--	550	567
Laboratory Engineering				
Laboratory Equipment Development (RDA #TC-5)	670	599	826	710
Totals	952	2525	1728 (a)	3456 (a)

*Includes 1163 hours of drafting time.
**Includes 1472 hours of drafting time.
(a)-Effective this period, these totals have been revised to reflect the total available man-hours within the group. Previously the tabulation included only the work done for other units in addition to RDA #TC-5.

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

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

Pile Engineering

Engineering assistance was given on drafting of the pigtail test jig, test sample, flange seal housing, graphite hot shop floor plans, O.D. gage for process tubes, Hanford shipping case, film test apparatus, showcards, and various graphs.

Pile Metallurgy

Assistance was given on the drafting of the metal sounding tank, corrosion laboratory floor plans, uniscan machine, and various graphs.

P-10

Assistance was given on the drafting of various graphs and charts.

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Chemical Development

Continued assistance was given on outfitting the multicurie cells of Bldg. 222-S, and of several junior cave boxes.

Chemical Research

Work continued on outfitting the multicurie cell with the alpha pulse column. Engineering assistance was given on the 9' gloved box, Jones connector covers, sample shaker, falling drop apparatus; and the drafting of the bottle holder, solvent washing rack, hydraulically operated pinch clamp opener, batch extracter and osmometric unit.

Analytical Services

Continued assistance was given on outfitting the gloved boxes and the analytical line for Bldg. 222-S. Engineering assistance was given on the 8-place magnetic stirrer; and the drafting of the oil displacement sampler, falling drop apparatus, hand operated pipetter, platinum reaction tube, glass reactor, cold spot dryer, and various graphs.

Analytical Research

Engineering assistance was given on the outfitting of two gloved boxes.

Laboratory Equipment Development (RDA #TC-5)

Development of Bldg. 222-S multicurie cell equipment and the slave type manipulator continued. Work continued on development of equipment decontamination facilities for the building. Three engineers continued work under this RDA. These personnel were engaged in the development of remote control radiochemical equipment for Chemical Research, Chemical Development and Analytical Services. A remote cut-off device for possible use for metallurgy specimens was under development in the Mechanical Development Shop.

New Laboratory Planning

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

Procurement of materials for Phase II is proceeding but no further construction activity is in progress. A project proposal for the uninstalled equipment is currently being prepared by the Design and Construction Management Services.

Mechanical Development Bldg., Proj. C-406

Formal notice to proceed with the design of the interior of the Mechanical Development Bldg. was issued January 3, 1952, to the Dix Steel Building Co. of Spokane, Washington, on Subcontract No. G-416. By this contract, Dix will perform Architect-Engineer services in connection with the interior design (Phase II) for the sum of $17,000.00 and, if required, field engineering services in connection with the construction contractor for the sum of $5,500.00.

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At month end satisfactory progress had been made on preliminary plans and specifications, but no design features had been submitted to General Electric for formal approval.

Radiochemistry Bldg., Proj. C-381

Construction is still being held up awaiting arrival of the structural steel. The latest reports indicated that all the structural steel has been rolled and is currently being fabricated into structural shapes. Steel shipments are expected by mid-February. Meanwhile, a review of items such as clocks, thresholds, hoods, and door locks has been made.

Outside Facilities and Utilities, Proj. C-394.

Construction is proceeding on the Badge House and the roofing has been applied. Excavations for the waste and utility lines is progressing and the main water line from the 3000 Area is being installed. The tractor-trailer system of liquid radioactive waste disposal was reviewed by a special committee upon request of the A & B Committee. It was again determined that this method was the most practical. Arrangements are being made by Transportation to purchase two tank trailers and the required tractors.

Radiometallurgy Bldg., Proj. C-385

The reinforced concrete columns supporting the Canyon Floor are complete and work is proceeding on the exterior basement walls. Preliminary alignments are being made for the salient electrical and plumbing services required under the basement floor.

Farrel Birmingham Company, fabricator of special "hot" cells, asked assistance in procuring the 1" steel plates for the Dry Storage Cell. This material was promptly located and shipped to the vendor's Buffalo plant.

Pile Technology Bldg., Proj. C-414

Work is proceeding on the reinforced concrete foundation walls and footings.

Library and Files Bldg., Proj. C-421

Construction is being held up awaiting arrival of structural steel. The steel is expected in February and the construction contractor is still hopeful of completing the building on schedule. In the meantime, the tile pattern for the floor is being studied in view of the recommendations by the Armstrong Cork Company. Lock schedules and clock locations were established during the month.

Building Services

Building 3706

Normal Bldg. 3706 services continued routinely. Material control, stockroom, work order and miscellaneous services activity is summarized as follows:

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	December	January
Purchase Requisitions		
Total number processed	71	90
Number requiring special expediting	12	90
Number requiring emergency handling	5	0
Stores Stock Requests	3	1
Store Orders		
Total number processed	990	1345
Number requiring emergency pick-up & delivery	13	10
Work Orders Processed	57	56
Miscellaneous Services		
Office furniture requests	8	14
Precious metal transactions	7	7
Office machines required	9	15

The duties formerly performed by a general clerk in the Bldg. 3706 stockroom were assigned to the stockroom helpers. The stockroom helpers now maintain the Kardex file on all materials and prepare all store orders for supplies in addition to their normal disbursing assignment. This move increased the operating efficiency of the stockroom and made the clerk available for more important work.

On January 22, the IBM Computing Unit moved from 3707-C to the 700 Area. Manufacturing Department's Instrument Development was assigned the large laboratory which was vacated and Laboratory Services-3706, Material Control was assigned the smaller office space. This space was occupied immediately and room 84 in Bldg. 3706 which was formerly occupied by Material Control was assigned to the Equipment Design group of the Technical Services Unit.

Material Control received an additional 300 catalog items and lists of these catalogs were prepared and circulated. The card file system for control of requests for information was expanded. Approximately 1500 product cards, cross referenced by companies, were prepared during the month.

A card file on all work orders was started. This file is arranged according to work description and provides ready reference to the progress of all work orders, the cost estimate, and the final cost.

Building 222-S

It is now necessary to send "hot" laboratory waste to Bldg. 202-S for neutralization and storage because of plutonium and fission-product contamination. Previously this waste contained only uranium and did not require storage. For economic reasons, sources of "hot" waste in Bldg. 222-S have been checked and personnel requested to exercise care in emptying sinks, waste traps, etc., to reduce the storage volume to a minimum. To date, records of transfer show an average of approximately 100 gallons of storage waste per day collected in Tank 103, Bldg. 219-S. Prior to construction it was estimated that this volume would average 150 gallons per day.

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Due to plutonium and fission product contamination, it is necessary that waste containing hexone be stripped and the hexone decontaminated before disposal. A Hexone Stripper unit designed and built by the Laboratory Equipment Design and the Mechanical Shops groups was installed in one of the decontamination room hoods for this purpose.

Technical grade nitric acid and caustic for use in the decontamination room and crib waste neutralizer respectively is now being obtained routinely from the Separations Section. A pipe line from Building 202 delivers 60% nitric by gravity flow. The caustic (50%) is transported in 55 gallon drums from Building 202 to 219.

The use of saturated citric acid solution and careful rinsing continues to be the most satisfactory method for decontaminating platinum dishes and discs.

Attempts to decontaminate 25 bayonet bases purchased off-site demonstrated the material of construction used is unsatisfactory. The type of stainless steel used is not acid resistant. Due to the shortage of equipment, these 25 units are being used and hand cleaned with detergents pending receipt of the replacement pieces.

A small fire occurred when hot slag from a welding operation dropped on an accumulation of waste in the elevator pit. It was easily extinguished with a 15 pound portable CO_2 extinguisher with no loss. The investigating committee recommended cleaning of the pit and a general improvement in welding procedures to prevent slag from falling into unprotected areas. The pit was cleaned up and will continue to be cleaned on a monthly schedule.

Installation of the new shaft pulleys and subsequent dynamic balancing of the exhaust fans in Bldg. 222-S is now being done by the 200 Area Maintenance and Instrument personnel. To prevent a complete shutdown of the building, the work is scheduled to be done on one unit at a time. To make this procedure possible, it was decided to cut an access port in the fan housings permitting work on one unit while three maintain the normal exhaust requirements. The access port has been cut in No. 1 exhaust fan, the replacement pulley installed and preliminary balancing started.

No results of the study of the retention waste problem have been reported by the Separations Section's Plant Engineering Unit. Samples from the Retention Basin are taken daily Monday through Friday and to date have shown no contamination. This has eliminated any necessity for special handling of the retention waste to date.

During January the Bldg. 222-S stockroom dispensed $2500 in materials to customer groups. A total of 44 work orders were issued and processed by Bldg. 222-S Work Order Control.

TECHNICAL INFORMATION SERVICES

Plant Library

Library work volume and book statistics were as follows:

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	December	January
Number of books on order	116	377
Number of books fully cataloged	105	129
Number of bound periodicals processed but not fully cataloged	10	112
Pamphlets added to the pamphlet file	0	30
Miscellaneous material received, processed and routed (Including reprints)	16	23
Books and periodicals circulated	3655	4098
Unclassified reports processed	360	470
Unclassified reports circulated	331	520
Reference services rendered	1336	1553
Inter-library loans	25	28
Photostats from off-site	17	25
New periodical titles added to Kardex	9	8

	Main Library	W-10 Library	108-F Library	Total
Number of books	8,288	3,746	438	12,472
Number of bound periodicals	5,109	0	638	5,747
Totals	13,397	3,746	1,076	18,219

Circulation, acquisitions-cataloging, and reference work proceeded routinely, although with a marked increase in work volume. Books received for processing, which had slackened during the holiday season, were up some 300%.

A sampling of typical reference questions follows:

Neutron cross section of Samarium 149.
Agent for retarding the setting of plaster of Paris.
Resistance of graphite and Molykote to hydrogen fluoride at elevated temperatures.
Detection of neutrons by means of Indium foils.
Operations and description of Berkeley Decimal scaler #2000.
Theoretical aspects of: 1. Radioassay method for plutonium.
2. Purity determination of the A-T sample.
3. Iron procedure, A-T sample.
Rate of settling of colloidal particles with regard to size and shape.
Industrial methods of chrome plating.
Methods for spraying clay with metal.
Methods of testing leaks in stainless steel welds.
Applications of O-rings to shaft and static seals.
Freezing point of 50% caustic.
Health hazards of diesel fumes in tunnels.
Solubility of nitrates in peroxide.
Corrosion resistance of low chromium steels.
General characteristics of Boron stainless steel.
Use of Freon to replace steam in a heat engine.
Precision casting by lost-wax process.
Smoothing of curves on weather maps.
Sampling molten metal baths.

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Many requests for information entail considerable off-site correspondence and follow-up. Some typical examples are (a) a new method, developed by the National Bureau of Standards, for measuring journal bearing clearances, (b) an explosive extinguisher described in a recent TIME magazine, (c) a report from the National Research Council of Canada on space requirements for scientific research laboratories, etc. Considerable time was spent in gathering, from all over the United States, references from a lengthy bibliography on protective structures.

A proposal to reduce the number of requisitions required for minor purchases was prepared and submitted to Engineering Accounting. It suggested expanding the use of the present petty cash fund to include purchases of inexpensive reference material. The proposal was submitted to the local A.E.C. for review, but at month end no reply had been received.

Classified Files

Work volume statistics for the Classified Files were as follows:

	December	January
Documents routed and discharged	13,568	30,243
Documents issued	6,516	6,965
Reference services rendered	4,900	4,800
Registered packages prepared for off-site	295	351
Inter-area mail sent via transmittal	26,938	39,043
Holders of Classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	37	14
(b) Because of transfer of work assignment	2	11
(c) Because of termination	2	2
Inventory reductions:		
Copies of documents destroyed	2,291	2,376
Copies of documents downgraded	504	256
Copies of documents declassified	396	220
Classified documents located which were unaccounted for in previous inventory	4	12
Standard storage cartons of material retired to the Records Center:		
Unclassified and Official Use Only	0	0
Classified	0	0

Work volume continued steadily to increase with the expanding plant forces. Documents routed and discharged substantially doubled, and overtime work was required to handle it. Mail, both off-site and inter-area, was up 25%, the latter reflecting increased activity in the outer areas. Copies of classified documents issued was up approximately 8%. The volume of requests for report material from off-site was increased steadily, requiring correspondence and follow-up. This is complicated by the fact that many requests are for classified items issued by other defense agencies on which only the most meager information is available.

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As in the past, Files procedures were under constant review for possible improvements. Files personnel met with A.E.C. and G.E. Security and redesigned the present cover sheet to conform to the recent Presidential Executive Order #10290. A conference was held with the Legal Department regarding the retention of record copies in Files of all documents recalled for correction. Present Files practice is to retain one record copy. Legal decided that this was unnecessary, and the present procedure will be revised accordingly. If the document is re-issued using a new document number, the old number will be voided with appropriate explanation. If the same number is re-used, the word REVISED will be appended to the new document. In both situations, all copies of the incorrect document will be destroyed. A satisfactory procedure, incorporating these changes for the Legal Department's approval, is being drafted. Also, in response to a number of suggestions from the field, a cumulative document receipt (C-2669-D (1-52)) was developed and made available through Files. The form may be used by personnel desiring to retire an accumulation of "yellow" document route cards.

The work of the Audit and Inventory unit proceeded as scheduled. During the month the summary of the 7- and 3- series was completed, and will be included in the report being readied for the A.E.C. Completion of the early duPont classified material, underway at month end, will finish the plant-wide inventory. A re-inventory of Research and Development reports, due in March, was begun. These documents are made the subject of a special report annually in accordance with provisions of GM-176.

Work on the writing of a manual of operating procedures for the Classified Files is going forward. Section 200, covering general office information (time cards, safety meetings, telephone manners, etc.) was completed and reproduced. As each procedure is written up, an attempt is being made to include figures considered a normal work load for the unit operation. The re-write of the manual on the preparation and care of classified documents has been substantially completed by the Public Relations Section and preparation of the illustrations is underway.

Time was spent during the month in preparation of reports for the Technical Information Panel, since the Hanford representative, Chairman of the Library and Document Control Committee, could not attend the February meeting in Washington, D.C. Progress reports on such Committee assignments as standardization of receipt forms; review of GM-176; indexing and abstracting metallurgical reports; progress report indexing and index cards; proposed work-shop for document librarians, etc., were made. It was also suggested that the Panel consider (a) an improvement in the cumulative index to classified reports, and (b) that information on all classified and unclassified contracts let by the Commission be made available at all sites. The latter would enable installations to keep abreast of developments applicable to their problems, and reduce duplication of effort.

The January 25 issue of the "Columbia Basin News" ran a feature story describing the work of the Classified Files and the importance of their operation to the plant's program. It was illustrated with a number of appropriate pictures.

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Central Reporting and Abstracting

	December	January
Ditto masters run	547	818
Mimeograph stencils run	993	1,201
Ditto masters prepared	20,311	34,270
Mimeograph copies prepared	54,406	78,615
Multilith masters types	311	209
Formal Research and Development Reports issued	7	6
Formal reports in process	7	9
Reports abstracted	322	530
Volume of unclassified mail handled by the 300 Area Mail Room	29,846	42,980

Work in Central Reporting and Abstracting proceeded on schedule, although the volume was markedly increased. Duplicating pushed toward new highs, and the volume of mail handled exceeded any previous reports. The equipment of the Duplicating unit was increased by the addition of a Multilith 1250, a Multilith 80, and a Zerox machine. This will allow the production of all the necessary type of work required for technical reports with the exception of illustrative material.

The work of the Abstracting and Indexing unit proceeded satisfactorily. Bibliographies are in process on "Slug Canning," "Powder Metallurgy," "Graphite," "Shielding Concretes" and "Corrosion." A useful summary of all Technical Section monthly reports (HW-23152) was issued, and it is anticipated that it will aid in reduction of personal holdings of this document series.

A cooperative effort with Technical Information Services, A.E.C., Oak Ridge, is underway in the field of subject bibliographies. TIS has agreed to complete the bibliography on "Zirconium Alloys" and Hanford's initial work in this area was contributed. Conversely, Hanford agreed to complete "Slug Canning" and a bibliography on the classified literature on "Corrosion." For these latter, TIS supplied a complete list of references from their catalog which could be reviewed for inclusion. In this connection also, Hanford recently suggested that a list of bibliographies in process through the Commission's activities be prepared frequently and circulated. This would insure more complete bibliographies, and reduce duplication of effort.

A rotational trainee was added to the staff of the Abstracting and Indexing unit to complete the normal working complement.

MATHEMATICAL SERVICES

Effective January 1, 1952, the Mathematics Sub-Unit transferred from the Technical Services Unit of the Technical Section, Engineering Department, to become the Statistical and Computing Services Section of the Utilities and General Services Department.

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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 January, 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
J.W. Underwood, Unit Manager

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DESIGN AND CONSTRUCTION MANAGEMENT SECTION

I. SUMMARY

A. ORGANIZATION

On January 2, 1952, the Atomic Energy Commission assumed architect-engineer-management responsibility for eight Hanford Works Laboratory Area projects. Of the twelve people affected, eleven were made offers by the Atomic Energy Commission. One accepted employment with the Atomic Energy Commission; two terminated for employment elsewhere; and nine remained with General Electric. One of the nine was given the required Notice of Removal from Payroll for reduction of force.

Effective January 24, the Project Information group was assimilated by the Design and Construction Services Unit.

One engineer returned from leave of absence and was reassigned to the Reactor Unit.

B. SCOPE OF ACTIVITIES

Architect-engineer-management responsibility for eight projects, Nos. C-199, C-257, C-364, C-381, C-385, C-394, C-414 and C-421, was assumed by the Atomic Energy Commission on January 2, 1952.

Major projects which were active during the month attained construction completion status as follows: C-349 - Hot Semi-Works, 65%; C-361 - Metal Conversion Facilities, 97.6%; C-362 - Waste Metal Recovery (TBP), 69.7%; C-413 - Expansion of 234-5 Facilities, 71.7%; C-431-A - 100-C Waterworks Facility, 34%; C-431-B - New Production Facility, 29%.

A letter was received from the Atomic Energy Commission authorizing $50,000 in design funds for Program X. A project proposal (HDC-2471: Design of a New Reactor), requesting $1,600,000 for new reactor design, has been prepared for issue in early February.

As of January 31, 1952, the Design and Construction Management Section had management responsibility for 37 projects over $20,000 and five projects from $5,000 - $20,000. It was doing preliminary work on 24 proposed projects, 18 of which were over $20,000. The Section was providing architect-engineer-management services, as requested by the Atomic Energy Commission, on 24 projects. Six Research and Development studies were in progress.

C. MATERIAL PROCUREMENT

Conferences on transfer of functions relative to controlled and critical materials were held with members of the Atomic Energy Commission Engineering and Construction Division, the Atomic Energy Commission Priorities Branch, and the Design and Construction Units concerned. The transfer of functions was agreed upon, with Design and Construction Management Section handling them until a construction contract is executed for projects for which the Atomic Energy Commission will assume construction management responsibility.

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C. MATERIAL PROCUREMENT (Continued)

The regular quarterly forecast of controlled materials for the next four quarters was prepared and submitted during the month.

Formal request was made through Purchasing and Stores Section to the Atomic Energy Commission for directive assistance. Directives have been issued or will be issued soon for all sizes of seamless black pipe for process water lines. New shipment dates have been established which are closer to the required dates.

D. CRAFT LABOR

Unit Managers reported extensive labor trouble, ranging from frequent jurisdictional squabbles to major walkouts.

Voluntary terminations of C.P.F.F. construction contractors' personnel averaged 2.01% as compared to 2.65% in December. This percentage has decreased steadily since October, 1951.

A net gain of 33 pipefitter-welders was made during the month. Of the 67 pipefitter-welders dispatched by the Union, 23 failed to pass the test. There are 54 men on requisition, including 31 welders.

Information was received on January 19 that the Wage Stabilization Board had approved the 50 cent per day increase in Isolation Pay for plumbers effective August 15, 1951.

The Wage Stabilization Board approved the 62½ cent per day increase in Isolation Pay for all crafts except plumbers and boilermakers, effective the first full payroll period following January 16.

The Wage Stabilization Board approved the increase to $2.52 per hour, effective August 1, 1951, for sheetmetal workers.

A Davis Panel member arrived in Richland on January 19 to obtain facts regarding the wage dispute with machinists. After discussions with the Atomic Energy Commission and Atkinson-Jones, he was shown through the White Bluffs machine shop and the 101 Shops. Atkinson-Jones suggested and arranged for a trip to Seattle on January 23 to visit an ironworks in order to give the Davis Panel member a comparison of relative skills required in a normal machine shop and in work at Hanford.

The Construction Industry Stabilization Commission approved an increase applicable to boilermakers in the Seven Western States Area (but not including Hanford Works) of from $2.53 to $2.68 per hour. The Union has demanded subsistence and travel pay as established in its Seven Western States Agreement rather than the pay now in effect at Hanford Works. Negotiations have not been successful.

The boilermakers have withheld men from two lump sum contractors since January 2 in protest over their failure to comply with the provisions of the Seven Western States Agreement.

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D. CRAFT LABOR (Continued)

A work stoppage resulting from a jurisdictional dispute between ironworkers and plumbers over the installation of adapter rings at the TBP Tank Farm began January 22 and lasted until January 28. At the peak of the stoppage, about 500 ironworkers refused to work, which resulted in temporary layoff of about 1500 supporting craftsmen. A return to work was effected after Atkinson-Jones requested and received action on a "cease work stoppage" order from the Joint Board for Settlement of Jurisdictional Disputes.

A lesser work stoppage occurred January 18 when about 60 operating engineers protested a 1/5 hour "dock" given to several men for clocking out before the proper time. The stoppage later spread to about 180 operating engineers. All the men returned to work January 21.

The carpenters have threatened a work stoppage in protest over the assignment of scaffolding erection.

A near work stoppage occurred on January 23 when six plumbers refused to ride in an all-craft shuttle bus from White Bluffs to 100-D. The plumbers were provided special transportation until January 24, when it was agreed that the men would be transported in all-craft buses.

The Technical Engineers and Architects' Association has petitioned the National Labor Relations Board for an election certifying them as the collective bargaining representative for a unit consisting of 49 engineering personnel now employed by Atkinson-Jones at Hanford Works. Employees concerned are: construction engineers, chiefs of party, safety engineers, designers, and office engineers. The National Labor Relations Board has formally notified Atkinson-Jones of the petition.

Relief from the continued shortage of pipe-fitter welders on Project C-431-A, 100-C Waterworks, was gained by means of a design change. The three 48" raw water lines and the two 66" pile effluent lines are being joined with Dresser couplings instead of welded joints.

On Project C-418, Additional Waste Storage Facilities, 241 TY, a subcontractor was two weeks ahead of schedule. This was cited by the Unit Manager as an excellent example of what can be accomplished through good management by the subcontractor and full cooperation of all parties.

E. SAFETY AND SECURITY

Injuries reported among construction contractors' personnel during the month consisted of 20 major (100% increase over previous month), 115 sub-major (no change), and 694 minor (18% decrease).

There were ten automotive accidents during the month, an increase of 100% over December. Inclement weather was the greatest factor. Total estimated damage was $1,389.

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E. SAFETY AND SECURITY (Continued)

The Minor Construction Stores building and a small portion of the Automotive Shop burned during the evening of January 28, 1952, with an almost total loss of the building and materials stored therein. The loss was tentatively estimated to be in excess of $250,000.

Fifteen other fires were reported with an estimated loss of $2,540. This figure includes $1,265 suffered by the Army.

Four hundred and forty security meetings were attended by a total of 4,100 construction contractor personnel.

The Safety Supervisor and a Safety Engineer attended a Safety Conference at the University of Washington on January 26, 1952.

F. HIGHLIGHTS OF UNIT ACTIVITIES

Management - Contract Group

The escalation claim for Fred J. Early, Jr. Company on Contract G-302, (Tank Farm Project C-187-D) was allowed for $31,000; an additional $9,000 was denied. Early requested a hearing on the latter item which is considered to be in dispute. The hearing was scheduled for February 5, 1952.

Extension to the contract for the rental of freight cars was accomplished with the Chicago, Milwaukee, and St. Paul railroad.

A proposed agreement for consultant service between General Electric and the Prepakt Concrete Company was drafted.

Atomic Energy Commission approval and signature was secured on the following: Contract G-416, with the Dix Steel Building Company; Contract G-2, Special Agreement #2 with the Washington Transit Advertising Company; Modification #2 to Contract G-363 with Charles T. Main; and Contract G-283, Modification #3, the agreement with Sheppard T. Powell, consultant.

Preliminary negotiations were begun with Washington State College relative to hydraulic testing of the model downcomer.

Negotiations were continued with the National Carbon Company for production of special graphite.

The Contract group continued to prepare and transfer contract records to the Atomic Energy Commission where applicable. The group also continued the preparation of closed-out contracts for record storage.

Design and Construction Services Unit

Interior painting of the five North Richland Administration Buildings was completed January 9.

Effective January 24, 1952, the Project Information Group was transferred from Design and Construction Management Section to this Unit.

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F. HIGHLIGHTS OF UNIT ACTIVITIES (Continued)

Design and Construction Services Unit (Continued)

Preparations have been completed to transfer the personnel and functions of the Office Services group to the Utilities and General Services Department as of February 4, 1952.

The drafting workload continued heavy during the month. RDA-DC-3 and Program X are the largest jobs now being worked. Reproduction output declined slightly in square feet of prints, but the number of prints increased by 39,000.

A new retention book of major construction equipment was prepared, and an equipment repair survey was made. The contractor has been notified to accelerate overhaul on certain items of major equipment.

Design and Development Unit

The focal points of Design and Development Unit work were RDA-DC-3, 4, 5, 6 and 7. RDA-DC-9, Product Purification and Metal Fabrication Equipment, was approved January 11, 1952. For fiscal year 1952 a fund of $69,000 was authorized, of which $30,000 is being allocated to General Engineering Laboratory by an "Assistance to Hanford" authorization.

As of January 10, 1952, design development work was concentrated on RDA-DC-7, the Purex process plant (HDC-2477).

Under RDA-DC-7 a system is being developed to deliver a product of such a concentration and acidity that it can be routed directly to the 234-5 Building, thus bypassing 231 Building.

The Unit assisted Technical Section in preparation of design scope material for a project proposal covering the Recuplex process.

Under RDA-DC-5, the General Engineering Laboratory has proposed a totally enclosed furnace assembly in which the atmosphere surrounding the crucible would be maintained at canning temperature. This space would serve as a preheater for caps and cans.

Members of the Unit visited extensively at other Atomic Energy Commission sites to study devices and methods which may be adapted to Hanford processes.

Minor Construction Management Unit

During the month 16 work orders were completed. New work authorized to the Unit during January consisted of 16 assignments amounting to $61,846.

The Minor Construction Stores building and a small portion of the Automotive Shop burned during the evening of January 28, with an almost total loss of the building and the material stored therein. Neither the cause nor the extent of loss has been definitely determined.

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F. HIGHLIGHTS OF UNIT ACTIVITIES (Continued)

Minor Construction Management Unit (Continued)

Since the Stores building burned, it has been decided to obtain miscellaneous stores from the Atkinson-Jones warehouse or by direct purchase.

Eighteen new jobs were estimated at a total of $152,000. Estimates to complete were made on seven jobs valued at $2,829,000.

Timekeeping responsibilities which were performed by personnel of the Service Organization are now being done with the I.B.M. facilities which are utilized in the normal business of the principal C. P. F. F. contractor (Atkinson-Jones). This change caused a reduction in number of contractor non-manual service personnel previously used for timekeeping and an expected saving of $45,000 per year.

Power and Mechanical Unit

The contract covering Project C-295, 251 Substation, which was reported complete as of December 31, 1951, was modified to provide for removal of the temporary 230 KV by-pass line. This work was completed satisfactorily January 28.

On C-431-A, 100-C Waterworks, design had been completed previously; construction was advanced 4% to a total of 34%. Construction schedules for C-431-A were revised to show a ready-for-use date of September 1, 1952. The Atomic Energy Commission has agreed to the revisions of schedules which reflect the commulative effect of manpower shortages, work stoppages, and delayed material deliveries. During the month, construction progressed on concrete work in the River Pump House, Filter Plant, and Process Pump House. Some parts have been received for each of the ten units required in the assembly of process pumping units.

Architect-engineer-management responsibilities were assumed by the Atomic Energy Commission as of January 2, 1952, for the following projects: C-199, C-257, C-364, C-381, C-385, C-394, C-414 and C-421 (Hanford Works Laboratory Area).

Project Engineering Unit

Work progressed on 70 active project items and 12 informal requests representing a total of $22,631,700.

Two revised proposals were transmitted in final form to sponsoring organizations. Two new project proposals were approved by the A & B Committee and sent to the Atomic Energy Commission.

Important jobs now in progress include the Ball Third Safety System, the P-10 Program, Water Quality Experimental Facilities, Activated Silica Addition Facilities, Pile and Pile Water Plant Improvements, Front Tube Corrosion Mock-Up Facilities, Addition of Fifth Boiler in 200-W Area, 313 Mechanization Program, and Positive Ion Accelerator.

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F. HIGHLIGHTS OF UNIT ACTIVITIES (Continued)

Project Engineering Unit (Continued)

Construction on C-349, Hot Semi-works, was advanced 4% to a total of 65%. Polythene flame sprayed on the cell walls has not produced a sufficiently impervious coating. Amercoat #1574, a newly developed material, can be applied satisfactorily and provides an acceptable coating. It is planned to abandon polythene and substitute Amercoat #1574 as hot cell coating. The material has been ordered, and an early delivery date promised. The contractor has requested a time extension.

Project C-491, Metallurgy Laboratory - 300 Area, was informally authorized by the Atomic Energy Commission. Final design is proceeding on a work order basis until the project is formally authorized.

Project C-409, Riverland Elevated Water Tank was completed.

Reactor Unit

A letter was received from the Atomic Energy Commission authorizing $50,000 in design funds for Program X. A project proposal (HDC-2471, Design of a New Reactor), has been prepared to request $1,600,000 for new reactor design.

On C-431-B, 100-C Production Facility, design work by General Electric was advanced 5% to a total of 93%. Design work by Vitro Corporation was advanced 1% to a total of 99%. Construction progressed 5% to a total of 29%. The third concrete pour for the process unit was placed January 19. Erection of structural steel is about 75% complete for the entire building. The first tier of "B" blocks in the outlet end were moved to the process area January 21.

Procurement of materials and equipment for C-431-B was about 98% complete.

During January two graphite layer groups of fifteen and sixteen layers respectively were completed, torn down, and packaged for delivery to 105-C.

Engineering and drafting on RDA-DC-3 has advanced on schedule. An interim report for October 6, 1951 to January 12, 1952, was issued as HDC-2466. Detailed data on design of the concrete biological shield was issued in HDC-2463. Arrangements have been made to have a local demonstration of methods and equipment by the Prepakt Company in connection with the placing of high density concrete.

A decision was made to authorize the General Engineering Laboratory to design, construct, and pre-test a full scale electroveyor for the Ball 3X return system. The cost of this prototype is estimated at $89,000 and it is scheduled for completion August 31, 1952. Two studies of pneumatic ball-conveying systems were completed.

Separations Unit

Separations Unit began a complete recheck of all Redox Production Plant canyon and silo equipment "as-built" drawings in an effort to reduce the number of dimensional discrepancies.

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F. HIGHLIGHTS OF UNIT ACTIVITIES (Continued)

Separations Unit (Continued)

Construction continued on the four major projects as follows:

C-361, Metal Conversion Facilities, was advanced 5% to a total of 97.6%. The increased scope represented by Part "C" (Additional Storage Facilities) was approved by the A.E.C. which issued Directive No. HW-158, Modification No. 11, January 23, 1952. The Directive increased project funds to $2,200,000.

C-362, Waste Metal Removal and Recovery Facilities, was advanced 4.4% to a total of 69.7%. Strikes delayed construction during January.

C-413, Expansion of 234-5 Facilities, was advanced 7.7% to a total of 71.7% at Hanford Works. Assembly of the RMB Line by General Engineering Laboratory was advanced 5.5% to a total of 97.5%.

C-418, Additional Waste Storage Facilities, 241-TY, was advanced 5% to a total of 99.8%.

Separations Unit Control processed 21 original requisitions and 11 alterations. The group issued the final copy of the summary of Design, Procurement, and Construction dates on all projects over $100,000 completed as of September 30, 1951. Property unitization for Phases II and III of C-198 was transmitted to Engineering Accounting.

G. MONTHLY REPORT OF INVENTIONS AND DISCOVERIES

All persons in the Design and Construction Management 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.

J. M. McMahon, Manager
Design and Construction Management Section

Date: January 31, 1952

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II. STATISTICAL AND GENERAL

A. SIGNIFICANT ASSIGNMENTS

1. Initial Reporting

Program X

A letter was received from the Atomic Energy Commission authorizing $50,000 in design funds. These funds will be initially employed in the building design for Program X. This will permit the early procurement of steel. A project proposal (HDC-2471: Design of a New Reactor), requesting $1,600,000 for new reactor design, has been prepared for issue in early February.

C-491 - Metallurgy Laboratory - 300 Area

The initial 5% of design work was accomplished: construction has not begun. The project proposal was approved by the A & B Committee and informally authorized by the Atomic Energy Commission. Since this facility is urgently required, final design is proceeding on a work order basis until the project is formally authorized.

2. Final Reporting

C-187-D - Redox Production Plant

A claim of about $127,000 was presented by the Southwest Welding Company. This claim has been rejected, except for portions covering additional fabrication costs due to holding out the operational spares from the fabrication schedule.

Architect-engineer-management responsibilities were assumed by the Atomic Energy Commission as of January 2, 1952 for the following projects:

Project Number	Project Name	Percentage of Completion - Construction
C-199	Expansion of 300 Area Sewage Disposal	0
C-257	Biophysics Laboratory	73
C-364	Aquatic Biology Laboratory	29
C-381	Radiochemistry Building	5
C-385	Radiometallurgy Building	3
C-394	Badge House	25
C-394	Outside Utilities and Facilities	3
C-414	Pile Technology Building	4
C-421	Library and Files Building	11

C-295 - 251 Substation

Both design and construction work have been completed. Although Phase II was reported officially complete as of December 31, the contract was modified to provide for the removal of the temporary 230 KV by-pass line around the substation. This work was completed satisfactorily and the contractor left the job site January 28, 1952.

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2. Final Reporting (Continued)

C-409 - Riverland Elevated Water Tank

Both design and construction work have been completed. The Closing Notice is in the process of being issued.

3. Current Projects

C-361 - Metal Conversion Facilities

Part "B" construction was advanced 12.5% to a total of 45%, which corresponds to a total Part "A" and Part "B" construction completion of 97.6%.

Revision IV of the project proposal was approved by the Atomic Energy Commission. The purposes of the new proposal were to:

1. Increase the scope to provide for a minimum of thirty days storage of Redox metal solution before processing in the 224-U Building. The additional scope was named Part "C".
2. Request funds to cover the additional scope.

The Atomic Energy Commission issued Directive No. HW-150, Modification No. 11, dated January 23, 1952, which authorized the requested scope increase and an increase in project funds to a total of $2,200,000.

Until a detailed cost estimate is made, Part "C" cannot be included in completion percentages. The cost estimate is being prepared.

C-362 - Waste Removal and Recovery Facilities (TBP)

Design had been completed previously; construction was advanced 4.4% to a total of 69.7%. This project is 17.4% behind schedule.

Unauthorized strikes delayed construction during January. The ironworkers and riggers left the job Tuesday morning, January 22, and returned to the job Monday morning, January 28. Other wildcat strikes, which are recorded, also occurred during the month.

Atkinson-Jones has completed 76.4% of their portion of the project. Minor Construction has completed 46.5% of their portion.

Work to be performed by General Electric on Phase I is 91.8% complete compared with 100% scheduled completion. Phase II is 32.8% complete compared with 56% scheduled completion.

C-406 - Mechanical Development Building (Phase II)

Design work was begun and advanced to 15%; construction has not begun.

Subcontract G-416 requires completion of design by April 3, 1952. During January General Electric and subcontractor engineers held conferences to clarify design details.

C-443 - Expansion of 234-5 Facilities

Of the portion of this work being done locally, overall design work was advanced 2% to a total of 93%, construction was advanced 7.7% to a total of 71.7%.

The RMB Line fabrication by General Engineering Laboratories advanced as follows: design 6% to a total of 90%; assembly 5.5% to a total of 97.5%.

The scope and schedules have been brought up to date. A revised project proposal has been prepared and is being circulated for approval. Although additional funds are not required, a new division between Engineering and Construction, and between General Electric and the Atomic Energy Commission is requested.

C-431-A - 100-C Waterworks Facility

Design had been completed previously; construction was advanced 4% to a total of 34%.

Revised construction schedules, agreed to by the Atomic Energy Commission, are based on a ready-to-use date of September 1, 1952. The purpose of the revision was to reflect more realistically the cummulative effect of manpower shortages, work stoppages, and delayed material deliveries. Snow and sub-freezing temperatures during the month hindered construction.

Progress during the month on main features was as follows:

In the River Pump House, 181-B, concrete work was completed to the operating floor level. Intake openings below eventual water level were temporarily sealed at the top and water has been admitted. Removal of the crib and cofferdam has been started.

Chief progress of the Filter Plant, 183-C, has been in placing concrete. Footings for the last section of one of the nine incomplete barrier walls in the basins have been poured. Fourteen Wheeler bottoms have been formed and poured.

In Process Pump House, 190-C, substantially all concrete work to the operating floor level has been completed. Placement of piping is proceeding slowly. A few parts for the ten units required in the process pump assembly have been received at the job site. However, present promised dates on the first two motors and flywheels indicate that run-in test of two assemblies can be started on schedule, about April 1.

Work progressed slowly on excavation, backfill, and placement of concrete on main sewer, process sewers, steam lines and high tanks.

C-431-B - Production Facility

Design work by General Electric was advanced 5% to a total of 93% (scheduled 98%). Design work by Vitro Corporation was advanced 1% to a total of 99% (scheduled 100%). Construction was advanced 5% to a total of 29% (scheduled 30%).

About 2275 yards of concrete were placed during January bringing the total to 21,725. The third pour for the process unit was placed as scheduled on January 19. Erection of structural steel is about 75% complete for the entire building. The first tier of "B" blocks in the outlet end was moved on to the process area January 21.

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C-431-B - Production Facility (Continued)

Procurement has been initiated on 98% of all required materials and equipment.

The five-day walkout of the ironworkers began January 23 and resulted in complete shutdown of all work except piping, electrical, and sheet metal functions. Crafts are well balanced except for the continued critical shortage of pipe fitters. Many critical phases of work that will affect the overall completion of the 105 facility have not been started or have been shut down due to the lack of pipe fitters.

Hanford 101 Shop operations for January moved forward on processing and preliminary erection. Since the start of 105-C fabrication approximately 101,000 details have been completed. During January two layer groups of fifteen and sixteen layers respectively were completed, torn down, and packaged for delivery to 105-C. The third layer group is progressing satisfactorily.

C-433 - 384 Steam Plant Addition

Design work was advanced 5% to a total of 80%; construction has not begun.

Final preliminary drawings were submitted for review and approval by the project group and using department engineers. Construction is expected to start during February.

4. Research and Development Studies

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

Completion status is: overall design, 10%; preparation of design criteria and basic scope drawings, 40%. An interim report covering the period from October 6, 1951 through January 12, 1952 was issued as HDC-2466.

Detailed data on design of the concrete biological shield was issued in HDC-2463. There has been extensive work done to locate additional sources of heavy aggregates, to outline a program for determining the merits of Prepakt concrete procedure, and to have a demonstration at Hanford of Prepakt methods and equipment.

A decision was made to authorize the General Engineering Laboratories to design, construct and pre-test a full scale electroveyor for the Ball 3X Return System. The cost of this prototype is $89,327, with a completion date of August 31, 1952. Hanford design is proceeding on single-tube, four-tube, and ten-tube electroveyor systems, with full consideration being given to manpower and time requirements.

Two studies of pneumatic ball conveying systems were completed; one study layout of an air lock discharge hopper was completed. Study layouts were made for two types of air-cushioned, air-elevated safety rods. These were compared with a proposed design of air-cushioned, winch-elevated rods. Design will be continued on the latter as a possible alternate to the "C" type rod and winch.

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RDA-DC-3 - Engineering Development Studies to Improve Design Bases for Future 100 Area Production Facilities (Continued)

Fifteen drawings have been completed on the "Ink" system. A meeting with representatives of Technical Section and Manufacturing Department was held to discuss the design of this system. Further meetings have been scheduled with Radiological Sciences Department.

The horizontal rod installation arrangement and operating diagram drawings have been issued as preliminary design layouts.

Physical specifications for raw graphite bars were formulated and included in the procurement contract with National Carbon Company.

A preliminary design of the thermal shield block arrangement has been designed to (1) protect the "B" shield from any localized points of exposure to beamed radiation, (2) facilitate the removal of gun barrels during tube replacement, and (3) reduce the number of casting details and core locations.

Studies are being made on a gas seal for the process tube assembly that will allow use of a single 4-inch header on the inlet face in place of the two 3-inch headers formerly proposed.

Basic architectural layouts are 90% complete. In order to allow early procurement of steel, emphasis was continued on analyzing requirements and producing a set of working structural drawings. Design work is progressing on structural concrete, heating and ventilating systems, and piping systems. Work has been started on layout of the storage basin monorail system.

All 16 electrical scope drawings are complete. About 40% of the electrical scope description has been completed. The scope drawings and scope description will provide an architect-engineer with sufficient information to complete electrical design on 105-X.

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

Assignment of one Civil Engineer to work full time on this study with the Development group continued through January.

A Process Flow Diagram has been completed, and the information has been transferred to a model graphic panel which shows the panelboard and instruments to scale. Flow lines have been added to facilitate study and design work. It is planned to install the final graphic panel so that all processes can be controlled from a central point.

As of January 10, 1952, future design development work will be concentrated on a Purex process plant alone. Preliminary cost comparison studies of a modified Redox process plant and a Purex process plant were reviewed with the Design Committee. With the concurrence of the Design Committee, work on the Purex process alone was recommended (HDC-2477).

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RDA-DC-4 - Engineering Development Studies to Improve Design Bases for Future Separations Facilities (Continued)

Hanford Works personnel visited Argonne National Laboratory to inspect remote maintenance tools being developed there. Devices noted as promising are: improved viewing windows, a "swing dampener" to curb crane hook swing, and a servo-mechanism for accurate crane positioning.

Work on five studies was assigned to the Vitro Corporation during the first half of the month as follows:

Study A - Open Canyon Arrangement
Study B - Simplification of Pulse Mechanism
Study C - Dimensional Tolerance for Remote Equipment
Study D - Design and Fabrication of "Stripped Down" Remote Vessels
Study E - Remotely Maintained Rotating Equipment

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

Design work was advanced to 15% complete, construction has not begun. Hanford Works personnel consulted with the General Engineering Laboratories on the phase of the problem assigned to them. They have proposed a totally enclosed furnace arrangement in which the atmosphere above and around the crucible would be maintained at canning temperature thus serving as a preheater for caps and cans.

Investigation of materials of construction has continued through the month. Action has been taken to have the manufacturer recommend a solaramic coating to withstand corrosive attack of molten Al-Si.

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

Assignment of two Civil Engineers to work full time on this study with the Development group continued through January.

Design criteria were prepared on all electrical phases for 100-HX addition. A study of starting methods for 190 Building pump motors was conducted, and recommendations were made after consulting with application engineers in Schenectady. The study was based on a 4,000 HP motor.

The 100 HX water plant design study was completed on January 15, and issued in rough draft form on January 18 for comment by plant personnel.

Preliminary studies were started on features of the "Coyote Rapids" water plant, including (1) the retention basins, (2) effluent lines, and (3) water plant cost estimate.

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

Extensive work and studies were applied to the concentrators. The product of the proposed system is of such concentration and acidity that it can be delivered directly to 234-5 Building, thus by-passing 231 Building.

[redacted]

[redacted]

RDA-DC-7 - Separations Process Engineering, Expansion and Improvement (Continued)

Study continued on process flow diagrams for the Purex process. Most of the diagrams are ready for issue.

Work was done on the Recuplex process, a method of recovering plutonium from current supernates, slags, crucibles, and metallurgical scrap from the operation of the 234-5 Building. Assistance was given the Technical Section in the preparation of design scope material required for final design and the project proposal.

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

RDA-DC-9 was approved on January 11, 1952 with $69,000 authorized for fiscal year 1952. Work to be performed by the General Engineering Laboratories was discussed with its representatives. Recommended improvements for a new RMB Line are being gathered from engineers who have worked on RMA and RMB Lines. These recommendations will be assimilated by the General Engineering Laboratories in its work. An "Assistance to Hanford" authorization for $30,000 to General Engineering Laboratories is being processed.

A Working Committee has been appointed. It contains representatives of Design and Construction Management Section, Technical Section, and Manufacturing Department.

B. OTHER ASSIGNMENTS

C-187-E - Conversion of Unassigned Space for Radiochemistry Laboratory

Completion status remains at: Design 100%, construction 5%.

No progress was made because metal wall panels and laboratory furniture and equipment have not been delivered.

C-192 - Biology Laboratory 108-F

Completion status remains at: Design 98%, construction 88%.

The revised project proposal requesting additional funds and increasing the scope of work has been completed.

C-204 - Extension to Existing Kadlec Hospital and Medical Arts Building

Completion status on this reopened project is: Design 100%, construction 90%.

All project construction work as originally scoped in Project C-204 has been completed. The reopened project includes the new six-room addition which was added to scope of work. Bids have been opened, and construction is scheduled to start February 11, 1952.

C-289-R - 200-W Laundry Addition

Design had been completed previously; construction was advanced 52% to a total of 90%. Construction work is [redacted]

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C-349 - Hot Semiworks

Design had been completed previously, construction was advanced 4% to a total of 65%.

Polythene flame sprayed on interior walls of hot cells has not produced a sufficiently impervious coating. It has been determined that Amercoat #1574, a newly developed material, will produce a satisfactory coating. The Amercoat #1574 is on order with early delivery promised.

The vendor fabricating the new process equipment was visited to expedite deliveries. Results have been favorable. An answer is being prepared to the contractor's request for time extension. The office building has been placed in a ready-to-use status.

C-380-R - Electricity Metering - Village of Richland

Design had been completed previously, construction was advanced 4% to a total of 97%.

Continued delay in material delivery prevents commercial metering. Revision I to the project is being prepared for a time extension to May 1, 1952.

C-403 - New Fence For Distribution and 230 KV Substation, Part I

Part I had been completed previously. No further work on the submission of Part II has been accomplished, pending a firm work determination.

C-404 - Primary Power Lines for Hanford Works Laboratory

Completion status remained at Design 100%, construction 79%. This project is being held for completion of work on Project C-451.

C-410 - In-Pile Controlled Atmosphere Experiment

Design completion status remains at 95%, construction was advanced 1% to a total of 80%. Repair work on the in-pile heater has been started.

C-412 - P-10-X Extraction Facilities

Design had been completed previously, construction was advanced 1% to a total of 96%. The remaining construction is on the metallurgical laboratory. All major equipment except the lead glass windows is now available. Disposition of the second metal line remains uncertain.

C-418 - Additional Waste Storage Facilities - 241-TY

Design had been completed previously, construction was advanced 5% to a total of 99.8%. All work is completed except about 15% of the fence and site clean-up. The Fred J. Early, Jr. Company is about two weeks ahead of work schedule.

C-419 - Induction Heating Unit - Building 3732

Completion status remains at: Design 100%, construction 0%. Delivery of the 200 KW induction unit and accessories is delayed until September 1, 1952.

[redacted]

C-423 - Additional Waste Evaporation Facilities, 200-E

Completion status remains at: Design 100%, construction 98%. Funds are available to resume work on the two tank farms remaining.

C-424 - Water Quality Experimental Facilities

Design was advanced 5% to a total of 95%, construction completion is 85%. The construction status percentage has been adjusted to include the work to be done on Part II of the project.

The major portion of material required for Part II has been procured. Work has been started on this phase.

C-430-R, Rev. 2 - Improved Lighting - 703 Building

On Part I, design had been completed previously, construction was begun and advanced to 34%.

On Revision 2, design was begun and advanced to 65%, construction has not been started. Revision 2 for relighting of 85 additional rooms has been submitted to the Atomic Energy Commission for approval.

C-432 - Air Raid Warning System.

Completion status remains at: Design 95%, construction 83%.

Revision 2 was returned unapproved by the Atomic Energy Commission. Revision 3 for relocation of #1 tower is being prepared.

C-434-R - New Bio-Assay Laboratory

Completion status remains at: Design 90%, construction 0%.

Design rescoping is in progress, and a revised project proposal will be submitted soon. The possibility of relocating the building in 300 Area is being investigated.

C-438 - Ball Third Safety System

Design was advanced 2% to a total of 97%, construction has not begun.

Representatives of the Engineering and Manufacturing Departments attended a meeting January 8, 1952. An evaluation of manpower, financial, and procurement status of the Ball 3X and Pile Modification Program indicated that July 1, 1952 would be the favorable time for starting work on the first pile.

Three other ball fabricators are now making experimental lots of balls from wire rejected by Tetonics. As previously indicated, the order for balls will have to be split in order to meet delivery requirements.

The most critical procurement items are the 303 stainless for the rods and the boron balls.

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C-441 - Solvent Building

Completion status remains at: Design 95%, construction 0%.

A revised project proposal requesting additional funds for construction has been submitted. Completion of final design has been suspended until required funds are authorized.

C-442 - X-Ray Machine 3745-A

Design completion status remains at 95%, construction was advanced 50% to a total of 60%. The electrostatic generator was installed, tested and accepted in late January.

C-445 - BY Telephone Exchange Additions and Changes

Design had been completed previously, construction was advanced 46% to a total of 69%. Construction work is proceeding satisfactorily.

C-447 - Portable Meteorological Mast

Design was advanced 5% to a total of 60%, about 5% of fabrication on special instruments has been accomplished.

Delivery of the special truck-van body and the lightweight portable mast is scheduled for March. Other material procurement is progressing.

C-451 - Extension of 300 Area Underground Electrical Power Distribution System

Completion status remains at: Design 100%, construction 0%. The project is approved for lump sum contract.

C-452 - Meteorology Tower Elevator

Completion status remains at: Design 100%, construction 0%. Bid openings are scheduled for February.

C-454 - Spectrometer Shielding

Design was advanced 2% to a total of 92%, construction remained at 65%. Design is proceeding on the step plug and columnator.

C-455 - Replace Two Elevated Water Tanks in 200-E Area

Design which had been reported as complete is now estimated at 30% complete. This adjustment is caused by the Atomic Energy Commission's method of including as design work, bid assemblies, specifications, and awarding of the contract.

Construction has not begun. Preparation of specifications and scope studies are in progress.

[redacted]

C-456 - Additional 13-Quad Telephone Cable BY to Point I

Design had been completed previously; construction was advanced 8% to a total of 69%. Because of slow delivery date on loading coils, Revision 2 has been prepared asking for a time extension to April 1, 1952.

C-457 - Pile Technology Office Building

Design had been completed previously; construction was advanced 45% to a total of 60%. Construction is progressing on schedule.

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 bid opening is scheduled for February 1, 1952.

C-461 - Maintenance Hot Machine Shop

Completion status remains at: Design 95%, construction 0%. Material procurement is progressing.

C-468 - Horizontal Rod Mock-Up

Completion status remains at: Design 100%, construction 45%. The complete rack drive and controls were removed from 105-B Building and found to be free from contamination. The new rack drive will be returned for credit. All material is on plant site, except step plug and prototype rod which are due by early February. Electrical and piping installations are being scheduled to completion.

C-469 - Front Tube Corrosion Mock-Up

Design had been completed previously; construction was advanced 44% to a total of 95%.

Some pumping equipment that had been procured from excess and installed on this project is not providing required output. The problem is being evaluated.

C-470-R - 200-W Badge House Remodeling

Design work was advanced 45% to a total of 80%; construction has not begun.

C-473-R - 100-B Automatic Dial Telephone Exchange

Completion status remains at: Design 75%, construction 0%. The resubmitted project proposal is awaiting approval of the A & B Committee.

C-474 - Relocation of Exponential Facilities

Design had been completed previously; construction was advanced 15% to a total of 90%. Construction is proceeding on schedule.

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C-477 - Building 284-W, Fifth Boiler Addition

Design work was advanced 2% to a total of 12%, construction has not begun. The bid opening for the design, procurement, and construction of a new boiler is scheduled for February 1, 1952.

C-478 - Area Fence and Minor Repairs, Excess Material Warehouse - North Richland

Design work was advanced 55% to a total of 80%, construction has not begun. Final design is progressing.

C-479 - Replacement of Docks and Outside Stairs, 700 Area Permanent Buildings

Preliminary design was advanced 50% to completion; final design was begun and advanced to 20%; construction has not been started. Final design specifications are progressing for lump sum bidding purposes.

C-480 - Remodeling 722-C Building for Office Equipment Repair

Design work was advanced 40% to a total of 70%; construction has not begun. Design and specifications are being prepared for lump sum bidding purposes.

C-482 - Pile and Pile Water Plant Improvements

Design work was begun and advanced to 5%; construction has not begun. A design request authorizing $30,000 was issued to the Design and Development Unit. Specifications and requests for procurement of critical materials are being prepared. Material procurement funds are still being held by the A & B Committee, pending clarification of General Electric's position regarding the Construction Rider to the Appropriations Act for Fiscal Year 1952.

C-483 - Downcomer Repairs in 100 B, D, DR and H and Replacement in 100-F

Completion status remains at: Design 5%, construction 0%. The project has been approved, and $234,000 has been authorized by the Atomic Energy Commission. The A & B Committee has released only design funds pending certification of the budget item of which the downcomer work is a part. A work order for $15,000 have been issued to the Design and Development Unit.

C-484 - 300 Area Administration Building

Completion status remains at: Design 10%, construction 0%. Resubmission has been temporarily suspended until additional supporting data and justification has been assembled by the Metal Preparation Section - 300 Area.

C-485 - Revision 1 - Experimental Activated Silica Addition Equipment, Part I, Building 183-F

A Work Release was issued for the remainder of the job. The facilities have been in operation since December 26, 1951, and the remaining work consists essentially of clean-up and patching.

[redacted]

C-439 - Positive Ion Accelerator

Completion status remains at: Design 10%, construction 0%. This project is awaiting authorization by the Atomic Energy Commission.

C-490 - Soil Science Laboratory

Completion status remains at: Design 10%, construction 0%. Further work is suspended until requested by the User Department.

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The following studies and engineering requests, involving preparatory work and scoping of future projects, were active during the month:

ER-A-663 - Pile Technology Test and Storage Building

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ER-A-1177 - Additional Indication of Moderator Temperatures B, D, F and DR Areas

A project proposal has been prepared in rough draft, however, the project justification is being re-evaluated in the light of recent information from the Technical Section.

ER-A-1178 - Experimental Activated Silica Addition Equipment, Part II, Building 190-H

Pile Technology Unit has advised that work on this study should be discontinued.

ER-A-1179 - High Pressure Water Supply to Front Face B, D, F, DR and H Areas

Neither design nor construction has begun on this request which is to provide a means for flushing metal or chips from the process tube during discharge.

ER-A-1181 - Jacket Removal Facilities

Design work has been completed; construction has not begun. Design has been approved by the Separations and Reactor Sections for removal of jackets from a selected group of slugs in the 221 Building dissolver.

ER-E-474 - New Permanent Civil Defense Control Center

Neither design nor construction has begun. Informal Request has been prepared.

ER-E-475 - Lighting Study - 702 Building

Design was about 40% complete on this plan for relignting 702 Building equipment rooms.

ER-2596 - Remodel Former Laundry Building for Engineering Offices

Design was about 15% complete; construction has not begun. Work has been stopped, pending re-examination of justification aspects.

ER-2600 - Duct Level Safety Showers - Building 234-5

Project proposal being routed for signatures.

ER-2710 - Start Up Studies - RMA Line, Building 234-5

Completion status remained at: Design 85%, construction 0%. Representatives attended the final meeting of the Start-Up Committee.

ER-2711 - Building 224 Waste Diversion - 200 E and W

Design work has been completed; construction has not begun. Funds authorization have been received from the Atomic Energy Commission. Job urgency was reduced so the work will be re-scheduled later.

ER-2712 - Pile Technology Metallurgical Laboratory Alterations - Building 234-5

Design is about 50% complete, construction has not begun. An Informal Request has been forwarded for approval.

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ER-2714 - Recuplex Installation - Building 234-5

Design work was 2% complete; construction has not begun. A project proposal is being prepared to obtain funds for Design and procurement of engineered items.

ER-2715 - Corrosion Test Laboratories, Building 108-B

Design work was 2% complete; construction has not begun. Designs and estimates are being obtained.

ER-A-3094 - Building 313 Mechanization

(Reported under RDA-DC-5)

ER-6010 - Plant Manpower Forecast Including Program X

The revised General Electric Plant Manpower Forecast was received January 15 for inclusion in a revised overall Program X Report.

ER-6011 - MW 135 - 700 Area Steam Study

Work has advanced to about 50% complete. Consideration is being given to nine basic alternate methods for future heating of the area, also overhead versus underground steam lines.

ER-6013 - Piping Design Guide

Work was started on piping design guides which can be incorporated as part of a particular building specification.

M-713 (ER-A-1068) Vertical Safety Rod Corrective Designs - 105 B, D and F

Approval has been received from the Atomic Energy Commission for an extension of the directive completion date and continuation of design work.

M-822 - Water Lines and Electrical Service Extensions for Army

Construction completed except for installation of metering transformers.

M-852 (IR-96) Replacement of Air Lock Doors, Building 234-5

Design work has been completed, construction has not begun. Procurement of engineered items has been initiated.

C. RELATED SERVICES

1. Design

Six histories were completed and issued during the month.

The drafting work load continued steady, with RDA-DC-3 and Program X being the largest jobs. Drafting production averaged 6.83 mandays per drawing on a total of 232 new drawings, 93 charts and graphs, and 325 revisions.

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1. Design (Continued)

A representative of Plant Engineering - Manufacturing Department, has been preparing recommendations for improved working conditions in the 760 Building drafting room.

As compared to December, 1951, reproduction output decreased in square feet of prints (439,808 in January) but increased by 39,000 to 190,989 prints. The largest single order was 6,939 prints for C-413.

Conferences were held with the Atomic Energy Commission Engineering and Construction Division, the Atomic Energy Commission Priorities Branch, and all Design and Construction Management Units concerned. These conferences were to study the transfer of functions relative to controlled and critical materials. In general, these functions will be handled by Design and Construction Management Section until a construction contract is executed on projects for which the Atomic Energy Commission will assume construction management responsibility.

The regular quarterly forecast of controlled materials for the next four quarters was prepared and submitted during the month.

2. Construction

The population of North Richland increased by 9 during the month, making a total of 6,274 exclusive of Army personnel. There were 15 commercial facility operators in the Camp, with an estimated rent revenue of $7,000.

Interior painting of the five North Richland Administration Buildings was completed January 9.

The Construction Safety Program was active during the month. Several investigations, reviews, and meetings were held with contractor personnel. Four hundred forty security meetings were conducted for contractor personnel.

The program to improve maintenance of heavy equipment was continued. A new and revised retention book of major equipment has been prepared, and a major equipment repair survey was made.

3. Contracts

Reported in Summary under F.

III. ORGANIZATION AND PERSONNEL

Personnel data for Design and Construction Management Section, January 1952, was as follows:

	Beginning of Month	End of Month	Net Change
Employees on payroll	853	852	-1
Technical Graduates - Rotational	22	22	0
Business Graduates - Rotational	3	2	-1
Employees on loan to Section	5	5	0

[redacted]

[redacted]

III. ORGANIZATION AND PERSONNEL (Continued)

The status indicated involved these changes:

Payroll additions	15
Terminations	13
Transfers to Section	1
Transfers from Section	4
Transfers within Section	4

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MEDICAL DEPARTMENT

JANUARY 1952

General

Personnel Changes

Personnel changed little from 273 to 274.

Visits

Mr. Quigley attended the American Hospital Association sponsored Institute on Hospital Personnel Administration in Santa Barbara, California. Miss Ritter, Supervisor of Clinical Laboratory technicians, is spending several weeks at the University of California, learning special new techniques useful in cancer detection.

Drs. Edith Sappington, Marion Crane and Miss Ruth Doran from the Children's Bureau, Federal Security Agency, visited us by request in the interest of reduction of our infant mortality rate, which while low as compared with state and national averages, may possibly be improved.

Industrial

Employee physical examinations increased from 1633 to 1866. Dispensary treatments increased from 10,393 to 10,792.

The monthly health topic was "Headaches."

Negotiations with the State Department of Labor have led to acceptance of a short form for reporting minor injuries to the Department.

Two General Electric employees and 20 construction employees were treated for major injuries. Two General Electric and 15 contractor employees were treated for sub-major injuries.

The rate of sickness absenteeism for December was 1.85%, while the total absenteeism rate was 2.64%. This compares with figures of 1.85% and 2.57% for November.

Kadlec Hospital

The average daily census increased from 95.6 to 100.8 (91.8 adults, 9.0 newborns). The census was 98.1 a year ago.

The occupancy rate for mixed services (all services except obstetrics) was 92.8%. Nursing hours per patient day were 3.16 for the mixed services and 4.50 for obstetrics.

The Richland Community Council was conducted on a tour of the hospital, followed by a discussion of our program and a period of questions and answers. The Council's attitude was quite favorable to the hospital operation.

Public Health

There was an increase in the number of communicable diseases, largely due to a mild epidemic of german measles (80 cases) and chickenpox (20 cases).

A fifteen percent increase in nursing field visits for morbidity suggests an increase in illness and increased school absenteeism due to mild upper respiratory infections seems to confirm this.

Several tape recordings were made with the cooperation of practicing physicians for broadcast purposes in the interest of better health. Subjects covered are cancer, diabetes, common cold, etc.

Costs (December)

Medical Department costs, before assessments to other departments were as follows:

	November	December	December Budget
Industrial Medicine (Oper.)	$ 31,872	$ 33,514	$ 37,479
Public Health (Oper.)	9,622	9,686	10,853
Kadlec Hospital (Net)	25,289	29,511	30,333
Hospital Expense Credits	2,872	2,815	2,472
Subtotal-Medical Dept.(Operations)	69,655	75,526	81,137
Construction Medical (Industrial and Public Health)	16,439	17,304	18,567
Total Operations and Construction	86,094	92,830	99,704

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General Costs (Continued)

The net cost of operating the Medical Department before assessments to other departments was $92,830, an increase of $6,736 and $6,874 below the budget. Major factor in the increased cost for December was a decline of $8,701 in hospital revenue, due to a lowered census during Christmas week, which is expected.

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Industrial Medical Section

General

The number of examinations increased from 1633 to 1866. The total number of dispensary treatments increased also from 10,393 to 10,792. Treatments for operating employees increased by approximately 800 and treatments for construction employees decreased by approximately 400. The mobile First Aid station at 241-TY discontinued service on 1-26-52 with the completion of that project. Increased space for the 100-C First Aid station has been provided for. During the month General Electric employees sustained 2 major injuries and 2 sub-major injuries. Contractor employees sustained 20 major injuries and 15 sub-major injuries.

A visit to the office of the Director of the Washington State Department of Labor was made on January 3rd, in an effort to obtain approval for the reporting of minor injuries to the Department on a short form, and thereby eliminate potential litigation which could develop from these cases. At the end of the month this policy and procedure had been approved and starting this practice awaits only the printing of the form to be used.

The Industrial Physicians' scientific meeting was held on January 30th. Douglas Cameron, our Counsel, discussed the medico-legal aspects of compensation cases.

Dr. Weitz took and passed the Washington State Board Medical examinations on January 2nd and 3rd, required for licensure to practice medicine in the State of Washington. One physician was interviewed for employment during the month but was found to not be acceptable and the industrial physicians' staff remains incomplete.

The Chemical Hazards Committee met on January 25th and discussed the chemical hazards problems that had occurred during the past month and planned the studies to be made during the coming month, which includes a survey of the solvent degreaser methods in the 100-C construction area.

The Health Activities meeting was held on January 17th and the topic on "Headaches" was presented and material on this subject was prepared for discussion and distribution throughout the plant. Plans were made in order to provide for the showing of more motion pictures on health topics to more employees at the time of employee group meetings.

The combined sickness absenteeism for both weekly and monthly employees was 1.85% for the month of December.

The net cost of operations for December as compared with November showed an increase of $1,359. Gross costs totaled $34,477 as compared to $32,759 in the month of November, an increase of $1,718. These costs consist of the following items:

1216589

Industrial Medical Section (Continued)
Costs (Continued)

	December	November	Increase (Decrease)
Salaries	$ 25,600	$ 24,734	$ 866
Continuity of Service	2,471	2,394	77
Laundry	293	319	(26)
Utilities, Transportation, Maintenance	3,600	2,756	844
Supply and Other Costs	2,513	2,556	(43)
Gross Operating Costs	$ 34,477	$ 32,759	$ 1,718
Less: Revenue	963	887	76
Expense Credits	4,326	4,043	283
Net Cost of Operations	$ 29,188	$ 27,829	$ 1,359

The increase of $866 in salary costs results from an increased allocation of salaries of laboratory and x-ray personnel due to an increase of 110 in number of physical examinations over the month of November. Proration of costs for these services is based on amount of service performed. November charges were below average and increased charges and volume in December represent a return to a more normal level.

Utilities, Transportation and Maintenance charges increased $844 due to (1) painting of hospital rooms and corridors and area First Aid stations amounting to approximately $500, (2) other miscellaneous increases in work orders amounting to approximately $100, (3) higher steam and electrical costs amounting to $100, and (4) higher maintenance cost of sedans and ambulances amounting to $100.

183 1213550

Industrial Medical Section (Continued)	December 1951	January 1952
Physical Examinations		
Operations		
Pre-employment	135	115
Rehire	17	8
Annual	193	267
Interim	135	74
A. E. C.	10	38
Re-examination and rechecks	59	76
Termination	98	140
Sub-total	647	718
Contractors		
Pre-employment	159	207
Rehire	129	248
Recheck	82	80
Termination & Transfer	616	602
Interim	0	11
Sub-total	986	1148
Total Physical Examinations	1633	1866
Laboratory Examinations		
Clinical Laboratory		
Government	60	132
Pre-employment, Termination, Transfer	2841	3565
Annual	1142	1699
Recheck (Area)	645	544
First Aid	32	51
Clinic	567	626
Hospital	3940	5079
Public Health	27	9
Total	9254	11705
X-Ray		
Government	10	24
Pre-employment, Termination, Transfer	429	586
Annual	199	276
First Aid	289	305
Clinic	305	411
Hospital	275	395
Public Health	10	0
Total	1517	1997
Electrocardiographs		
Industrial	22	25
Clinic	7	9
Hospital	34	55
Total	63	89

1210551

MEDICAL DEPARTMENT

JANUARY 1952

Industrial Medical Section (Continued)	December 1951	January 1952
First Aid Treatments		
Operations		
New Occupational Cases	385	433
Occupational Case Retreatments	1134	1570
Non-occupational Treatments	2680	2986
Sub-total	4199	4989
Construction		
New Occupational Cases	958	893
Occupational Case Retreatments	4064	3702
Non-occupational Treatments	1144	1172
Sub-total	6166	5767
Facility Operators	28	36
Total First Aid Treatments	10393	10792
Major Injuries		
General Electric	0	2
Contractors	8	20
Total	8	22
Sub-major Injuries		
General Electric	2	2
Contractors	14	15
Total	16	17
Absenteeism Investigation		
Total No. calls requested	25	31
Total No. calls made	25	31
No. absent due to illness in family	0	1
No. not at home when call was made	5	6

213552

MEDICAL DEPARTMENT

JANUARY 1952

Hospital Section

General

The average daily adult census increased from 82.5 to 91.8, as compared to 86.9 a year ago. This represents an occupancy percentage of 82.0% broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) 92.8%; Obstetrical Service, 44.4%. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service	60	94
Obstetrical Service	7	17
Total Adult	72	107

The average daily newborn census decreased from 13.1 to 9.0, as compared to 11.2 a year ago.

Nursing hours per patient per day:

Medical, Surgical Pediatrics	3.16
Obstetrical	4.50
Newborn	4.00

The ratio of in-patient hospital employees to patients (excluding newborn) for the month of December 1951 was 2.02. When newborn infants are included, the ratio is 1.74.

The net expense for the operation of Kadlec Hospital for December, 1951, was $29,511., as compared to $25,289. for November. Summary is as follows:

Kadlec Hospital net expense $29,511.
This is an increase of $4,222. due to the following:
Gross costs decreased by $4,536. as a result of reduced salaries, when replacements were not obtainable for all terminations, and reduced supply costs from the lower census. These cost decreases, however, were more than offset by the decrease of $8,701. in patient revenue and $57. in expense credits as a result of the decrease in patient census for the month.

The Richland Community Council was conducted on a tour of the hospital early in the month. A question and answer session prior to and following the tour gave the Council members an opportunity to discuss any aspects of the medical program in which they were particularly interested.

Bids were opened for the six-room addition to the medical wing (Wing C) of Kadlec Hospital on January 4. The contract for this work was awarded to Malarkey and Moore for $48,000. This is the same Portland firm which recently completed other construction and remodeling at the hospital.

1215353

Hospital Section (Continued)

General

Mr. E. J. Quigley attended the American Hospital Association sponsored Institute on Hospital Personnel Administration in Santa Barbara, California, during the week of January 21st.

Miss Benira Ritter is at the University of California learning the Papanicolaou stain technique for use in our laboratory. It is a recent diagnostic procedure for determining the presence of cancer. We expect that she will be away for approximately two months.

1910354

Hospital Section (Continued)	December 1951	January 1952
Kaclec Hospital		
Average Daily Adult Census	82.5	91.8
Medical	30.0	30.4
Surgical	26.1	36.3
Pediatrics	11.8	14.0
Mixed	67.9	80.7
Obstetrical	14.6	11.1
Average Daily Newborn Census	13.1	9.0
Maximum Daily Census:		
Mixed Services	92	94
Obstetrical Service	19	17
Total Adult Census	105	107
Minimum Daily Census:		
Mixed Services	35	60
Obstetrical Service	8	7
Total Adult Census	44	72
Admissions: Adults	504	606
Discharges: Adults	522	580
Newborn	89	63
Patient Days: Adult	2556	2847
Newborn	407	278
Total	2963	3125
Average Length of Stay: Adults	4.9	4.9
Medical		5.5
Surgical		4.6
Pediatrics		4.9
Mixed		4.6
Obstetrical		4.6
Newborn		4.4
Occupancy Percentage: Adults	80.1	82.0
Medical		104.8
Surgical		125.2
Pediatrics		56.0
Mixed		92.8
Obstetrical		44.4
Newborn		34.6
(Occupancy Percentage based on 112 adult beds and 26 bassinets.)		
Avg. Nursing Hours per Patient Day:		
Medical, Surgical, Pediatrics	3.49	3.16
Obstetrics	3.73	4.50
Newborn		4.00
Avg. No. Employees per Patient (excluding newborn)	2.02	
Operations: Major	50	91
Minor	52	107
E.E.N.T.	82	84
Dental	1	2
Births: Live	87	65
Still	3	2

MEDICAL DEPARTMENT

JANUARY 1952

Hadlec Hospital (Continued)	December 1951	January 1952
Deaths	2	5
Hospital Net Death Rate	0	.62
Net Autopsy Rate	50.	80.
Discharged against advise	0	0
One Day Cases	110	121
Admission Sources:		
Richland	73.8	74.8
North Richland	12.9	14.0
Other	13.3	11.2
Admissions by Employment:		
General Electric	70.2	67.3
Government	2.0	2.3
Facility	4.8	7.1
Contractors	15.5	15.0
Schools	2.2	3.1
Military	1.4	1.6
Others	3.9	3.6
Hospital Outpatients Treated	474	399
Physical Therapy Treatments		
Clinic	134	206
Hospital	79	56
Industrial: Plant	140	268
Personal	3	9
Total	356	539
Pharmacy		
No. of Prescriptions Filled	3119	3447
No. of Store Orders Filled	734	843
Patient Meals		
Regulars	4567	4336
Children under 8		692
Specials	1593	1517
Lights	2	0
Softs	701	981
Tonsils	181	164
Liquids	225	278
Surgical Liquids	95	90
Total	7364	8058
Cafeteria Meals		
Noon	1646	1847
Night	283	286
Total	1929	2133

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MEDICAL DEPARTMENT

JANUARY 1952

Public Health Section

General

There was an increase in the number of communicable diseases reported; this is chiefly due to the mild epidemic of german measles and chickenpox that we are experiencing.

A continued rise amounting to 15 per cent in the number of field morbidity visits made by Public Health nurses might indicate an increased amount of illness occurring. This correlates with reports received from schools where there is an increased number of children absent with mild upper respiratory infections and gastric-intestinal upsets.

A visit was made to the department by Drs. Edith Sappington, Marion Crain, and Miss Ruth Doran from the Childrens Bureau, Federal Security Agency, in the interest of the prevention of infant mortality. Results of their visit indicate that although we enjoy one of the lowest infant mortality rates reported when one investigates the causes, we find that our rate due to prematurity is low, but survival rate of premature infants is no better than that for the rest of the country. Recommendations were made for improvement of nursing and professional care techniques for premature infants.

Several tape recordings were made with the cooperation of practicing physicians for broadcast purposes in the interest of better health, as sponsored by the Richland Health Council.

Inspections for annual permits were issued for operation of restaurants in Richland and North Richland. All were in good condition, with one "B" restaurant being regraded back to an "A" after meeting requirements.

Three additional dairy farms were approved for the shipping of Grade A milk. Forty-two other dairy farms were inspected throughout the month. Results of pasteurized milk samples taken this month indicate an acceptable standard.

Bacteriological results of water and sewage samples were satisfactory.

The number of referrals to Social Service Counselors doubled. Much of the increased activity was due to the need for financial subsistence. If this pattern of increased intake continues, it will be necessary to add one more Social Service Counselor, since the case load carried by the present workers is at its maximum.

121357

MEDICAL DEPARTMENT

JANUARY 1952

Public Health Section (Continued)	December 1951	January 1952
Education		
Pamphlets distributed	15094	9215
News Releases	1	0
Staff Meetings	2	1
Classes	5	1
Attendance	404	18
Lectures & Talks	9	10
Attendance	857	276
Films Shown	31	33
Attendance	4739	3118
Community Conferences	42	14
Radio Broadcasts	0	0
Immunizations		
Diphtheria	7	33
Diphtheria Booster	142	134
Tetanus	7	75
Tetanus Booster	210	83
Pertussis	7	5
Pertussis Booster	27	4
Smallpox	17	15
Smallpox Revaccination	195	319
Tuberculin Test	0	5
Social Service		
Cases carried over	65	70
Cases admitted	9	21
Cases Closed	4	24
Remaining case load	70	67
Activities:		
Home Visits	8	11
Office Interviews	207	160
Conferences	57	78
Meetings	5	7
Sanitation		
Inspections made	115	65
Conferences held	38	20
Bacteriological Laboratory		
Treated Water Samples	153	161
Milk samples (inc. cream & ice cream)	9	12
Other bacteriological tests	227	267
Total	389	440

MEDICAL DEPARTMENT

JANUARY 1952

Public Health Section (Continued)	December 1951	January 1952
Communicable diseases		
Chickenpox	17	20
German Measles	59	80
Gonorrhea	1	1
Impetigo	1	0
Infectious Mononucleosis	1	0
Measles	0	2
Mumps	0	3
Pinkeye	3	1
Ringworm	10	4
Roseola	2	0
Scarlet Fever	5	9
Total	99	120
Total No. Nursing Field Visits	943	793
Total No. Nursing Office Visits	264	185

MEDICAL DEPARTMENT'S PERSONNEL SUMMARY

January 31, 1952

		Physicians	Nurses	Anesthetists	Nurse Aides	Orderly & Am.Dr.	Technicians - Clin.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
1100 Area	Department Admin.	2	2								2	1		3	3									1	2	1	17.0
	Industrial	3	8		1							2	1		7.0							4.4					26.4
	Hospital	2	61	3	24	5	8.4	4	1	2		4			10.5	4	2	5	11			8			7		161.9
	Public Health	1	7		1							2			1.1					2	2	1	.6				17.7
	Industrial	2.7	1				2.0	1							7.4								.7				14.8
	Public Health		2																				.3				2.3
	M.J.-4		1																								1.0
Outlying Areas	100-B	.1	1												.2												1.3
	100-D	.1	4												.3												4.4
	100-F	.1	4				.3								.2												4.6
	100-H	.1	1				.3								.3												1.7
	241-TY		1																								1.0
	200-E	.2	4				.2								.3												4.7
	200-W	.3	4				.6								.3												5.2
	300	.2	2				.2								.4												2.8
	100-C	.2	4												1.0												5.2
	White Bluffs		1																								1.0
	101		1																								1.0
	TOTAL	12	109	3	26	5	12	5	1	2	2	9	1	3	32	4	2	5	11	2	2	1	14	1	2	8	274

* 4 part-time and temporary nurses included

Number of employees on roll:

Beginning of month	273
End of month	274
Net increase	1

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Radiological Sciences Department

RADIOLOGICAL SCIENCES DEPARTMENT

JANUARY 1952

Summary

Two Class II and three Class I radiation hazards incident investigations were reported. Although the true exposure was uncertain in two of these cases, it appeared that the level was in all cases such as to cause no real concern.

In biophysics research, intensified attention was directed to the recognition of fission products in reactor effluent water, both in normal operation, and as augmented by ruptured slugs.

In biological research, the basic problem of the conversion of tritium gas to the more dangerous oxides was proved to depend primarily on the presence of certain bacteria in body parts. In a re-evaluation of zirconium citrate treatment for plutonism, a significant increase in deposition of plutonium in soft tissue was observed; apparently this was a new and potentially critical finding.

Other phases of control work, research and development were advanced in an appropriate manner without notable incident.

RADIOLOGICAL SCIENCES DEPARTMENT

JANUARY 1952

Organization

The composition and distribution of the force as of 1/31/52 was as follows:

	100-B	100-D	100-F	100-H	200-E	200-W	300	700	P.G.	Total
Supervisors	0	0	4	0	1	6	11	5	0	27
Engineers *	1	0	32	0	3	23	17	5	0	81
Clerical	0	0	5	0	1	2	4	4	0	16
Others	14	4	48	3	21	65	72	11	5	243
Total	15	4	89	3	26	96	104	25	5	367

* includes chemists, biologists, etc.

Number of employees on Payroll	January 1952
Beginning of month	361
End of month	367
Net increase	6

Added to the roll were 4 technical graduates, an inspector, 2 laboratory assistant, 2 personnel meters clerks, and a general clerk. Removals included 2 technical graduates, a laboratory assistant, and a personnel meters clerk.

General

Iodine emission from the separations plant stacks was generally under control, with some sporadic emissions reaching about 10 times the desired permanent level.

There were two instances of overexposure, one of which involved an employee not wearing the prescribed meters. Two other occurrences of lesser severity also involved this feature. Steps were initiated to remind all personnel of the value of compliance for their own protection. In addition, plans were made to revert to an earlier system of pocket chamber distribution in lieu of that of recent months, which had held promise of economies both to the patrol force and to Radiological Sciences.

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Radiological Sciences Department

The following trips were reported:

M.L. Barad	-	B.N.L, and Washington, D.C.
G.E. Driver	-	Scintillation Counter Symposium, Washington, D.C.
J. Katz	-	A.N.L.
H.A. Kornberg	-	recruiting for Technical Personnel Office
C.C. Palmiter	-	AAAS Meeting, Philadelphia, Pa.
J.H. Rediske	-	Olympia, Wash.
D.E. Warner	-	U. of Rochester

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

Inventor	Title
G.R. Quimby	Aspirator for separating liquid layers.

RADIOLOGICAL RECORDS AND STANDARDS SECTION

1. Radiation Monitoring Services

General Statistics

	December 1951	January 1952	Year To Date
Special Work Permits	671	461	461
Routine and Special Surveys	1482	1360	1360
Air Samples	1207	1080	1080
Skin Contamination Cases	69	54	54

[redacted]

[redacted]

Radiological Sciences Department

An employee at the radiometallurgy Building at 100-B received a possible overexposure when he lifted equipment containing an irradiated slug from the storage basin. Exposure could not be ascertained because the employee was not wearing the prescribed monitoring equipment.

During removal of electrodes from the 105-TX waste tank at the 241-TX farm, the bottom end of the assembly was found to be very contaminated and could not be lowered back into the tank. A dosage-rate of 35 mr/hr at 30 feet was reported. Personnel involved and in the vicinity vacated immediately, and no overexposure occurred. However, contamination-spread was extensive.

In control laboratories, 466 non-regulated items and 66 floor locations were found contaminated.

2. Standards

Two Class II incidents, and three Class I incidents were investigated. One Class II incident (#28) concerned the possible overexposure in the Metallurgical laboratory, described above. The other Class II incident (#29) involved two overexposures during removal of irradiated slugs from a catwalk in the discharge area of the 100-B pile.

The Class I incidents involved personnel contamination and inhalation of contaminated material during discharge area work at 105-F (#188), radiation exposure from highly contaminated protective clothing during routine work in 221-B Canyon (#189), and high dosage-rates and spread of contamination during the removal of electrodes at the 241-TX Tank Farm, described above (#190).

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Radiological Sciences Department

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	42	1	20	1	0	14,970
100-D	100	0	66	1	1	14,622
100-F	32	0	19	0	2	9,630
100-H	9	0	4	0	1	6,362
200-E&N	107	0	72	0	4	28,918
200W-Const.	62	3	41	0	2	13,562
200-W	163	2	112	3	0	33,522
Redox	111	1	92	1	1	23,486
300	63	0	32	0	0	24,270
Total	689	7	458	6	11	169,342
Year to date	689	7	458	6	11	169,342

Of the 13 significant pencil readings, 4 were confirmed by badge results. Two of the confirmed readings were overexposures (see Standards Report).

Badges

Area	Number Readings 100-300 mrep	Number Readings 300-500 mrep	Number Readings 500-1000 mrep	Number Readings Over 1000 mrep	Lost Readings	Badges Processed
100-B	11	0	0	0	1	4,132
100-D	19	0	0	0	0	4,224
100-F & PUR	76	4	0	0	5	3,967
100-H	15	0	0	0	2	3,393
200-E	11	0	0	0	0	2,544
200N & RRT	0	0	0	0	0	572
200-W	60	2	0	0	2	5,017
Redox	0	0	0	0	1	3,544
300	143	0	0	0	2	8,872
224-U	0	0	0	0	0	2,817
Total	325	6	0	0	17	39,082
Year to date	325	6	0	0	17	39,082

Of the 6 readings above 300 mrep, two were the overexposures mentioned above. The other four did not constitute overexposures.

Radiological Sciences Department

Badge Resume - Construction Areas

Area	Number Readings 100-300 mrep	300-500 mrep	500-1000 mrep	Over 1000 mrep	Lost Readings	Badges Processed
100-C	0	0	0	0	0	3,352
200-E	5	0	0	0	7	3,299
200-W	16	1	0	0	3	4,604
Total	21	1	0	0	10	11,255
Year to date	21	1	0	0	10	11,255

Lost Readings

Operations			Construction		
Badge lost in area	-	6	Badge lost in area	-	1
Wet packet	-	1	Not packaged	-	7
Damaged film	-	1	Stuck film	-	1
Not packaged	-	7	Exposed to X-ray	-	1
Stuck film	-	1	Total	-	10
Badge dropped in water	-	1			
Total	-	17			

Of the 10 lost pencil readings, and the 27 lost badge readings, other personnel meters results were reported in 7 and 9 cases, respectively, and indicated no significant exposure. Investigation of the remaining cases is still in process. Investigation completed during the month of previous lost readings indicated that the probability of overexposure was vanishingly small.

Total badges processed 1952,	Operation	-	39,082
	Construction	-	11,255
	Total	-	50,337

In addition to the badge program, a total of 1,716 items of a non-routine nature was processed during the month.

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Radiological Sciences Department

Slow Neutron Pencil Summary

	100-B	100-D	100-DR	100-F	100-H	Total	Year to date
Pairs issued	28	65	55	18	209	375	375
Significant readings	9	19	2	0	24	54	54
Significant readings-(above 50 mrem)	0	0	0	0	0	0	0

Neutron Film

Badges Processed	100-B	100-D	100-F	100-H	200-W	300	Total	Year to date
Personnel	21	124	40	180	127	10	502	502
Special	0	0	3	0	12	0	15	15

(b) Bioassay

Plutonium analyses: Number of samples - 456
Spikes and blanks - 68
High readings - 0.50 d/m
Resample from last month - still in process

Fission product analyses:

Number of samples - 455
Spikes and blanks - 66
High readings - none ≳10 c/m

Uranium Analyses:

Results of 407 samples were as follows:

Metal Preparation (300 Area)

Job description	End of 4th Day Exposure µg/liter Maximum	µg/liter Average	Number Samples	End of 1 Day-No Exposure µg/liter Maximum	µg/liter Average	Number Samples
Canning	21	6	47	7	3	33
Machining	119	10	54	35	9	39
Melt Plant	29	9	53	33	9	44
Material Handling	139	18	16	36	13	12
Inspection	9	9	1	15	15	1
305 Building	2	2	1	1	1	1
Clerical	5	4	2	4	3	2
Coverage	14	6	9	14	6	8

Radiological Sciences Department

Uranium Analyses - Continued

	Before Job Maximum	Before Job Average	Number Samples	After Job Maximum	After Job Average	Number Samples
Car unloading	6	2	15	18	6	12

	Miscellaneous Samples (µg/liter) Maximum	Average	No.Samples
Random Samples	2	1	8
224-U Building	11	1	84

Tritium Analyses

	Activity Density (µc/cc x 10^3) ≤2	2-5	5-10	10-20	20-35	35-65	≥65	Total
No.Samples-Operating Personnel	483	166	143	23	0	0	0	815
No. personnel involved	81	29	19	7	0	0	0	136
No.Samples-Construction Personnel	57	0	0	0	0	0	0	57
No. personnel involved	19	0	0	0	0	0	0	19

Thyroid Checks

All thyroid checks were below the warning level.

Hand Score Summary

There were 47,771 alpha and 67,136 beta hand scores reported. About 0.07% of the alpha, and 0.04% of the beta scores were high. There was no attempt made to reduce two of the high alpha scores and two of the high beta scores. Where decontamination was attempted, it was successful.

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Radiological Sciences Department

4. Calibrations

	Number of Routine Calibrations December 1951	January 1952	Year to Date
Fixed Instruments (Gamma)	230	152	152
Portable Instruments			
Alpha	194	195	195
Beta	388	409	409
Gamma (Radium)	790	997	997
X-ray Scanning	2	0	0
Neutron	14	6	6
Total	1,388	1,607	1,607
Personnel Meters			
Beta	998	868	868
Gamma (Radium)	6,869	6,752	6,752
X-ray	6,910	6,969	6,969
Neutron	44	179	179
Total	14,821	14,768	14,768
Grand Total	16,439	16,527	16,527

BIOPHYSICS SECTION

CONTROL UNIT

Regional Survey

The general findings are summarized in the following table:

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density μc/cc
Drinking Water		
Benton City Water Co. Well	alpha	8.2×10^{-9}
Richland, N.Richland, Benton City Wells	alpha	$0.5\text{-}2.5 \times 10^{-8}$
100 Areas	beta	2.5×10^{-7}
Pasco, Kennewick, McNary Dam	beta	$6\text{-}30 \times 10^{-8}$
Backwash Solids- Pasco Filter Plant	beta	1.1×10^{-2} (μc/gm)
Backwash Liquids- Pasco Filter Plant	beta	4.7×10^{-7}
Sand Filter- Pasco Filter Plant	beta	8×10^{-6} (μc/gm)
Anthracite Filter-Pasco Filter Plant	beta	7.6×10^{-5} (μc/gm)

Radiological Sciences Department

Regional Survey - Continued

SAMPLE TYPE AND LOCATIONS	Activity Type	Average Activity Density μc/cc
Other Waters		
300 Area Wells #1, 2, 3,	alpha	1.4×10^{-8}
300 Area Well #4	alpha	1.8×10^{-7}
Well #4 measured as uranium	U	1.7×10^{-7}
48 wells on the reservation	beta	$< 5 \times 10^{-8}$
Columbia River-Hanford Ferry	beta	5.7×10^{-6}
Columbia River-Patterson to McNary	beta	3.8×10^{-7}
Columbia River-Shore Mud	beta	$0.2\text{-}1.3 \times 10^{-4}$ (μc/gm)
Raw water - operating areas	beta	$3.8\text{-}8.3 \times 10^{-7}$
Pile effluent retention basins	beta	$1 - 1.6 \times 10^{-3}$
Pile effluent retention basins	alpha	$< 5 \times 10^{-9}$
I^{131} in farm wastes	I^{131}	3×10^{-6}
I^{131} in Columbia River-Hanford	I^{131}	1.2×10^{-7}
Atmospheric Pollution		
Gross alpha emitters	alpha	trace to 2×10^{-14}
Gross dose rate -Separations areas	beta-gamma	1 - 1.5 mrep/day
Gross dose rate -Residential areas	beta-gamma	0.4-0.8 mrep/day
Filterable beta -Separations areas	beta	$0.9\text{-}1.5 \times 10^{-12}$
I^{131} - Separations areas	I^{131}	$0.9\text{-}3.4 \times 10^{-12}$
I^{131} from Separations stacks	I^{131}	2.1 c/day
Active particles-Wash.,Idaho,Ore.,Mont.	--	3.5×10^{-2} ptles/meter^3
Active particles-Hanford Works	--	0.03 -0.5 ptles/meter^3
Tritium (as oxides)Riverland to Hanford	T	$< 4 \times 10^{-9}$
Tritium (as oxides)Reactor stacks	T	$8 - 80 \times 10^{-9}$
Vegetation		μc/gm
Environs of Separations areas	I^{131}	$2 - 11 \times 10^{-4}$
Residential areas	I^{131}	trace to 5×10^{-6}
Eastern Wash. and Oregon	I^{131}	$< 3 - 7 \times 10^{-6}$
Non-volatile beta emitters - Wash.& Ore.	beta	$2 - 12 \times 10^{-5}$
Alpha emitters -Separations areas	alpha	trace to 1×10^{-6}

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Analytical Control Laboratory

Routine analyses were carried out as follows:

Laboratory

Type Sample	Analyses Completed January 1952	Year to Date
Vegetation	1820	1820
Water	2122	2122
Solids	398	398
Air samples	527	527
Fluorophotometer	439	439
Special survey samples (RMU)	36	36
Dow background study (water total alpha)	50	50
Total	5392	5392

Counting Room

Beta measurements (recounts included)	6011	6011
Alpha measurements (recounts included)	3626	3626
Control points	3161	3161
Decay curve points	3050	3050
Absorption curve points	36	36
Total	15884	15884

Six samples of water from the 107 pile effluent basins were analyzed for short half-life emitters. Ba^{139} was identified in four of these samples which may be further indication of fission products or may result from an (n, γ) reaction. Average beta activity from this isotope, based on analyses on four samples, was found to be 3×10^{-5} μc/cc.

The revised ether extraction procedure for analysis for alpha activity in soil gave higher yields and less deviation of results.

Further analyses on sludge from the storage basin at 100-B has shown presence of polonium as well as plutonium and uranium in the material on the bottom of the basin. Maximum measurements indicated 4×10^{-4} μc Po/gm, 1×10^{-2} μc Pu/gm, and 3×10^{-4} μc U/gm.

Data Analysis

Chemical results for one year's data from the 107 effluent water analysis program were examined statistically for significant differences in total activity and composition, and correlations with known conditions were attempted, i.e., power level, water composition, river flow, etc. No significant difference was observed between piles in total activity, although the Cu concentration at 100-B, and the Mn concentration at 100-DR, were significantly higher

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than the concentrations observed at other piles. No significant trend in activity levels or concentrations was found with power level, water composition, river flow, etc. Partial correlation studies of power level, river flow rate, and the activity density found at selected river locations for the last two years were made. Summations were completed on the "Buster Jangle" operation, and correlation studies between I^{131} emitted from the 200 Area stacks and the amount deposited on vegetation were started.

Synoptic Meteorology

Forecasts	Number made	January 1952 Percent Reliability
Production	93	79.4
24-hour	62	78.2
Special	28	92.9

Meteorological conditions for the past month were featured by an unusually large amount of cloudiness and fog and by frequent precipitation in light amounts.

Sky cover, on a scale of 0 to 10, averaged 8.7. This was the greatest monthly amount yet recorded at the station, and was nearly 50% greater than the average of the five previous January months of record.

Fog occurred on 11 days. For previous January months of record at the station, the number of such days has averaged only 6.

Precipitation was recorded on a total of 25 days. On only 11 of these, however, was the amount sufficiently large to measure, and on only one day, the 23rd, did the amount equal or exceed 0.10 inch. The monthly total of 0.65 inch was 0.20 inch below normal.

Daily maximum and minimum temperatures averaged 25.2°, or 3.9° below normal. The monthly high, 50°, occurred on the 30th. The monthly low, 5°, occurred on the 3rd.

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Radiological Sciences Department

ENVIRONMENTAL HAZARDS AND GENERAL STUDIES UNIT

1. Experimental Meteorology

Computations of trajectories of hypothetical emission clouds were continued to help in determining seasonal changes in the probability patterns. Data from the outlying wind recording stations through December 31 have been tabulated, and are now being processed by the I.B.M. facility.

2. Geology-Hydrology

Ground water contamination in the 361-B wells continued at previously established levels. The contamination in the 361-T area continued to move so that the activity density in well 361-T-18 has risen to a level about one-half that in well 361-T-16. Contamination of the ground water in wells 224-T-10 and 241-T-15 beneath the second cycle and 5-6 crib was confirmed with positive results from four samples from each of the two wells.

An increase in the activity densities was observed in the 108-B area wells, probably because of a leak in the 107 retention basin. The activity densities were too low for a reliable analysis for fission products.

The 300 Area wells remained at previously established levels except for a sharp rise in alpha activity in well 303-2, presumably due to an influx of water from the old retention pond.

3. Soil science

Sixty particle size distribution analyses of soil samples from Area 2 and the Works Laboratory area were completed. In general, these samples were found to contain 75% to 90% sand, with the remaining 10% to 25% made up of silt, clay (usually <5%), and gravel.

Plutonium was found to be adsorbed by earth materials just as well from a solution containing 80 gm/liter of sodium nitrate, sulfate and phosphate (simulating the salt content of a waste sample from the 112-T tank) as from distilled water.

Equilibrium experiments to determine the effect of pH on the adsorption of Y^{91} in soils were completed. The most effective removal occurred near the neutral point and again at very high pH values. The less effective removal in the alkaline region (pH 8-11) was similar to the trend previously observed for Ru, Ce, Zr-Nb, and Pu.

4. Industrial Hygiene

Preliminary tests have been made in the study of particulates in the 200 Area process stack gases as a test of some of the techniques which will be required.

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Radiological Sciences Department

Industrial Hygiene - continued

Studies of non-radioactive hazards were made of: (1) the fume conditions and the use of lead in the canning section of the 313 Building; (2) the use of beryllium in the 305 Building; and (3) the ammonia exposures in the reproduction section of the 760 Building.

5. Methods

A series of five runs was made in testing the Kanne Chamber for the monitoring of noble gases in the Separations Area stacks. Operation was quite successful with good evolution curves and an immediate reduction to background at the end of the run.

A start was made on the semi-empirical analysis of diffusion of pile effluent in the Columbia River, using as a basis relations derived for the diffusion of materials in the atmosphere. The eight tests obtained between 100-B and 100-D areas on the first two surveys indicated reasonable agreement with this theory.

Work on the separation of ruthenium from vegetation involved a precipitation of ruthenium sulfide from a caustic solution. Satisfactory yields were obtained when no vegetation was present, but the presence of colloidal organic materials appeared to eliminate the carrying of the ruthenium. Promising results were obtained when the basic sulfide solution was acidified, and the resultant precipitate ashed to remove organic materials. Further tests of the electrodeposition procedure for ruthenium gave yields between 90% and 100%.

A survey of the ether extraction procedure used in the Control Laboratory for the separation of plutonium and uranium was started. A procedure with a magnesium nitrate and nitric acid salting out agent has been adapted which gives consistent yields of 90% to 95%. Preliminary tests on vegetation and soil samples indicated yields with plutonium of this same order of magnitude.

Several runs were made on the concentration of noble gases in the pile effluent waters by flushing the water sample with methane, which was then placed in a proportional counter for measurement. Counting rates on the order of 100 c/m per ml water sample were obtained, with recognized decay periods corresponding with Xe^{135} and Xe^{133}, and some unidentified activities. The method appeared to be the most promising approach to the rapid detection of ruptured slugs, in addition to its direct need for the radiological sciences problem.

Some data on the carrying of radium through the plutonium analysis procedure indicated that less than 2% would be left after the TTA analysis.

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6. Radiochemical Standards

More experimental work has been done to check on the absolute calibration of the tritium counters, but the results are still inconclusive.

A proportional counter with a 4π geometry is being studied for application in absolute alpha and beta calibrations.

A Bureau of Standards I^{131} solution was checked using standard techniques of source preparation. Results of these tests indicated satisfactory agreement with the values quoted by the Bureau of Standards.

Studies of correction factors for mica window counters were continued with factors for Cs^{137}, Sr^{90}-Y^{90}, and Ru^{106} being evaluated.

RADIATION MEASUREMENTS

1. Physics

Tests of new type DuPont films 508 and [illegible] showed that both were more sensitive to gamma radiation than the 502 type now in use. However, the new types are not linear over as great a range as the 502 film.

About 3% of plutonium disintegrations are accompanied by emission of an X-ray of about 17 Kev; tests with a scintillation counter and argon-filled mica window counter have been successful in detecting quantities as low as 15 micrograms of plutonium enclosed in various absorbers. The argon-filled counter was most successful, detecting the sample through a total of 1.8 cm of polystyrene and lucite. This method has some promise for detection of plutonium deposited at small depths in cuts.

The so-called "long" counter was used to check the strength of the PoB neutron source with the Ra-Be source. The resulting value was intermediate between the manufacturer's value and the value obtained with the sigma pile.

A preliminary model of an extrapolation chamber for neutron dosimetry experiments was made with Markite conducting plastic, which has a composition similar to that of tissue in most respects.

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2. Instrument Development

The quench circuit used with the hydrogen counters was found to be inadequate for extending the plateau of a poor self-quenched geiger tube. Another quench circuit which reduces anode voltage to zero after a count was also found to be unacceptable.

Light piping studies thus far indicate that polished aluminum makes a pipe only slightly better than machined aluminum, and that mineral oil-filled pipes give no marked improvement over air-filled ones. Lucite attached to the photocathode with Canada balsam gave excellent results; the counting rate of a 10 cm. pipe 1-1/4 inches in diameter was about 90% of that obtained with the crystal attached directly to the photocathode. Investigations of the effect of pipe diameter indicated that the counting efficiency with a 3 mm lucite pipe 7 cm. long is rather low (a few percent). However, photocathode surfaces are markedly non-uniform in sensitivity and somewhat better over-all results may be obtained with selected tubes and selected spots on the photocathode.

A breadboard model of the circuit for an improved recording air monitor has been completed and successfully operated.

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Radiological Sciences Department

BIOLOGY SECTION

AQUATIC BIOLOGY UNIT

Biological Chains

1. Algae-Trout Relationships

Activity densities of adult trout held in 5% pile effluent and fed a diet containing algae cultured in the effluent water remained at a minimum due to low water temperatures. Since food consumption was at a minimum, radioactivity of the fish receiving the contaminated food was not above that of fish eating uncontaminated food.

2. Retention Basin Algae Control

Test patches of anti-fouling paint applied to a wall of the 107-F retention basin last November were immersed in effluent water for 20 days during the month but exposed to the atmosphere on three occasions due to alternate use of basins.

Ecology

1. Survey of the Columbia River

Activity densities of the plankton remained at near maximum level but diminished in other aquatic organisms with falling water temperatures. Average values observed at Hanford were: plankton, 16×10^{-3} μc/g; bottom algae, 2.0×10^{-3} μc/g; caddis fly larvae, 1.9×10^{-3} μc/g; small fish, 0.23×10^{-3} μc/g.

Effluent Monitoring

1. Effect of Pile Effluent on Silver Salmon

Routine monitoring of the area effluent water with silver salmon eggs continued. Embryonic development progressed slowly due to low temperatures. All eggs held in the higher concentrations of effluent, where slightly higher temperatures existed, hatched. A significantly higher mortality occurred among the eggs held in the 10% effluent.

2. Effect of Pile Effluent Retention Time on Activity Densities in Aquatic Organisms

These studies were delayed by frequent interruptions in the operation of the pile. Difficulty has been experienced in keeping invertebrates alive in the undiluted effluent.

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Radiological Sciences Department

BIOLOGICAL SERVICES UNIT

Biological Monitoring

1. Waterfowl

Canada goose fecal activity showed a slight decrease during the month. Thirty-five percent of the samples remained in the 200 - 300 d/m/g range, with a maximum activity density of 440 d/m/g observed.

Tissue samples of wild waterfowl exhibited no activity density exceeding the chronic MPC of radiophosphorus in man. Maximum activity density detected was 1.0×10^{-4} μc/g in cranium.

2. Upland Wildlife

Thyroid activity densities of rabbits from various locations were in the range of 0.02 to 0.12 μc/g. Birds had activity densities up to 0.002 μc/g.

Clinical Laboratory

Eight hundred and eighty-one determinations.

Microscopy

1. Histology

Routine histological preparations.

2. Electron microscopy

General testing of the instrument continued, with some service work performed for the industrial hygiene group.

Radiochemistry Laboratory

1. Radioactivity in Carcasses

No report.

2. Analytical Services

Analytical services to other units included the preparation of 61 isotope solutions, 80 ether extractions and 102 TTA determinations of Pu in biological samples, and approximately 3,000 alpha and beta counts.

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3. Analytical Techniques

The review of the analytical procedures for the measurement of I^{131} in sheep samples was completed. Self-absorption and yield corrections were redetermined, and modifications were made in the procedures for certain types of samples. The modifications result in lower limits of detection and more representative sampling. Basic correction-factor data needed for calibration of Cr^{51}, Ca^{45}, and Zn^{69} solutions were determined.

METABOLISM UNIT

Animal Metabolism

1. Low-Level Chronic Plutonium Absorption in the Rat

No report.

2. Percutaneous Absorption of Plutonium

The application of 10^6 d/m of plutonium (IV) in 100 µl of 2 N HNO_3 on an area of 0.6 cm^2 of the shaved thigh of 9 rats, for 15, 30, and 60 minutes, resulted in negligible activity in the blood, opposite thigh, and pelt. The total carcass content of 2 rats exposed for 30 minutes was 1.6 d/m and 10.0 d/m. Higher rates of absorption previously noted were obtained with more strongly acid solutions.

3. Therapy for Internally Deposited Plutonium

Results indicated that the repeated zirconium citrate treatment for 30 days immediately following injection caused a six-fold reduction in skeletal deposition, as compared to controls. Plutonium deposition in the liver and other non-skeletal tissues of the early zirconium treated rats was increased several fold over controls. This soft tissue deposited plutonium was apparently not transferred to the skeleton during the 30 days following zirconium citrate therapy. The conclusion would seem to be that the effect of zirconium citrate in preventing skeletal deposition is not only one of increased excretion, as previously reported, but also a positive effect of binding the plutonium in the soft tissues. The delayed zirconium citrate treatment showed effects similar to the immediate treatment, but to a much lesser, and doubtfully significant, degree. The full course of zirconium citrate treatment consisted of an administration of 770-mg intraperitoneally in 15 equal doses. Deaths which occurred during the experiment were not attributed primarily to the zirconium citrate treatment, but there was a steady weight loss observed in all animals during the period of treatment.

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4. Distribution and Retention of Tritium in the Rat. III. Compound Separation

No report.

5. Distribution and Retention of Tritium in the Sheep

Bound tritium activity in red cell protein, plasma albumin, and plasma globulin fractions was determined at intervals up to 49 days following administration of approximately 3 curies of tritium oxide (erroneously reported as 820 mc, last month). Albumin and globulin activities reached maximum values of about 14 and 17 μc/g N, respectively, 10 days following tritium oxide administration. Red cell protein attained a maximum activity of about 7 μc/g N some 30 days after administration. All fractions are now decreasing in activity, the globulin most rapidly and the red cell protein least rapidly.

6. Percutaneous Absorption of Tritium Oxide

No report.

7. Percutaneous Absorption of Tritium Gas

Exposures of additional rats confirmed the figures reported last month. Attempts to measure the activity of tritium gas exhaled by the animal during the course of exposure were not entirely successful, but seemed to indicate that the major portion of the gas absorbed percutaneously was not exhaled. These experiments eliminated any possibility that tritium found in the animal might have entered through the lungs, due to leakage in the exposure equipment.

Microbiology

1. Determination of RBE's by Microbiological Methods

Additional curves for inhibition of growth of Lactobacillus casei by tritium were obtained during the month, and phenol production from benzoate solutions irradiated with tritium was further studied. The concentration of phenols produced was found to be proportional to radiation dose up to approximately 3 μc/ml of phenol, over a 200-hour irradiation period, with tritium concentration varying from 4 to 30 mc/ml.

2. Tritium Fixation by Bacteria

Studies of tritium fixation by bacteria were extended to include a detailed study of organisms isolated from the intestinal tract of rats. Species of Proteus, Escherichia coli, and Pseudomonas were found to be active tritium fixers. Bacillus subtilis, Lactobacillus, and Streptococcus species were generally inactive.

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3. Tritium Fixation by Mammalian Tissues

Studies of the metabolism of molecular tritium by rats were completed. The results obtained were similar to the less extensive data previously reported for rabbits. Approximately 0.1% of the activity of inhaled gas was retained by the animal. Immediately following a short exposure, 85% of the tritium retained was present as the oxide, with 5% in the tissue-bound state. Blood or urine samples taken during, or immediately following, a short-exposure are not a reliable indication of the total tritium absorption. A constant blood level is not attained for at least 90 minutes. Studies on fixation of tritium by rat tissue homogenates indicated that those tissues known to contain bacteria, and which could be demonstrated to contain bacteria, were the ones which fixed significant quantities of tritium. These included spleen, bladder, kidneys, intestines, and heart. Relatively large quantities of tritium oxide and bound tritium were found in these tissues following inhalation or injection of the gas. Rats treated with antibiotics prior to inhalation of tritium retained only half as much activity as untreated controls.

Plant Nutrition

1. Absorption and Translocation of Fission Product and Pile Effluent Radioactivities

In order to correlate previous work on absorption and translocation of strontium from nutrient solutions, the uptake of strontium by barley seedlings from an Ephrata fine sandy loam was studied, using a modified Neubauer technique. An absorption of 1% to 2% of a dose of essentially carrier-free Sr^{90} from this soil into the aerial portions of the plant was observed.

An experiment was conducted to determine the experimental variations to be expected in bean plants grown in the climatizer growth chamber. Weight and ion uptake of roots, stems, primary leaves, and trifoliate leaves, was studied. Fiducial limits at the 95% confidence level varied from 2% to 5% for the weight of these plant parts, and from 6% to 11% for ion uptake.

2. I^{131} Vapor Absorption and Translocation

No report.

3. Absorption and Metabolism of Tritium Oxide by Vascular Plants

No report.

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Radiological Sciences Department

Plant Metabolism

1. Radiation Damage to Plants. I. Algae

Further studies were made of the environmental factors contributing to radiation effects on growing algae. The rate of aeration in the range of 50 to 500 ml per minute was found to influence the effect of Sr^{90} and Y^{90}. The previously reported influence of the ratio of P^{32} to P^{31} was confirmed in more carefully controlled experiments. Other studies were made to determine the amount of several elements (phosphorus, strontium calcium, sulfur) per algal cell. The strontium content was found to be a function of its concentration in the medium. Phosphorus content was constant for medium concentrations above a certain minimum level.

2. Metabolism of Tritium Oxide by Algae

The incorporation of tritium in algae grown in a medium containing tritium oxide, in which water is the only source of hydrogen, was studied over a growth range extending to eight generations. The concentration of bound tritium attained in the hydrogen of the algae was only about 60% of that in the hydrogen of the media. This finding strongly suggests that the algae are differentiating between protium and tritium in their metabolism.

TOXICOLOGY UNIT

Experimental Animal Farm (Toxicology of I^{131})

1. Low-Level Chronic Effects

Examination of additional microscopic sections of thyroids from the offspring of the ewes of the 240 μc/day group disclosed severe damage.

Examination of thyroids of adult animals subjected to prolonged thyroid ablative doses of I^{131} revealed that the follicular pattern may not be obliterated histologically. It appeared that a few follicles adjacent to epithelial cysts or collections of blood vessels may survive.

Study of liver sections of these animals revealed no specific change attributable to radiation.

2. Thyroid Regeneration

Eight ram lambs were examined six times for PBI levels preparatory to initiation of 480 μc/day administration.

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3. Effects of Inert Iodine and Desiccated Thyroid

The second 45 μc tracer dose of I^{131} was fed to each of the 15 twin lambs in the group previously fed 480 μc of I^{131} for 20-30 days (July 1951).

Maximum concentrations as shown by external monitoring are as follows:

Group	I^{127} augmentation		Desiccated thyroid		No augmentation	
	1st tracer dose *	2nd tracer dose	1st tracer dose *	2nd tracer dose	1st tracer dose *	2nd tracer dose
Previously fed 480 μc	0	0.6 μc	0	1.0 μc	0	0.5 μc
Twin controls of above	~0.9 μc	1.3 μc	6.8 μc	7.3 μc	12.1 μc	16.1 μc

* ion chamber readings - not reliable below 1.0 μc.

Two of the above animals that were fed 480 μc/day with no other augmentation expired during this period. Both animals exhibited variable alopecia, stiffness in gait, bloating, weight loss, and a fall in body temperature (as low as 76° F) a few days prior to death.

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

The special cages for housing the tumor-sensitive experimental animals arrived.

2. Plutonium Toxicology

No results.

3. Therapeutics in Plutonium Poisoning

No results.

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FINANCIAL DEPARTMENT MONTHLY REPORT
JANUARY, 1952

Request was received from the Hanford Operations Office of the Atomic Energy Commission for submission of budget estimates for FY 1954 and revised estimates for FY 1953 no later than April 25, 1952. Instructions were issued for the preparation of data for review by the Appropriations and Budget Committee, and the preparation of budget data was started.

A summary of cash disbursements and receipts (excluding advances from AEC) for the months of January, 1952 and December, 1951 is shown below:

Disbursements	January	December
Material and Freight	$ 2 995 567	$ 2 370 425
Payrolls	2 406 245	2 483 573
Payroll Tax	486 682	484 163
U. S. Savings Bonds	252 412	113 288
Payments to Subcontractors	196 253	220 619
Other	221 143	306 616
Total	6 558 302	5 978 684
Receipts		
Rents	171 440	140 561
Refunds from Vendors	77 670	4 360
Hospital	68 298	50 532
Sales to AEC Cost-Type Contractors	68 211	38 933
Telephone	22 273	15 240
Bus Fares	13 078	9 879
Scrap Sales	2 926	21 854
Other	75 722	18 315
Total	499 618	299 674
Net Disbursements	$ 6 058 684	$ 5 679 010

Advances from AEC decreased from $4,000,000 as of December 31, 1951 to $3,000,000 as of January 31, 1952 and may be summarized as follows:

	January 31, 1952	December 31, 1951
Cash in Bank - Contract Accounts	$ 1 966 316	$ 3 034 310
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	558 684	490 690
Advances to Subcontractors	300 000	300 000
Travel Advance Funds	125 000	125 000
Total	$ 3 000 000	$ 4 000 000

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A summary of personnel changes in the Financial Department during the month of January is shown below:

Personnel at December 31, 1951	445
Acquisitions	3
Transfer of tabulating personnel to the newly formed Statistical and Computing Services Section of the Utilities and General Services Department	(26)
Terminations and other transfers out	(16)
Personnel at January 31, 1952	406

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

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GENERAL ACCOUNTING SECTION
MONTHLY REPORT

January, 1952

Request was received from the Atomic Energy Commission for budget estimates for FY 1954 and revised estimates for FY 1953. As a first step in the preparation of these estimates, arrangements were made with department managers to submit personnel estimates for Appropriations and Budget Committee approval prior to beginning calculations of the dollar budget. Complete instructions relative to estimates on operating costs, construction projects, equipment, research and development, and inventories, together with dates information is to be submitted to us, were forwarded to department managers.

Operating Cost Reports were completed on January 15, 1952, and forwarded to respective managers, together with letters explaining major variances from costs of the previous month. Letter was also prepared for the General Manager detailing Product Cost and showing a segregation by process and element of cost. Cost summaries by month for fiscal year to date, together with bogey estimates by month through May, 1952, were prepared and distributed.

A meeting was held during the month to continue prior months' discussions relative to the establishment of earlier closing dates. Tentative closing dates for general ledger and issue dates for major financial reports were established through May, 1952. Revised procedures were agreed upon which will result in earlier issue dates, and certain suggestions made to accomplish this end are being investigated.

Review of employees' insurance coverage and constributions was completed in January. In accordance with provisions of the Insurance Plan, coverage was increased $1 472 500 as a result of increased salary rates, and employees' contributions were increased accordingly, effective January 1, 1952. As of January 1, 1952, total Life Insurance coverage for employees was approximately $85 000 000.

Retroactive payments were made to 465 employees in the amount of $41 085 covering construction work performed during the period from September 30, 1951. Total payments to date amount to $130 837 for 1 167 employees.

Withholding Statements for 1951, Form W-2, were delivered to employees on January 11, 1952. The Collector's copies of Withholding Statements were forwarded to the General Office for transmittal to the Collector of Internal Revenue.

Considerable overtime was required in January in Payroll Unit in order to complete Federal Social Security Reports, State Social Security Reports, Withholding Tax Reports, Returns of Information at the Source, Annual Report of Employee Contributions under the Pension Plan, and various other year-end reports.

General Accounting Section

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	9 102	2 087	7 015
Additions and transfers in	137	5	132
Removals and transfers out	(146)	(19)	(127)
Transfers from weekly to monthly payroll	-0-	22	(22)
Transfers from monthly to weekly payroll	-0-	(2)	2
Employees on payroll at end of month	9 093	2 093	7 000

Number of Employees	January	December
Bargaining group - HAMTC	3 523	3 437
Bargaining group - Building Services	68	68
- Two Platoon Firemen	56	56
- Hanford Guards	616	621
Other weekly - non-bargaining	2 793	2 889
Executive, administrative and operating	1 502	1 488
Professional	511	520
Other monthly	24	23
Total	9 093	9 102

Number of Employees		
Engineering	1 804	1 963
Manufacturing	3 200	3 046
Utilities and General Services	2 320	2 276
Community	209	218
Real Estate & Services	333	332
Financial	406	445
Employee and Public Relations	113	110
Radiological Sciences	368	364
Medical	274	273
General	25	24
Law	9	17
Accountability	21	23
Technical Personnel	11	11
Total	9 093	9 102

Overtime Payments		
Weekly paid employees	$119 968	$168 195
Monthly paid employees	42 348(1)	51 156(2)
Total	$162 315	$219 351

Number of Changes in Salary Rates and Job Classifications	1 633	1 674

(1) Payments cover period January 1 through January 31, 1952, except in the case of patrolmen in the Plant Security and Services Section of the Utilities and General Services Department who were paid for the period December 1 through December 31, 1951.

(2) Payments cover period December 1 through December 31, 1951, except in the case of patrolmen in the Plant Security and Services Section of the Utilities and General Services Department who were paid for the period November 1 through November 30, 1951.

General Accounting Section

Gross Amount of Payroll	January	December
Engineering	$ 752 817	$ 901 882
Manufacturing	1 261 685	1 450 812
Utilities and General Services	806 960	938 750
Community Real Estate and Services	196 870	228 741
Other	432 229	527 092
Total	$ 3 450 561(1)	$ 4 047 277(2)

Annual Going Rate of Payroll		
Base	$39 794 280	$39 743 593
Overtime	2 110 516	2 485 353
Isolation Pay	1 286 110	1 277 023
Shift Differential	504 219	495 512
Other	46 739	54 144
Total	$43 741 864	$44 055 625

Average Hourly Base Rates		
Bargaining group - HAMTC	$2.005	$1.998
- Building Services	1.564	1.564
- Two Platoon Firemen	1.995	1.980
- Hanford Guards	1.751	1.745
Other weekly - non-bargaining	1.704	1.709
Executive, administrative and operating	2.927	2.926
Professional	2.934	2.948
Other monthly	2.321	2.340
Total	$2.097	$2.093

Average Earnings Rate Per Hour (3)	January			December		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Engineering	$1.826	$2.950	$2.256	$1.824	$2.938	$2.242
Manufacturing	2.185	2.983	2.324	2.196	3.002	2.334
Utilities and General Services	1.913	2.704	2.017	1.913	2.718	2.014
Community Real Estate and Services	1.975	2.472	2.142	1.952	2.465	2.124
Other	1.725	3.080	2.018	1.716	3.076	1.994
Total	$1.977	$2.897	$2.180	$1.972	$2.900	$2.174

% Absenteeism	January	December
Weekly - Men	2.62	2.38
Weekly - Women	4.34	4.44
Total Weekly	3.08	2.93
Monthly	1.48	1.46
Grand Total	2.65	2.64

(1) 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.

(2) Includes payments for five-week period ended December 23, 1951 in the case of weekly paid employees. Excludes $89 752 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

	January	December
Number participating at beginning of month	6 477	6 441
New participants and transfers in	123	84
Removals and transfers out	(58)	(48)
Number participating at end of month	6 542	6 477
% of eligible employees participating	95.1%	94.4%

Employees Retired	January	Total to Date
Number	4	191-a)
Aggregate Annual Pensions Including Supplemental Payments	$ 542	$42 915-b)
Amount contributed by employees retired	$1 384	$37 651

(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.

Insurance Plan (1)

Personal Coverage	January	December
Number participating at beginning of month	9 100	9 028
New participants and transfers in	98	156
Cancellations	(25)	(17)
Removals and transfers out	(91)	(67)
Number participating at end of month	9 082	9 100
% of eligible employees participating	98.2%	98.2%

Dependent Coverage		
Number participating at beginning of month	5 550	5 487
Additions and transfers in	70	93
Cancellations	(6)	(2)
Removals and transfers out	(41)	(28)
Number participating at end of month	5 573	5 550

Claims - Disability Benefits (2)

Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	99	128
Daily Hospital Expense Benefits	168	153
Special Hospital Services	182	165
Surgical Operations Benefits	125	120
Dependent Benefits		
Daily Hospital Expense Benefits	208	281
Special Hospital Services	260	324
Surgical Operations Benefits	263	267
Amount of claims paid by insurance company:		
Employee Benefits	$31 464	$35 302
Dependent Benefits	29 542	35 394
Total	$61 006	$70 696

(1) The new Insurance Plan was made effective on December 1, 1950.

(2) Statistics cover only claims paid and not all claims incurred during the month.

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General Accounting Section

Employee Benefit Plans (continued)

Claims - Death Benefits (1)	January	Total to Date
Number	5	77
Amount	$31 500	$423 000

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of January 31, 1952, 4 employees who are absent due to total disability are still participating in the Group Life Insurance Plan. They were not actively at work December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work.

Vacation Plan

Number of employees granted permission to defer one week of their 1952 vacation to 1953

	January		
	Weekly	Monthly	Total
Engineering	2	2	4
Manufacturing	7	0	7
Utilities and General Services	88	7	95
Community Real Estate and Services	5	1	6
Financial	1	0	1
Employee and Public Relations	0	0	0
Radiological Sciences	0	1	1
Medical	0	0	0
General	0	0	0
Total	103	11	114

U. S. Savings Bonds	Engineering	Mfg.	Utilities and General Services	Community Real Estate and Services	Other	Total
Number participating at beginning of month	1 029	1 450	1 011	274	586	4 350
New authorizations	25	30	23	6	25	109
Voluntary cancellations	(17)	(23)	(18)	-0-	(7)	(65)
Removals and transfers out	(104)	(7)	(7)	(2)	(14)	(134)
Transfers in	5	76	25	2	2	110
Number participating at end of month	938	1 526	1 034	280	592	4 370
Percentage of participation						
G.E. Employees Savings and Stock Bonus Plan	47.6%	45.4%	38.6%	45.9%	43.5%	42.9%
G.E. Savings Plan	7.9%	11.9%	10.1%	11.4%	9.8%	10.1%
Both Plans	51.8%	50.9%	44.6%	51.7%	48.5%	48.1%

(1) Total to date includes all claims under the old and new Insurance Plans and three deaths on which accidental death benefits were paid.

Employee Benefit Plans (continued)

U. S. Savings Bonds (cont.)	Engineering	Mfg.	Utilities and General Services	Community Real Estate and Services	Other	Total
Bonds issued						
Maturity value	$33 775	$65 625	$41 875	$9 275	$22 325	$172 875
Number	721	1 366	911	202	496	3 696
Refund issued	24	26	23	3	15	91
Revisions in authorizations	12	10	10	25	5	62
Annual going rate of deductions						
G.E. Employees Savings and Stock Bonus Plan	$361 255	$629 199	$390 267	$88 289	$225 151	$1 694 161
G.E. Savings Plan	74 638	187 402	121 313	28 555	56 097	468 005
Total	$435 893	$816 601	$511 580	$116 844	$281 248	$2 162 166

Withdrawal of U. S. Savings Bonds from G. E. Employees Savings and Stock Bonus Plan	January	December
Number of participants withdrawing Bonds	100	100
Maturity value of U. S. Savings Bonds withdrawn	$31 225	$32 575

Check-off of Union Dues

	Number of New Payroll Deduction Authorizations Submitted in January	
Hanford Atomic Metal Trades Council		
United Brotherhood of Carpenters & Joiners of America, Local Union No. 2403	2	
Instrument Craftsmen's Guild	6	
International Union of Operating Engineers, Stationary Local 280	6	
International Brotherhood of Teamsters, Warehousemen, Garage Employees & Helpers, Local 839	5	
International Chemical Workers Union, 369	31	
Total submitted by H.A.M.T.C.		50
Hanford Guards Union, Local 21, of the International Guards Union of America		9
Building Service Employees International Union, Local 201 (Medical Department employees)		1
Grand Total		60

	Number of Payroll Deduction Authorizations in Effect	
	1-31-52	12-31 51
Hanford Atomic Metal Trades Council	1 097	1 060
Building Service Employees International Union, Local 201 (Medical Department Employees)	25	24
Hanford Guards Union, Local 21, of the International Guards Union of America	192	184
Total	1 314	1 268

General Accounting Section

Employees Who Have Entered Military Service	Total to Date		
	Called to Duty	Volunteered for Duty	Total
Reserve Officers	18	3	21
Enlisted Reserve	50	6	56
National Guard	6	-0-	6
Selective Service	40	-0-	40
Voluntary Enlistments	-0-	74	74
Total	114	83	197

Number of Rent, Telephone and Hospital Deductions from Salaries	January	December
House Rent	5 200	4 976
Dormitory Rent	903	889
Barracks Rent	215	197
Trailer Space Rent	152	140
Telephone Accounts	3 716	3 644
Hospital Accounts	499	458
Total	10 685	10 304

Annuity Certificates (For duPont Service)	January	Total to Date
Number issued	-0-	83

Suggestion Awards		
Number of awards	2	1 286
Total amount of awards	$960	$24 015

Employee Sales Plan	January		
	Major Appliances	Traffic Appliances	Total
Certificates issued	31	570	601
Certificates voided	1	23	24

Salary Checks Deposited	January		December	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle-First National Bank	774	873	751	857
North Richland Area Office - Seattle-First National Bank	11	6	11	6
Richland Branch - National Bank of Commerce	420	271	392	267
Out of state banks (Schenectady staff)	-0-	1	-0-	1
Total	1 205*	1 151	1 154**	1 131

*Week ended 1-20-52
**Week ended 12-23-51

Special Absence Allowance Requests	January	December
Number submitted to Pension Board	6	2

General Accounting Section

PERSONNEL AND ORGANIZATION

Number of Employees	January	December
On payroll at beginning of month	261	261
Removals and transfers out	(15)	(11)
Additions and transfers in	4	11
Number at end of month	250	261
Net increase (or decrease) during month	(11)	-0-
% of terminations and transfers out	5.7%	4.2%
% of absenteeism	4.0%	5.0%

Changes by unit in number of Accounting Section employees during January were as follows:

	Name
General: No change	
Accounts Payable: Decrease of one employee	
One transfer from Rotational Training Program	T. E. Johnston
One transfer to General Accounts	Shirley H. Byland
One resignation	Virginia R. Smith
Cost: No change	
General Accounts: Increase of two employees	
One transfer from Utilities and General Services	Nannette D. Riley
One transfer from Accounts Payable	Shirley H. Byland
Plant Accounting: No change	
Weekly Payroll: Decrease of one employee	
One deactivation	Ruth G. Jacobson
Monthly Payroll: No change	
One transfer from Special Assignments	Billie B. Burke
One transfer from Utilities and General Services	June M. Clardy
One transfer to Engineering Department	Ola C. Craig
One deactivation	Marjorie J. Hoschouer
Special Assignments: Decrease of eleven employees	
One transfer from Financial - General	George Hessney
One resignation	Dorothy S. Dalton
Four transfers to Engineering Department	Nancy F. Albritton
	Doris D. Marshall
	Mary P. Kroger
	Amelia S. Goodner
Two transfers to Utilities and General Services	Martha L. Learock
	Rose T. Segrest
Three transfers to Manufacturing Department	Catherine E. Blair
	Frances E. Ames
	Lillian U. Baumgartner
One transfer to Monthly Payroll	Billie B. Burke
One transfer to Accounts Receivable	Elva O. Gross
Budgets: No change	
Internal Audit: Increase of one employee	
One transfer from Rotational Training Program	Marshall Kreil

PERSONNEL AND ORGANIZATION (continued)

	Name
Rotational Training Program: Decrease of three employees	
One transfer to Accounts Payable	T. E. Johnston
One transfer to Internal Audit	Marshall Kreil
One transfer to Financial - General	S. A. Spohr
Medical Accounting: Increase of one employee	
One new hire	Vada L. Lamb
Accounts Receivable: Increase of one employee	
One transfer from Special Assignments	Elva O. Gross

Number of Accounting Section employees as of January 31, 1952 were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General	3	7	10
Accounts Payable	23	2	25
Cost	16	3	19
General Accounts	22	1	23
Plant Accounting	24	2	26
Weekly Payroll	67	5	72
Monthly Payroll	19	2	21
Special Assignments	9	3	12
Budgets	3	1	4
Internal Audit	5	7	12
Rotational Training Program	3	-0-	3
Medical Accounting	9	2	11
Accounts Receivable	10	2	12
Total	213	37	250

Non-exempt employees may be summarized as follows:

	Number as of	
Classification	1-31-52	12-31-51
Accounting A	1	1
Accounting B	3	4
Accounting C	6	6
Accounting D	10	10
Business Graduate	21	21
Clerical Working Leader	9	8
Cost Clerk A	2	2
Cost Clerk B	1	1
Cost Clerk C	4	4
Cost Clerk D	4	3
Field Clerk A	-0-	3
Field Clerk C	4	4
General Clerk A	27	29
General Clerk B	53	51
General Clerk C	26	40
General Clerk D	5	6
General Clerk E	2	1
Office Machine Operator A	10	10
Office Machine Operator B	6	6
Secretary B	1	1

General Accounting Section

PERSONNEL AND ORGANIZATION (continued)

Classification	Number as of 1-31-52	12-31-51
Secretary C	1	-0-
Steno-Typist A	3	2
Steno-Typist B	5	5
Steno-Typist C	6	6
Steno-Typist D	3	-0-
Total	213	224

Open employment requests as of January 31, 1952 were as follows:

General Clerk A	1
General Clerk B	1
General Clerk D	1
Steno-Typist B	1
Total	4

Injuries	January	December
Major	-0-	-0-
Sub-Major	-0-	-0-
Minor	1	2

1216598

General Accounting Section

	January	December
Accounts Payable		
Balance at Beginning of Month	$ 240 907	$ 196 369
Vouchers Entered	1 675 273	1 739 148
Cash Disbursements	1 631 776 DR	1 698 820 DR
Cash Receipts	1 427	4 210
Balance at End of Month	$ 285 831	$ 240 907
Number of Vouchers Entered	3 315	2 539
Number of Checks Issued	1 769	1 516
Number of Freight Bills Paid	1 277	1 288
Amount of Freight Bills Paid	$ 307 334	$ 328 778
Number of Purchase Orders Received	1 635	1 418
Value of Purchase Orders Received	$ 917 325	$ 476 512
Cash Disbursements		
Engineering	$2 267 868	$1 683 003
General	4 290 434	4 295 681
Total	$6 558 302	$5 978 684
Material and Freight	$2 995 567	$2 370 425
Lump Sum and Unit Price Subcontracts	6 208	17 246
CPFF Subcontracts		
Labor	138 436	168 854
Others	51 609	34 519
Payrolls (Net)	2 406 245	2 483 573
Payroll Taxes	486 682	484 163
U. S. Savings Bonds	252 412	113 288
All Other	221 143	306 616
Total	$6 558 302	$5 978 684
Cash Receipts		
Engineering	$ 157 429	$ 55 632
General	5 332 898	4 921 569
Total	$5 490 327	$4 997 201

1216596

General Accounting Section

	January	December
Detail of Cash Receipts		
Advances from AEC	$4 990 690	$4 489 201
Rents	171 440	140 561
Hospital	68 298	50 532
Telephone	22 273	15 240
Scrap Sales	2 926	21 854
Bus Fares	13 078	9 879
Miscellaneous Accounts Receivable	14 491	16 278
Sales to AEC Cost-type Contractors	68 211	38 933
Refunds from Vendors	77 670	4 360
Employee Sales	708	253
Educational Program	894	46
Refunds of Special Funds	-0-	188 320
Rental Received from Railroads	50 652	-0-
Utilities	6 058	-0-
All Other	2 938	1 744
Total	$5 490 327	$4 977 201
Number of Checks Written		
Engineering	1 195	980
General	1 769	1 516
Total	2 964	2 496
Bank Balances at End of Month		
Chemical Bank & Trust Company - New York		
Contract Account	$ 719 049	$ 707 563
Seattle First National Bank - Richland		
Contract Account	681 365	1 507 074
U. S. Savings Bond Account	202 142	157 869
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	52 165	60 826
Seattle First National Bank - Seattle		
Escrow Account	31 685	31 685
National Bank of Commerce - Richland		
Contract Account	565 903	819 673
Total	$2 302 309	$3 334 690
Travel Advances and Expense Accounts		
Cash Advance Balance at End of Month (1)	$ 26 927	$ 25 802
Cash Advance Balance Outstanding Over One Month (1)	2 676	4 955
Traveling and Living Expenses - All Departments		
Paid Employees	33 938	28 997
Billed to Government	31 664	27 753
Balance in Variation Account at End of Month	18 664 DR	16 390 DR

(1) General Accounting only.

1216597

General Accounting Section

	January	December
Accounts Receivable		
AEC Cost-type Contractors	$ 359 027	$ 177 911
Hospital	139 646	138 458
Rents	76 087	77 350
Equipment Sales to Facilities	45 736	46 288
Miscellaneous Services	16 529	20 358
Telephone	11 876	15 448
Utilities	3 361	6 093
Safety Shoes	685	457
Subtotal	652 947	482 363
Reserve for Bad Debts	42 301 CR	41 554 CR
General Ledger Balance	$ 610 646	$ 440 809
Hospital		
Out-Patient Invoices Issued	2 256	1 966
Operating Revenue	$ 72 763	$ 57 505
Houses		
New Leases	217	208
Lease Modifications	8	15
Lease Cancellations	121	146
Total Active Leases	6 062	5 966
Operating Revenue:		
Basic Rent	$ 217 441	$ 213 002
Electricity	51 450	50 957
Water	8 616	8 507
Total	$ 277 507	$ 272 466
Dormitories		
New Assignments	79	90
Removals	71	86
Total Occupancy	1 090	1 082
Operating Revenue	$ 15 200	$ 15 055
Facilities		
Total Facilities	119	119
Operating Revenue	$ 68 121	$ 52 605
Telephones		
Working Telephones	5 334	5 268
Telephone Work Orders Processed	318	425
Operating Revenue	$ 20 365	$ 22 645
Other		
Invoices Issued	402	567
Operating Revenue	$ 236 315	$ 26 539

Note: Operating Revenue represents amount charged to Accounts Receivable and credited to Operating Costs.

General Accounting Section - As of 1-31-52

	Number	Amount
Accounts Forwarded to Collection Agencies	336	$ 36 818
Accounts Returned as Uncollectible	75	12 077
Collections	113 *	4 874
Balance at Collection Agencies	171	$ 19 867

* Includes 90 accounts collected in full and 23 accounts partially collected.

	January	Total To Date
Scrap Sales		
Number of Sales	3	439
Revenue (excluding Sales Tax):		
Scrap Sales	$ 957	$ 408 041
Tract House Sales		
Revenue to AEC	-0-	33 449
Revenue to GE	-0-	14 498
Total	$ 957	$ 455 988

General Accounting Section

ACCOUNTS PAYABLE

Vouchers entered in accounts payable during January numbered 3 315 and amounted to $1 675 271. There were 1 769 checks written which totaled $1 631 776. Unpaid invoices at the end of the month totaled $285 831. Invoices on hand which had been paid prior to December 1, 1951, numbered 31 and totaled $98 530. These invoices require additional supporting data, such as receiving reports, settlement of claims which have been filed, etc., before they can be transmitted to the Atomic Energy Commission for final approval.

Volume of invoices received for payment reflected an increase over averages for the past six months of over 30 per cent. Purchase orders issued increased over 15 per cent, which will result in increased volume in Accounts Payable in subsequent months.

ACCOUNTS RECEIVABLE

During January, 13 accounts in the total amount of $271 were forwarded to the Credit Bureau of Benton and Franklin Counties for collection. Collection by the Credit Bureau amounted to $91.52 in January, of which $45.76 was remitted to us.

Approximately 425 collection letters were written in January requesting payments from debtors. Generally, if payment has not been received, or if no specific arrangements for payment in the future have been made, accounts are forwarded to the Collection Agency after writing the third collection letter to a debtor.

Kadlec Hospital out-patient invoices numbered 2 256 and totaled $10 167, as compared to 1 966 invoices totaling $9 076 in December. In-patient revenue increased $14 167 in January, due principally to the increase in room service charges effective January 1, 1952, and the increase in adult patient-day census from 82.5 in December to 91.8 in January.

No definite decision has yet been announced regarding the effective date of metering of electricity. Detailed procedures for handling of accounts receivable are currently being established, but have not as yet been completely developed. Meetings are continuing with representatives of Statistical and Computing and Electrical personnel to establish mutually satisfactory working agreements and procedures.

General Accounting Section

BUDGETS

During the month of January final instructions covering the preparation and presentation of the budget for FY 1954 and revision of the budget for FY 1953 were received from the Atomic Energy Commission. Work sheets were completed and forwarded to department managers, together with copies of the Atomic Energy Commission instructions.

The Appropriations and Budget Committee accepted our suggestion that they review estimates of personnel requirements submitted by department managers as a first step in the budget preparation. Letters were written to department managers on January 15, 1952, requesting that this information be submitted during the first week of February, 1952. In the meantime, work was continued in calculating average salary rates and projecting other costs at going rates adjusted for known changes.

COST

Cost reports for Utilities and General Services Department and Staff Departments for month of December were completed on January 15.

Summaries of Operating Costs for Nucleonics Division were issued to Plant Management on January 16, 1952. Supplementing these reports, a letter was prepared for the Manager - Finance addressed to the General Manager detailing product cost for December and affording a comparison with the previous month as well as an explanation of major variances. Actual cost summaries by month for the fiscal year to date, together with bogey estimates by month through May, 1952, were prepared and issued to Plant Management on January 24.

Letters were issued to department and section managers detailing costs incurred during December and analyzing major variations from the previous month. Supplementing these letters, a complete analysis was prepared for the Manager - Finance of supplies expense, service bureau charges, and rental and repair of equipment expense for the Financial Department explaining costs and comparing costs to budget; and a detailed analysis of telephone and telegraph charges incurred by Employee and Public Relations was forwarded to the department manager.

To provide more accurate information on cost of operational stores activities, a separate unit code was established for Receiving and Shipping costs in order to set them apart from cost of normal stores activities.

1210091

COST (CONTINUED)

Based on agreement with Community Real Estate and Services Department, arrangements were made effective in January for all costs and revenue for village bus operations and residential and commercial telephone and electrical services to be booked as Utilities and General Services costs and revenue, and the net profit or loss to be reported as "Community Utilities," with no actual liquidation made to Community Real Estate and Services Department.

In order to provide a more logical segregation of costs which parallel actual organization, to facilitate budgeting, and to provide more accurate accounting, unit codes of the Transportation Section were revised, to be effective in the month of February.

As a result of the consolidation of Accounts Receivable functions, liquidations from Financial Department to Community and Medical were revised, and cost of accounts receivable services rendered in connection with residential and commercial telephone service were determined and arrangements made to transfer these latter costs to Electrical Telephone.

Standard rates for rail car movements were revised effective in January, and credit was issued covering over liquidation of costs in the first six months of FY 1952.

GENERAL ACCOUNTS

Advances from the Atomic Energy Commission at January 31, 1952, amounted to $3 000 000, representing a decrease of $1 000 000 from the amount at the beginning of the month. The current balance of $3 000 000 in the advance account has been applied in the following manner:

Cash in Bank - Contract Accounts	$1 966 316
Cash in Bank - Salary Accounts	50 000
Cash in Transit	588 684
Advances to Subcontractors	300 000
Travel Advance Funds	125 000
Total	$3 000 000

During the month of January General Accounts assumed the responsibility of distributing all charges transferred to General Electric Company from the Atomic Energy Commission. Previously, distribution of charges applicable to accounts for which General Accounting

1210382

GENERAL ACCOUNTS (CONTINUED)

Section had responsibility was made by Cost. This change will eliminate duplicate handling of paper work and will give better control over detailed information for the Government Cost Transfers report issued by General Accounts.

Arrangements were completed during the month to relieve the Transportation Section of work in connection with counting and preparing deposits of bus revenue. Effective February 1, 1952, this function will be handled by the 703 Building Cashier's Office.

A meeting was held during the month to establish closing dates for ledgers and issue dates for certain financial reports for January through May. Letter was issued to all concerned listing the closing dates which were established. In the discussion concerning earlier closing dates, a change in procedure was agreed upon which will result in expediting cost distribution of monthly payrolls.

Issue dates of major reports were several days earlier this month due to concentrated effort in that connection. Investigations are continuing and arrangements are being worked out with other sections which will result in further improvement in subsequent months.

Current month charges to the Travel and Living Expense Variation account, including Engineering Department, totaled $2 274, an increase of $1 030 from December. These charges represented entertainment expense of $504 and the excess of amount reimbursed employees over amount billed to the Atomic Energy Commission of $1 770.

INTERNAL AUDIT UNIT

An investigation was made of ownership of a quantity of stainless steel at the Southwest Welding and Manufacturing Company, which had been left over from a fabrication order for the original construction program at Hanford Works.

A review was made of retroactive payments for construction work performed by General Electric employees from September 1, 1946 to September 30, 1951.

A study of disbursements from Account 10.10, Excess Materials, and Account 10.20, Inventories Held For Possible Future Use, was made to determine the percentage of book value realized from withdrawals for use at Hanford Works and from transfers to government agencies and sales to buyers off project site for the period July, 1950, to December, 1951, inclusive.

General Accounting Section

INTERNAL AUDIT UNIT (CONTINUED)

Insurance and accounting procedures, followed in processing damage claims, were reviewed to determine their adequacy. Recommendations designed to provide more uniform procedures and control were included in the report covering this review.

Charges to the Engineering Department for services of Radiological Sciences Department for the month of October, 1951, were reviewed to determine whether they were reasonable and in order.

A review of a suggestion award was made to determine the propriety of the payment awarded an employee in December, 1951.

A report, outlining the clerical routines followed by Stores Unit in recording and controlling operations inventories, recommended that some of the functions now performed by Stores Unit should be transferred to the Financial Department.

Reports were prepared covering (1) routines proposed by Stores Unit for controlling and recording maintenance material inventories carried in area stores, and (2) a survey of the 300 Area store of instrument and radio parts and supplies.

Charges applying to a construction fabrication purchase order placed with Vulcan Copper and Supply Company were audited to determine their propriety in the light of a maximum settlement agreement made when the order was cancelled.

Physical inventory working papers, prepared by personnel of Purchasing and Stores Section, were reviewed. These working papers were prepared during annual physical inventories of bearings, automotive parts, and welding supplies, all of which are carried in Account 10.2, Inventory - General Maintenance.

A report form for the monthly activity and month-end status of Accounts 10.10, Excess Materials, and 10.20, Inventories Held For Possible Future Use, was developed. Data for the report will be assembled by Stores Unit and Financial Department.

A revised procedure for the handling and control of bus revenue and bus tickets prepared by the Accounting Unit was received and approved for adoption.

General Accounting Section

PLANT ACCOUNTING

Effective January 1, 1952, the rate of depreciation applicable to the Community Prefab Houses was increased from 5 per cent to 6.25 per cent a year, which will result in an increase in annual depreciation accruals from $200 900 to $356 600. This increased rate was necessary in order to completely amortize the rehabilitation costs over the estimated remaining life (13 years) of the prefabs.

During the month the Atomic Energy Commission approved a proposal concerning treatment of transformer maintenance. The proprosal provides that the cost of replacing transformers of like size or capacity and the cost of reconditioning be charged as operating expense. In the past each transformer replacement has been accounted for as an addition and retirement.

Preliminary work in connection with the Semi-Annual Plant Statement was started early in the month. The report will be ready for distribution during the latter part of next month.

Considerable progress was made on inventory reconciliation during the month. Three field men were temporarily assigned to office work to expedite completion of these reconciliations.

12.0005

General Accounting Section

PAYROLLS

During the month of January, 137 employees were added to the payroll which included 36 employees reengaged with continuous service. Removals from the payroll during the month totaled 146 which included 6 leaves of absence, 34 illness removals and 7 transfers from the Nucleonics Division to other divisions of the Company. These additions and removals resulted in a net decrease of 9 employees during the month. At January 31, 1952 there were 9,093 employees on the payroll.

During January a special analysis was made of the payroll of the Hanford Guards.

During the year 1951, 696 new authorizations were received for Union Dues check-off.

Payroll deductions from salaries of employees who authorized Union Dues check-off during 1951 amounted to $33,980.55 for the year. The Unions were billed for $302.16 during 1951 to cover the cost of collecting dues by payroll deduction. Segregation of collections and billings by bargaining units for the year 1951 is as follows:

	Union Dues Collected	Amount of Billing
Hanford Atomic Metal Trades Council	$32,549.55	$268.50
Building Service Employees International Union, Local 201 (Medical Department Employees)	513.00	7.02
Hanford Guards Union of America, Local 21	918.00	26.64
Total	$33,980.55	$302.16

New Year's Day, Tuesday, January 1, 1952, was an observed holiday at Hanford Works. Weekly salary checks covering the week ended December 30, 1951 for employees in the outer areas were delivered to patrolmen at the area gate houses between the hours of 8:00 p. m. and 11:00 p. m. on Thursday, January 3, 1952. There was no change in the distribution of salary checks to employees located in Richland, North Richland, and Pasco. Salary checks for these employees were available to authorized representatives of the departments at the customary time, 8:00 a.m. on Friday, January 4, 1952.

In addition to regular payroll addressograph work, 137,000 items were addressographed for other departments and 2,000 envelopes were addressographed for the A.E.C. A file of approximately 57 addressograph plates containing the addresses of various Governmental agencies and newspapers was prepared for use of the A.E.C.

Six participants withdrew their U. S. Savings Bonds purchased in 1948 or 1949 or both under the Stock Bonus Plan. Checks covering the income earned by these bonds for the years 1949 and 1950 were delivered to the employees.

During the year 1951, 44,608 bonds with a maturity value of $2,425,875 were purchased by employees by payroll deduction. There were 793 more participants in both bond plans at December 31, 1951 than at December 31, 1950, or an increase of 2.7%. Bonds having a maturity value of $587,600 were withdrawn from the Stock Bonus Plan during 1951 by 1,359 employees.

Binders containing a list of the 160 shift schedules, which have been officially approved by Union Relations Section for use at Hanford Works were prepared and transmitted to Department Managers in January. The binders also contained charts of 37 schedules, each of which are used by ten or more employees.

General Accounting Section

PAYROLLS (Continued)

Authorizations for payroll deductions for the cost of safety shoes were received from 190 employees during January. There were 72 open payroll deduction accounts at January 31, 1952.

Preferential rates were eliminated in 7 cases of weekly paid employees during January due to transfer or reclassification. As of January 31, 1952, there were approximately 900 weekly paid employees having preferential rates.

A total of 102 weekly paid employees were scheduled to begin their 1952 vacations in January.

During January, 716 claims were processed and forwarded to Metropolitan Life Insurance Company. The claims may be segregated as follows:

Hospital Benefits		
Kadlec Hospital	428	
Other Hospitals	126	554
Weekly Sickness and Accident Benefits		162
Total Number of Claims		716

A total of 1,050 checks in the amount of $61,006.23 covering 816 claims were received from the insurance company and forwarded to employees, hospitals, and surgeons during January. Since December 1, 1950, the effective date of the new insurance plan, employees of the Nucleonics Division have received $718,493 in benefits under the terms of the health insurance portion of the Plan.

Review of employees' insurance coverage and contributions was completed in January. In accordance with provisions of the Insurance Plan, employees life insurance coverage was increased $1,472,500 and employees' contributions were increased accordingly effective January 1, 1952. As of January 1, 1952, total Life Insurance coverage for employees was approximately $85,000,000.

In January, 87 employees became eligible for participation in the General Electric Pension Plan. Of these, 71 employees elected to participate and 16 employees elected not to participate.

Withholding Statements (Form W-2) for the year 1951 were distributed to employees on January 11, 1952. A total of 10,979 W-2 forms were issued for the year 1951. Report of taxable earnings under the Federal Insurance Contributions Act was prepared for the fourth quarter of 1951. This report of taxable earnings and the Collector's copies of the W-2 forms were forwarded to General Office for transmittal to the Collector of Internal Revenue. Fourth Quarter reports for Unemployment Compensation applicable to the States of Washington, Oregon, New York, Illinois, Pennsylvania, Colorado, Ohio, Michigan, and Wisconsin were prepared and mailed to General Office for distribution to the various State Tax Commissions. Report of individual taxable wages for year 1951 was prepared covering 10,914 employees subject to the State of Washington Unemployment Tax and forwarded to Olympia, Washington. Income and Franchise Tax reports were prepared and transmitted to General Office. Oregon State Income Tax withheld from employees claiming residence in that state was paid to the Oregon State Tax Commission.

General Accounting Section

PAYROLLS (Continued)

Report of individual employee contributions to the Pension Plan in 1951, and reconciliation of total employee contributions was forwarded to the Pension Department in Schenectady. A total of $893,540.00 was contributed in 1951 by 6,434 participants.

New Withholding Exemption Certificates, Form W-4, were received from all employees during January. The certificates were summarized by number of employees segregated by departments, states, and cities with a further segregation by male and female.

Retroactive payments were made to 465 employees in the amount of $41,085 covering construction work performed during the period from September 1, 1946 to September 30, 1951. Total payments to date amount to $130,837 for 1,167 employees. Letters were mailed to former employees requesting correct addresses for mailing their checks.

A total of 739 salary checks were distributed directly to employees by Payroll. Of these, 400 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. 100 checks were delivered to a representative of Employee and Public Relations for distribution to employees absent due to illness, and 49 checks were mailed direct to employees who have been removed from payroll.

A total of 7 garnishments were received in January, of which 4 were released without payment to the court. As of January 31, 1952, 5 garnishments are pending, including 2 received in December, 1951.

Eleven checks were reported lost during January. Of these, eight were replaced. At January 31, 1952, five lost check cases were pending; two from December, 1951, and three from January, 1952.

Two Payroll employees are being trained as IBM key punch operators and present plans call for training of other Payroll employees as soon as opportunities develop.

Bank reconciliations completed in January were:

Weekly Salary through #281, week ended January 13, 1952.
Weekly Salary Vacation through #281, week ended January 13, 1952.
Bond Account - December, 1951.
Monthly Payroll #64, December, 1951.

Payrolls reimbursed were as follows:

Weekly Salary through January 27, 1952.
Monthly Salary through January, 1952.

No military duty allowances were paid during the month of January, 1952. As of January 31, 1952, 197 employees of the Nucleonics Division had entered Military Service.

1210366

MANUFACTURING ACCOUNTING
JANUARY, 1952

BUDGETS

Additional revisions to the mid-year Budget Review for Fiscal Year 1952 were made. Work on the Operating Budget for FY 1954 and revision of FY 1953 proceeded according to schedule. Historical data and the necessary forms were submitted to the field.

SPECIAL REQUESTS

Arrangements have been made to issue a monthly report on the Special Requests program. This report will show the activity of all open requests for all installations. Billing for the month of January amounted to $23,747.00 as compared to $24,756.00 for the month of December. Estimates prepared for January amounted to $8,810.00 as compared to $12,515.00 for December. Arrangements were made for all Hanford Works casks to be marked with the letter "H" for identification purposes enabling better control of these casks by the Special Requests group.

ANALYSIS & REPORTS

Sample unit cost reports were prepared for the Separations Section incorporating certain requests made by them. The reports were reviewed with their cost representative and were deemed acceptable. If, after further review in the field, these are found to be acceptable they will be issued and may replace the present Statement of Operating Costs for the Separations Section. If appears that the present cost report for the Power Unit will be satisfactory with the addition of one more sheet furnishing man hours and units as requested by the Separations Section.

WORK ORDER ACCOUNTING

The revised work order authorization lists were not issued in January as some of them were recalled by department heads in order to make further revisions. It is anticipated that this work can be completed and the new lists issued in January.

In the interest of simplicity and easy control it is decided that all routine work orders should be confined to one series. The change over of all routine work orders to a "B" series was accomplished. Work copies of the new orders were distributed to the field.

Consolidation of five mechanical maintenance codes in the Reactor Section into one code was accomplished, eliminating four unnecessary codes. This consolidation of codes will result in considerable saving of time. Arrangements have been made with monthly payroll to furnish Manufacturing Department exempt salary distribution two or three days earlier starting with February.

Work was initiated to establish codes and procedures necessary to comply with OPG 04.4, Assignment of Landlord Responsibility. It will be necessary to accumulate and report building maintenance cost and revenue by individual buildings.

Complete files on active and completed projects, the Using Department responsibility for which are no longer Manufacturing, have been transferred to the General Accounting Section

1210369

PRODUCTION AND INVENTORY STATEMENT

Report covering second quarter of FY 1952 should be ready for issuance on February 12. Starting with the January statement, A.E.C. has requested individual breakdowns by pile areas rather than a consolidation. This will entail considerable increase in clerical effort. In the near future we will be expected to break down the $BiPO_4$ process by plants.

ORGANIZATION AND PERSONNEL

Beginning of month	61
Acquisitions	0
Transfers out	26*
End of month	35

*Transfer of the Statistical function to the Utilities and General Services Section

1210810

ENGINEERING ACCOUNTING SECTION
MONTHLY REPORT FOR JANUARY, 1952

During January claims totalling $504,000 were presented by Crane Co. involving 17 orders for connectors and assemblies. Southwest Welding presented claims of various types aggregating $190,481 on 12 orders for tanks and vessels; Purchasing has advised the vendor their claim for increased costs of $29,060, due to segregation of out of sequence production of operational spares, is the only item that can be considered.

Western Industries refunded $73,840.48 of excess profits realized in our fabrication and maximum price order HWC-10074. Stearns-Roger Mfg. Co. forwarded their credit memorandum in the amount of $75,269.69 representing the excess of permissable profits under the terms of HWC-10943.

A member of the Audit Unit was sent to Crane Co. at Chicago to verify the cost records and to submit a report of the findings which will be used in the evaluation of this vendor's claim. An audit of the cost records of Foster Wheeler Corp. in New Jersey and Stearns-Roger in Denver will also be performed as directed in the respective orders HWC 13820 and 10943.

Disbursements in January are summarized briefly as follows:

Material and Freight	$ 2 058 652
CPFF Subcontractors - Labor	138 436
CPFF Subcontractors - Others	51 609
Miscellaneous	18 894
Lump Sum Subcontractor	276
	$ 2 267 867

Vouchers recorded in Accounts Payable during the month numbered 1837 in the value of $2,554,032.

Audit functions performed for the Commission for the period are listed below:

Atkinson-Jones Labor	$ 4 126 523
Atkinson-Jones Material	851 054
Atkinson-Jones Travel	1 460
Atkinson-Jones Fees	53 478
Lump Sum Subcontracts	688 683
	$ 5 721 198

1210611

The following is a detail of Cash Advances for the month of January, 1952 as compared with December, 1951:

	January		December	
	No. of Accts.	Amount	No. of Accts.	Amount
Beginning Balance	76	$21 982	113	$29 279
Cash Advances Made		23 689		10 224
Cash Receipts & Expense Reports Processed		18 970 Cr.		17 521 Cr.
Transferred Accounts		544		
Balance at end of month	85	$27 245	76	$21 982
Travel expenses billed to A. E. C. during January amounted to		11 708		
Actual Amount Paid Employees		12 410		
Charges to Travel & Living Variation Account		702		

Of the above balance of $27 245, accounts over 30 days old amounted to $5 068.

SUBCONTRACTOR PAYROLL STATISTICS

PAYROLLS

	JANUARY	DECEMBER
Average number of employees reported by CPFF Subcontractors (Including Service Contract)	6 785	7 064
CPFF Construction Subcontractor Payrolls (Including Service Contract)	$ 3 148 262 -a)	$ 4 251 895 -b)
CPFF Architect Engineer Payrolls	134 685	166 491
Total CPFF Payrolls	$ 3 282 947	$ 4 418 386

1210612

SUBCONTRACTOR PAYROLL STATISTICS cont'd.

	JANUARY	DECEMBER
Average per week (excluding Architect Engineer Payrolls)	$ 787 066	$ 850 379
Average weekly earnings	$ 116.00	$ 120.38

(a = Four week period
(b = Five week period

FORCES

The number of workers employed on projects in January as compared with a similar date in December is shown below:

		January 17	December 20
Atkinson-Jones			
C-187-D	Redox	11	14
C-361	Metal Conversion Facilities	9	5
C-362	TBP	1 565	1 648
C-413	Expansion of 234-5 Capacity	111	116
C-431	(Production Facility	3 144	3 302
	(101 Area	290	254
	Minor Construction	672	724
	Total Direct	5 802	6 063
Atkinson-Jones Indirect		610	600
Minor Construction Indirect		3	16
General Electric Design and Construction		881	880
	Total number of workers	7 296	7 559

Lump Sum and Unit Price Subcontractor forces are not included in this report.

The new D & C Standard Construction Cost Code book was prepared and sent to Reproduction for printing and should be distributed to the field early in February.

Three Financial Closing Statements were issued.

The Atomic Energy Commission assumed management responsibility for twenty-three projects. Costs recorded as of January 31, 1952 will be transferred as February business.

1210513

During January, Engineering Accounting personnel decreased to 94 as compared to 96 at the end of December. This decrease was the result of two removals from payroll.

1210314

COMMUNITY REAL ESTATE AND SERVICES
ACCOUNTING SECTION
MONTHLY REPORT FOR JANUARY, 1952

ORGANIZATION

Employees Beginning of Month	19	Exempt	4	Male	5
Transfers in	0	Non Exempt	15	Female	14
Transfers out	0		19		19
New hires	0				
Terminations	0				
Total end of month	19				

COST

The December Operating Report was issued January 17, 1952. Several unit cost studies were prepared for section managers concerning renovations, exterior painting and other maintenance programs.

An analyses of the first half of FY 1952 commercial facility activities was completed.

Preparatory work was accomplished on the Community Real Estate and Services Landlord responsibilities.

Ten projects were unitized and forwarded to Plant Accounting.

Work Orders processed were as follows:

	November	December	January
Active Routine	238	223	225
Active Normal	1,798	1,056	1,097
	2,036	1,279	1,322
W. O. Received	997	1,032	945
W. O. Completed	490	1,789	902
	507	+ 757	- 43

BUDGET

Letters to section managers were written concerning FY 1953 Budget revised and FY 1954 budget.

Personnel Budget for Community Accounting Section was submitted January 25, 1952.

A letter was drafted to the Commission concerning certain phases of the budget assumptions as presented by the Commission.

Work papers with the first six months FY 1952, actual entered have been completed for budget preparation.

1210315

CCS

SUBCONTRACTORS - ASSIGNED TO AEC INCOMPLETE
COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT
AS OF JANUARY 31, 1952

Subcontractors	Project No.	Subcontract Number	Amount Awarded	Booked For Payment This Month	Cost to Date
Associated Engrs., Inc.	C-425 C-408 L-262 K-357	AT-608 (45-1-608)	$124,562.20	$ -0-	$ -0-
Edmund P. Erwen	C-357	G-334	16,775.00	-0-	14,400.00
D - H Paving Company	K-611 C-426	G-390	224,854.88	-0-	223,643.61

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - JANUARY 1952

SUMMARY

Two major injuries occurred during the month, both resulting from falls.

There were six fires in the industrial areas. All were minor with the exception of a fire in an Engineering Department warehouse which resulted in an estimated loss of $200,000.

A recommendation by the Procedures Analysis group to combine office services functions being performed by the Engineering Department with those of the Utilities and General Services Department has been accepted. It is estimated that this combination will result in savings of $37,000 through the elimination of employees no longer needed to perform duplicate functions which existed under the former system.

1210617

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - JANUARY 1952

ORGANIZATION AND PERSONNEL:

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	6	6		
Patrol and Security	661	659		2 (a)
Safety and Fire Protection	151	150		1 (b)
Office Services (Building and Laundry Service, Clerical Services, Records Control and Procedures Analysis)	308	311	3 (c)	
TOTALS	1,126	1,126	3	3

(a) - Patrol and Security

2 - New Hires
2 - Reactivated
1 - Transferred from another Department
2 - Deactivated
2 - Transferred to other Departments
3 - Terminations

(b) - Safety and Fire Protection

1 - Transferred to another Department

(c) - Building and Laundry Service

1 - New Hire
2 - Reactivated
1 - Transferred from another Department
2 - Transferred to another Department
1 - Deactivated
1 - Termination

Clerical Services

7 - New Hires
2 - Transferred from another Department
1 - Deactivated
5 - Transferred to other Departments
2 - Terminations

Records Control

2 - Transferred from another Department

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Plant Security and Services Section

SAFETY AND FIRE PROTECTION

Injury Statistics

	DECEMBER	JANUARY	YEAR TO DATE	COMPARATIVE PERIOD-1951
Major Injuries	0	2	2	1
Sub-Major Injuries	1	2	2	0
Minor Injuries	348	392	392	287
Exposure Hours	1,488,536	1,578,179	1,578,179	1,335,340
Major Injury F/R	0.0	1.27	1.27	0.75
Major Injury S/R	0.0	0.008	0.008	0.264
Penalty Days	0	0	0	300
Actual Days Lost	0	13	13	362
Minor Injury F/R	2.34	2.48	2.48	2.14
Estimated Medical Treatment Time Required	1,392 hours	1,584 hours	1,584 hours	1,148 hours

Industrial Fires

Department	Area	No. of Fires	Cause	Loss
Manufacturing	100-B	1	Welding	None
Manufacturing	100-F	1	Overheated tar pot	None
Manufacturing	200-W	1	Welding	None
Manufacturing	200-W	1	Spontaneous Ignition	$ 15.00
Engineering (D&C)	700	1	Ballast failure in light fixture	None
Engineering (MC)	White Bluffs	1	Exact cause unknown. Probable electric failure or smoking.	$200,000.00 (Estimate)

Activities

Two major injuries were reported during the month; both resulted from falls. Two sub-major injuries were experienced and 392 minor injuries. This was the greatest number of minor injuries experienced by this Works since the Fall of 1948. There is no immediate indication as to the cause of this increase in minor injuries.

New Accident Prevention Committees have been formed in accordance with the HAMTC agreement and are functioning in each of the operational areas.

A new style annual report presenting the 1951 safety activities was very favorably accepted. It contains a maximum of information with the greatest utilization of material.

Safety book matches were distributed to all employees according to schedule. This program will continue on a monthly basis throughout the year.

Plant Security and Services Section

Safety and Fire Protection Activities (Contin.)

The selection of gifts under the Nucleonics Safety Council's award is progressing very satisfactorily. It is expected that orders will be placed during the second week in February.

A safety check calendar has been designed for use in the 300 Area by the Safety Engineer in hopes that it will help reduce the number of injuries.

A survey covering the period 9-4-51 through 1-23-52 indicates that 3,009 pairs of safety shoes were sold on the plant.

Fire Protection surveys were completed on 1717-D, 1704-H, 224-T, 271-T, 221-T, and 3706 Buildings.

Aid was given to Minor Construction in the investigation of their warehouse fire at White Bluffs. This fire occurred on January 28, 1952 and the loss has been estimated at $200,000.00. The Plant Security and Services Section did not have the responsibility of fire prevention in this building.

One 40-gallon foam extinguisher was converted to a 300-pound dry chemical extinguisher. This unit was put in service at the 1131 Garage Bulk Storage Plant.

A study to improve the fire protection of the 234-5 Building was made during the month. The report with recommendations will be released shortly.

A recommendation was made to Management that paper used extensively throughout the plant to control contamination spread be changed to a type that will not support combustion within itself.

OFFICE SERVICES

Plant Laundry (200-W)	December	January
Pounds Delivered	197,806	207,238
Pounds Rewash	40,252	55,407
Total Dry Weight	238,058	262,645
Richland Laundry (700 Area)		
Flatwork - Pounds	61,515	63,123
Rough Dry - "	32,672	38,920
Finished - "	2,436	2,912
Estimated Pieces	126,576	137,491
Total Dry Weight - Pounds	96,623	104,955
Monitoring Section (Plant Laundry)		
Poppy Check - Pieces	149,730	179,445
Scaler Check - Pieces	162,330	191,745
Total Pieces	312,060	371,190

Plant Security and Services Section

Clerical Services

Negotiations were concluded for taking over Office Services activities for the Engineering Department, located in the 760 Building and the 101 Building, 3000 Area. The physical transfer is scheduled for February 4, 1952.

Central Mail

The Transportation Section furnished a sedan delivery to replace the jeep used during December. All automotive units now are of the same style and are suitable for all weather service.

Volume of postal internal mail again showed an increase over the previous month.

Types and Pieces of Mail Handled	January	December
Internal	954,801	922,946
Postal	80,391	74,419
Registered	1,550	1,261
Insured	392	347
Special Delivery	208	269
Total Mail Handled	1,037,342	999,542
Total Postage Used	$2,700.36	$2,117.11
Total Teletypes handled	5,773	6,850
Total Store Orders handled	422	456

Office Equipment

A large share of the FY 1952 office machine requirements were received during the month, which resulted in much activity in inspecting and placing these machines in operation.

The warehouse inventory of furniture has been carefully inspected and an accumulation of furniture declared unusable has been sent to the salvage yard. A large stock of furniture was also sent to McNeil Island to be renovated.

The appropriation request covering requirements for projects as determined by the Midyear Budget Review was completed and forwarded to the A & B Committee for approval.

A large shipment of 150 four-drawer standard metal file cabinets and 25 combination file cabinets were received the latter part of the month.

Machine Repair	January	December
Office Machines Repaired in Shop	183	197
Office Machine Service Calls	591	640
Total Machines Serviced	774	837

Plant Security and Services Section

Furniture and Moves	January	December
Office Moves	74	69
Pickups for Records Center	87	71
Store Orders filled	567	284
Pieces of furniture delivered	900	434
Property Transfers completed	26	21

Central Printing

The 24" darkroom process camera, custom built to meet our requirements, was received and installed and necessary building alterations completed during January. An exhaust system was installed to remove objectionable chemical odors, excess heat from arc lamps, and to provide air changes in the darkroom.

Major equipment requested for 1952 has now all been received and installed. After some further grouping of production units to improve production flow lines, the Print Shop will be in a position to do quality work in volume.

Production continues to increase and was upheld this month in spite of much construction and attendant difficulties.

Work Completed	January	December
Orders received	417	450
Plates made	721	Not Recorded
Copies printed	963,027	Not Recorded

Stenographic Services

Loan requests were heavy during January. Several well qualified new employees enabled us to fulfill practically all requirements.

Training in the preparation of copy for offset printing was given to all members of the Steno Pool during the month.

Breakdown of Hours	January	December
Dictation and Transcription	7:00	:00
Machine Transcription	:00	17:00
Letters	118:00	48:45
Rough Drafts	152.2	69:00
Stencils, Dittos, Duplimats	420.5	538:00
Miscellaneous	640.5	792:30
Meeting Time	3:00	5:00
Training Time	485:00	:00
Holiday and Vacation	:00	136:00
Unassigned Time	46:00	22:45
Total	1873.0	1841:00
Employees loaned to other departments	1022.0	842:15
Total Hours Available	2895.0	2683:15

12 6 22

Plant Security and Services Section

Area Mail & Duplicating Services

Much activity resulted during January in an effort to get all offset printing units set up in the 700 Area and in the 100 and 200 areas. Mail service was taken over in the 200 Areas and negotiations completed for space to set up duplicating facilities in the 100 and 200 areas.

Meetings were held with Wage Rates to establish rates for new types of machines, and papers were processed to promote employees who have been in training for these assignments.

Demonstrations of Xerography and offset printing units were conducted in hut 712-A and were attended by over 800 employees from all departments.

A plant wide mail system is being studied in order to assume this responsibility as soon as it can be arranged.

Many problems involving start-up of new units with new employees have been resolved during the month and many more remain, chiefly dealing with space restrictions.

200-W Mail Room	January	December
Number of employees	2	--
Productive hours	80	--
Pieces of Mail handled	13,442	--
200-W Duplicating Services		
Orders received	86	--
Orders completed	50	--
Orders on hand	36	--
Xerox plates made	159	--
Offset plates	162	--
Ditto Masters	93	--
Ditto Copies	5,329	--
703 Building Duplicating Services		
Stencil and fluid duplicating:		
Orders received	1,046	321
Orders completed	978	813
Orders on hand	83	15
Offset duplicating plates	1,185	--
Offset duplicating copies	74,526	--
Number of stencils	2,119	1,738
Number of copies	258,843	280,582
Number of Dittos	2,211	1,918
Number of Copies	96,562	70,479
Collated orders	53	70
Collated copies	44,056	81,242

Plant Security and Services Section

Records Control

Quantity of records received, processed and stored:

Community Real Estate & Services Department	3	Standard	Storage	Cartons
Engineering Department	160	"	"	"
Financial Department	99	"	"	"
General Administrative Department	6	"	"	"
Manufacturing Department	82	"	"	"
Medical Department	19	"	"	"
Radiological Sciences Department	47	"	"	"
Utilities & General Services Department	136	"	"	"
TOTAL	552	Standard	Storage	Cartons

Records service was provided for 1,214 persons. In addition to the individual services, 23 man hours were expended providing service for the Financial Department.

Records cartons issued: 469

Percentage of the Records Service Center vault occupied by records is 87.5% excluding Civilian Defense portion.

Uniform filing was established in 39 offices. Eleven contacts were made with offices in which uniform filing had previously been installed. Five additional contacts were made to instruct new personnel in uniform filing.

One hundred and twenty-five requests for file cabinets were received; 65 requests were filled and 16 requests were cancelled. Twelve combination locked cabinets were replaced with key locked cabinets. A survey was begun to determine the location of combination locked cabinets that were not needed in accordance with security requirements in order to replace these cabinets with key locked cabinets.

Evaluation for destruction of forty-two records was completed during January and delivered to the Records Committee for action.

The work of retyping control cards for records transferred to different groups due to reorganization of the Nucleonics Division was started with the addition of a temporary employee.

A resurvey of Industrial Medical records recommended for microfilming was made during January.

Procedures Analysis

General Activities:	December	January
Printing orders received	364	448
Printing orders cancelled	20	14
New numbers assigned	77	79
Forms designed	71	55

237 1210624

Plant Security and Services Section

Procedures Analysis (Contin.)

The study of office services performed by the Engineering Department, completed 10-29-51, has now been approved and accepted by all parties concerned. Consolidation of services under one organization will result in a total annual savings of $37,202. This savings represents the salaries of thirteen employees that will no longer be needed to perform duplicate functions under the old system.

One of the major savings in forms control resulted from a change in procedure of using Voucher Forms A-307-ES and A-50-ES. These were previously 9-part forms and they were reduced to 8-part forms with some redesign of format. The total annual saving resulting was $2,110.

Three major surveys, Recreation and Civic Affairs, Public Library, and Security Unit, have all been completed to the point where the rough drafts have been submitted and approved. Final drafts will be completed this week, however, resulting savings will be included in the next monthly report after the new procedures have been installed.

A visual aids program has been designed and scheduled for the calendar year 1952. This program will consist of two meetings each month, where film will be shown on subjects pertaining to analysis problems and new techniques in performing surveys.

A survey has been completed concerning forms to be printed in the 200 Area Duplicating group. It was found that approximately 300 forms are in this category and henceforth these forms will not have to be mailed to the 700 Area for duplication.

The problem of evaluating and processing suggestions is becoming greater each month. A total of seven suggestions have been investigated and evaluated this month. In addition to this, sixteen more suggestions have been received and are pending further action.

Savings realized for January	One Time	Annual Recurring
Forms control	$ 786	$ 2,414
Analysis	--	37,202
TOTAL	$ 786	$ 39,616

Total Savings for January: $40,402

SECURITY AND PATROL

Document Report

Number of technical and scientific documents reported unaccounted for January 1, 1952:	334
Documents (technical and scientific) reported unaccounted for during January, 1952:	85
Documents (technical and scientific) reported found during January, 1952:	11

Number of technical and scientific documents unaccounted for January 31, 1952:	408
Number of non-technical documents unaccounted for January 1, 1952:	61
Documents (non-technical) reported unaccounted for during January, 1952:	9
Documents (non-technical) reported found during January, 1952:	1
Documents (non-technical) declassified during January, 1952:	3
Number of non-technical documents unaccounted for January 31, 1952:	66
Total number of technical and scientific and non-technical documents unaccounted for January 31, 1952:	474

Following is a summary of the month's activities of the Non-Technical Document Review Board completed during its one meeting:

77 documents were reviewed of which
44 were declassified
27 were downgraded to "Restricted"
2 were downgraded to "Official Use Only"
3 had classification retained and
1 was not within the scope of the board

Fifteen incidents involving unattended classified material were investigated during the month.

Security Education

Two hundred and fifty-three security meetings were held and attended by 3,776 General Electric employees.

Four security items appeared in the Works NEWS during the month.

A representative of Security showed the following security films at security meetings during the month:

"Fitting 'U' Into Security" at two meetings, with a total attendance of fifty people.

"On Guard" at two meetings, with total attendance of fifty employees.

"Sabotage" at one meeting, with twenty-five employees attending.

"The Case of The Smokeless Chimney" at three meetings, with total attendance of 75 employees.

"The Man on the Left" at 21 meetings, with total attenance of 525 people.

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Plant Security and Services Section

Security and Patrol (Contin.)

Three thousand 'security blotters' were distributed throughout the plant during the month of January.

One hundred and fifty-four employees of the General Electric Company received a "Q" security orientation talk from either a representative of Security, or the Area Security Patrol Captain if located in the outer areas, during the month of January.

There were 3,055 badge transactions during the month.

General

Effective 12:01 A.M., January 1, the Security Patrol post known as the Redox Operations Gate (650) was discontinued by 200-W Area Patrol. This post consisted of one patrolman, twenty-four hours.

On January 2, the First Aid Station in the 200-W Area was fenced back into the "limited" area, thus eliminating one patrol post twenty-four hours per day.

Operations Order No. I-208, Revision No. 6, Supplement No. 1, was issued January 4 on "Hanford Works Operations Temporary Photo Pass". This order contains information describing the new photo pass to be issued to Hanford Works employees who are hired on a "P" approval clearance and supersedes the old type salmon card pass carried by employees hired on such a security clearance.

Effective 8:00 A.M., January 5, 100-B Area Security Patrol assumed the responsibility of controlling all construction personnel seeking entrance and exit in the Urban Smyth and Warren Steel Yard. It is a small fenced-off area established in the 100-B Operations Area.

One patrolman was posted at the northeast door of the 181-B Building, 100-B Area, on January 7 until such time as the door could be securely locked. (The 181-C construction had reached the 181-B platform level at 10:40 A.M. on the above date.)

Beginning January 14, the post known as the 221-U Badge House Clerk was discontinued by 200-W Area Patrol, and the facilities for making up badges were moved to the 221-U Canyon Badge House.

A new post was installed in the 200-W Area on January 16. It will be known as the 241-TR Tank Farm Area and will require one patrolman.

On January 18, a new temporary Security Patrol post was established at 9:00 A.M. in the 105-C Building. It will be known as the Airlock Badge House and Rover and will require two men twenty-four hours per day.

At 10:00 A.M., January 20, the 200-W Area relieved the 100-B Area of its duties of controlling and manning the Yakima Barricade and Riverland Yards. This is a two man, twenty-four hour post.

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Plant Security and Services Section

Security and Patrol (Contin.)

New posts were established at the 105-C Building at 8:30 A.M., January 21 due to the building being classified as a security "exclusion" area. Manpower requirements needed for this post include one badge house clerk on the day shift, one shift man and four rovers.

Signs bearing the word "Police" were distributed January 23 to all Security Patrol supervisors. They will be used by the supervision to clear their private vehicles through road blocks or barricades established in the event of a Plan "F" or Civilian Defense mobilization.

Effective 8:00 A.M., January 28, the Instrument Warehouse at White Bluffs was placed on a "restricted" basis. There will be no patrol involved other than increased buildings being checked during off-shift hours.

A supplemental post order was issued January 31 for all cruiser cars stating that they would make a detailed inspection upon each trip to White Bluffs of the Tube Shop area, 105-H and Instrument warehouses. Patrolmen assigned to the cruiser car will be instructed to be particularly alert for fires or unusual incidents of any kind.

Training courses received during the month by Security Patrolmen at the Patrol Training School were as follows:

Pistol	1 1/4 hours
Sub-Machine Gun	1 1/2 hours
Safety	1/2 hour
Security	2 hours
Security Film	1/2 hour
Operations Class No. 1	3/4 hour
Operations Class No. 2	1/2 hour
Operations Class No. 3	1 hour

Security Field Inspection Activities

Beginning January 3, work was intensified on the proposed new classification guide. Through the cooperation of Technical Services personnel, Security obtained the part time assistance of a Technical employee in drafting the ground work for this new guide.

During the month of January, a two-hour class was conducted daily at the Patrol Training School by a representative of the Security Field Inspection group. The following subject matter was discussed and actual demonstrations were given:

Building check procedure.
Room inspections (off shift).
File cabinet checking and reporting (Yale and Sergeant and Greenleaf type cabinets demonstrated as to operation).
Protection cautions required for the various categories of classified information explained in detail.
Question and answer period.
Importance of challenging system.
Various situations re-enacted with classroom personnel participating.

Plant Security and Services Section

Security and Patrol (Contin.)

Other activities of the Security Field Inspection group:

Contacts made for unaccounted for documents:	27
Searches conducted for unaccounted for documents:	14
Classified documents located:	12
(21 "Secret" negatives were located in a two-day search conducted.)	
Combinations changed on file cabinets:	9

Statistical Report of Security Patrol Activities:

	100-B	100-D	100-F	100-H	200-E	200-W	300
Pat Searches	93	93	93	30	108	151	12
Escorts	25	14	25	45	122	127	57
Ambulance runs	2	2	3	2	3	8	3
Passes issued:							
One day temporary	12	9	18	5	20	56	80
Travel	0	0	0	0	0	0	36
Red Tag	183	163	207	37	47	999	160
Telephonic	0	9	0	0	0	0	25
Supervisors' post contacts	409	443	431	338	454	1,859	1,065

Other Security Patrol Activities:

Citation tickets issued	1
Warning Tickets issued	40
Verbal warnings	0
Buildings and doors opened	204
Railroad gates opened	201
Master System keys issued	158
Pat searches	580
Emergency operations gas pumps	93
Fire Escorts	4

Thirty-one classified file cabinets assigned to General Electric Departments were found open and unattended. No classified documents were found missing.

During the month of January, fifteen combination lock file cabinets assigned to the Atomic Energy Commission were found open and unattended.

The names of three employees were submitted to the Atomic Energy Commission for emergency clearance during January.

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING JANUARY 31, 1952

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
ACCOUNTING DEPARTMENT							
I. Visitors to this Works							
M. Ferlich Peat, Marwick, Mitchell & Co. Seattle, Washington	Internal and general auditing purposes	W. S. Roe	1-14-52	1-18-52		X	700
MEDICAL DEPARTMENT							
I. Visitors to this Works							
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood, M. D. P. A Fuqua, M. D.	1-25-52	1-26-52	X		
DESIGN AND CONSTRUCTION DEPARTMENT							
I. Visitors to this Works							
A. A. Batza General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	4-2-51	7-1-52	X		200-W 234, 235 234-5 Const
W. C. Bellows General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	9-7-51	7-1-52	X		200-W 234, 235 234-5 Const
J. E. Brown, Jr. 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
F. J. Champlin, Jr. 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

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Areas
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
K. E. Gilbert General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	12-12-51	1-2-52	X	200-W 234, 235 234-5 Const
R. A. Koehler General Engineering Laboratory Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	1-14-52	1-27-52	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
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
C. 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. Siftar 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
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
A. J. Brayman Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X	100-B 105, 108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Restricted Data Areas
C. H. Bright Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W.W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
C. J. Christy Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
A. J. Curtis Charles T. Main Co., Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
F. F. Hall Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
W. C. Disbrow Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
D. E. Johnson Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
E. G. Macky Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
B. K. Patterson Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108
C. C. Starratt Charles T. Main Co. Inc. Boston, Massachusetts	Consultation on Project G-363	W. W. McIntosh	1-23-52	2-8-52	X		100-B 105, 108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass.	Areas
T. D. Martin Worthington Pump and Machinery Spokane, Washington	Service equipment installed by his firm	J. H. Black	12-3-51	1-31-51		X	100-F 190 100-DR 190-DR
R. B. Pease General Engineering Laboratory Schenectady, New York	Consultation on magnetic conveyors	G. H. Strong	1-14-52	1-19-52	X		100-C 105 100-H 105
		H. P. Shaw	1-17-52	1-17-52			100-D 105-DR
F. J. Champlin, Jr. General Engineering Laboratory Schenectady, New York	Consultation on ER A-3094, 313 Mechanization	H. P. Shaw	1-18-52	1-18-52	X		300 303, 313
D. H. Marquis General Engineering Laboratory Schenectady, New York	Consultation on installation of equipment on 432 Project	W. P. Ingalls	1-14-52	1-26-52	X		200-W 234, 235 234-5 Const
		H. P. Shaw W. J. Dowis	1-17-52	1-17-52	X		100-D 105-DR
S. T. Powell Sheppard T. Powell Baltimore, Maryland	Consultation on process water requirements	O. H. Pilkey M. H. Russ	1-22-52	1-22-52	X		100-F XXX 100-D 105-D
G. M. Clifton General Electric Company Pasco, Washington	Assist in checking of equipment installed	I. M. A. Garcia	1-18-52	1-18-52		X	221-U
L. C. Ford General Electric Company Spokane, Washington	Assist in checking of equipment installed	I. M. A. Garcia	1-18-52	1-18-52		X	221-U
J. H. Wills General Machinery Corporation Spokane, Washington	Review vendor's equipment	H. M. Parker H. C. Copeland	1-16-52	1-16-52		X	277 Mock-up
P. E. Brown Johnston Pump Company Portland, Oregon	Review vendor's equipment	H. M. Parker H. C. Copeland	1-16-52	1-16-52		X	277-Mock-up
R. Boehm Johnston Pump Company Portland, Oregon	Review vendor's equipment	H. M. Parker H. C. Copeland	1-17-52	1-18-52		X	277 Mock-up

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
A.J. Curtis Charles T. Main Co. Inc. Boston, Massachusetts	Process water requirements	O. H. Pilkey M. H. Russ	1-23-52	1-23-52	X		100-F XXX 100-D 105-D
C. J. Christy Charles T. Main Co. Inc. Boston, Massachusetts	Process water requirements	O. H. Pilkey M. H. Russ	1-23-52	1-23-52	X		100-F XXX 100-D 105-D
C. J. Judson Bumstead-Woolford Company Seattle, Washington	Inspection in connection with Project C-477, Fifth Boiler Addition and Project C-433	J. W. Brands O. W. Priebe J. R. Kelly C. D. Berkeley	1-4-52	1-5-52		X	200-W XXX
G. Conklin Dix Steel Building Company Spokane, Washington	Liaison on Project C-406, Contract G-355	O. W. Priebe C. D. Berkeley J. R. Kelly	1-30-52	1-30-52		X	700
II. Visits to other installations							
D. V. Bergman to: Vitro Corporation New York, New York	Auditing work in connection with contract	H. J. Nullmeyer	1-3-52	1-18-52	X		
D. V. Bergman to: Charles T. Main Co. Inc. Boston, Massachusetts	Auditing work in connection with contract	A. B. Bell	1-14-52	1-25-52	X		
H. S. Davis to: Puget Sound Navy Shipyard Bremerton, Washington	Discuss fabrication of steel form work associated with concrete shields proposed for RDA-3	S. L. Allison	1-7-52	1-9-52	X		
J. B. Fecht, Jr. to: Atomic Energy Commission Wilmington, Delaware and Savannah River Works Aiken, South Carolina	Discuss chemical plant design criteria plus review of SR00 plant	D. E. Irons	1-21-52	1-25-52	X		
J. B. Fecht, Jr. to: Argonne National Lab. Chicago, Illinois	Design engineering consultation	H. L. Hull	1-25-52	1-25-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. B. Fecht, Jr. to: Idaho Operations Office Arco, Idaho	Design engineering consultation	A. C. Johnson	1-28-52	1-29-52	X		
W. A. Graf to: Idaho Operations Office Arco, Idaho	Design engineering consultation	A. C. Johnson	1-28-52	1-29-52	X		
P. J. O'Neil to: General Engineering Lab. Schenectady, New York	313 Mechanization consultation	D. H. Marquis	1-7-52	1-10-52	X		
P. J. O'Neil to: Knolls Atomic Power Lab. Schenectady, New York	Inspection of KAPL hot shops	E. S. Baker	1-7-52	1-10-52	X		
J. S. Parker to: Vitro Corporation New York, New York	Design problems	G. White, Jr. R. A. North	1-23-52	1-25-52	X		
E. P. Peabody to: General Engineering Lab. Schenectady, New York	Examine and observe test of scale model electroveyer	D. H. Marquis J. H. Barnwell	1-7-52	1-10-52	X		
C. A. Rohrmann to: Idaho Operations Office Arco, Idaho	Design engineering consultation	A. C. Johnson	1-28-52	1-29-52	X		
M. H. Russ to: E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on water plant and bomb blast protection design	G. P. Church	1-8-52	1-11-52	X		
F. H. Shadel to: E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on water plant and bomb blast protection design	G. P. Church	1-8-52	1-11-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
F. H. Shadel to: U. S. Atomic Energy Comm. Washington, D. C.	Visit AFSWP Library to study resistance of structures to air blast	F. D. McKeon	1-11-52	1-12-52	X		
H. P. Shaw to: General Engineering Lab. Schenectady, New York	313 Mechanization consultation	D. H. Marquis	1-7-52	1-10-52	X		
H. P. Shaw to: Knolls Atomic Power Lab. Schenectady, New York	Inspection of KAPL hot shops	E. S. Baker	1-7-52	1-10-52	X		
G. H. Strong to: General Engineering Lab. Schenectady, New York	Examine and observe test of scale model electroveyor	D. H. Marquis J. H. Barnwell	1-7-52	1-10-52	X		
W. B. Webster to: Atomic Energy Commission Wilmington, Delaware and Savannah River Works Aiken, South Carolina	Discuss chemical plant design criteria plus review of SROO plant	D. E. Irons	1-21-52	1-25-52	X		
W. B. Webster to: Argonne National Lab. Chicago, Illinois	Design engineering consultation	H. L. Hull	1-25-52	1-25-52	X		
W. B. Webster to: Idaho Operations Office Arco, Idaho	Design engineering consultation	A. C. Johnson	1-28-52	1-29-52	X		
O. W. Priebe to: Bumstead-Woolford Seattle, Washington	Liaison on Project C-433, Contract C-382	C. J. Judson O. H. Woolford	1-21-52	1-22-52		X	
H. G. Johnson to: Electric Steel Foundry Portland, Oregon	Engineering consultation on Project C-362	R. W. DeWeese	1-20-52	1-22-52		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
D. F. Watson to: Food Machinery & Chem. Corp. San Jose, California	Consultation on HWC-16684	J. Boyce	1-3-52	1-4-52		X	
F. A. Bowman to: Alaskan Copper Company Seattle, Washington	Investigation Project C-349	R. Lamb	1-8-52	1-8-52		X	
F. A. Bowman to: Bay Company Tacoma, Washington	Investigation Project C-349	F. Ash	1-9-52	1-9-52		X	
E. S.Bell to: Alaskan Copper Company Seattle, Washington	Investigation Project C-349	R. Lamb	1-8-52	1-8-52		X	
E. S. Bell to: Bay Company Tacoma, Washington	Investigation Project C-349	F. Ash	1-9-52	1-9-52		X	
H. J.Bellarts to: Bureau of Reclamation Denver, Colorado	Discuss downcomer RDA-DC-3	W. H. Martin J. W. Ball D. J. Hebert	1-10-52	1-11-52		X	
E. S. Day, Jr. to: Standard Plastics Los Angeles, California	Engineering consultation	J. Norcross	1-8-52	1-11-52		X	
E. S. Day, Jr. to: Viking Electric Co. Los Angeles, California	Engineering consultation	V. Wood	1-16-52	1-16-52		X	
E. S. Day, Jr. to: A. O. Beckman Los Angeles, California	Engineering consultation	R. Crane	1-16-52	1-16-52		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
E. S. Day, Jr. to: Bristol Company San Francisco, California	Engineering consultation	J. Peckham	1-16-52	1-16-52		X	
E. S. Day, Jr. to: Pacific Scientific Co. Portland, Oregon	Engineering consultation	W. Powers	1-19-52	1-19-52		X	
C. E. Bonham to: American Machine & Foundry Buffalo, New York	Assist in assembly of horizontal rods for Project C-431-B	F. J. Wilson	1-22-52	1-25-52	X		
C. L. Cobbler to: Instrument Laboratory Seattle, Washington	Check water monitoring sample chamber protype	G. Frost	1-24-52	1-26-52		X	
C. T. Drury to: Northwest Electronics Spokane, Washington	Review desing and construction details of communication equipment	E. R. White	1-14-52	1-16-52	X		
C. W. Harrison to: Puget Sound Navy Shipyard Bremerton, Washington	Consult on order HS-47	S. L. Allison	1-7-52	1-10-52	X		
R. F. Klein to: American Machine & Foundry Buffalo, New York	Assist in assembly of horizontal rods for Project C-431-B	F. J. Wilson	1-21-52	1-25-52	X		
J. R. Wetch to: U.S. Hoffman Machine Co. Syracuse, New York	Assist in setting up Ball 3X tests	Mr. Vickery	1-21-52	1-30-52		X	
J. R. Wetch to: Corning Glass Works Corning, New York	Assist in development of new materials for Ball 3X	Dr. Shaver E. Blandy	1-21-52	1-30-52		X	
C. Eberhard to: Vitro Corporation New York, New York	Consultation on 105-C heating and ventilation problems	G. White, Jr.	1-14-52	1-17-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Dat Class.	Unclas.	Areas
EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT							
I. Visitors to this Works							
V. B. Day General Electric Company New York, New York	Consultation on labor relations	H. E. Callahan J. N. Dupuy	1-31-52	2-1-52	X		
RADIOLOGICAL SCIENCES DEPARTMENT							
I. Visitors to this Works							
L. R. Gibbs RCA Service Company Portland, Oregon	Service and inspect electron microscope	R. Borasky	1-28-52	1-29-52		X	100-F 108
H. N. Sauter RCA Service Company San Francisco, California	Service and inspect electron microscope	R. Borasky	1-28-52	1-29-52		X	100-F 108
E. L.Saunders RCA Service Company San Francisco, California	Service and inspect electron microscope	R. Borasky	1-28-52	1-29-52		X	100-F 108
II. Visits to other Installations							
M. L. Barad to: Brookhaven National Lab. Upton, Long, Island, New York	Discuss meteorology problems	M. E. Smith	1-28-52	1-31-52	X		
J. Katz to: Argonne National Lab. Chicago, Illinois	Discuss plutonium metabolism and therapy	A. M. Brues	1-12-52	1-15-52	X		
D. E. Warner to: U. S. Atomic Energy Comm. University of Rochester Rochester, New York	Discuss uranium tolerances	H. A. Blair H. Hodge	1-2-52	1-2-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
MANAGEMENT							
I. Visitors to this Works							
F. J. Juchter California Research & Dev. Co. Berkeley, California	General discussion	G. R. Prout C. N. Gross	1-21-52	1-23-52	X		100-D 105, 700, 300-303; Redox 105-C
F. Powell California Research & Dev. Co. Berkeley, California	General discussion	G. R. Prout C. N. Gross	1-21-52	1-23-52	X		100-D 105, 700, 300-303; Redox 105-C
F. A. Robertson California Research & Dev. Co. Berkeley, California	General Discussion	G. R. Prout C. N. Gross	1-21-52	1-23-52	X		100-D 105, 700, 300-303; Redox 105-C
R. L. Doan Phillips Petroleum Company Arco, Idaho	General discussion	G. R. Prout	1-17-52	1-18-52	X		300-303; 100-H 105; Redox; 202-S
R. W. Thomas Phillips Petroleum Company Arco, Idaho	General discussion	G. R. Prout	1-17-52	1-18-52	X		300-303; 100-H 105; Redox; 202-S
B. Philipson Atomic Energy Commission Arco, Idaho	General discussion	G. R. Prout	1-17-52	1-18-52	X		300-303; 100-H 105; Redox; 202-S
R. C. Stratton Traveler's Insurance Company Hartford, Connecticut	Inspection for insurance companies on policies for new code system	W. D. Smyth H. E. Callahan	1-10-52	1-11-52	X		100-B, D, F, H-105's, 108-B; 200-W 234, 235 234-5 Const Redox, 105-DR
II. Visits to other Installations							
D. W. McLenegan to; Knolls Atomic Power Lab. Schenectady, New York	Review prospective needs and compare educational programs	K. H. Kingdon L. L. Ferguson D. E. Irwin W. W. Kuyper	1-29-52	1-30-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
MANUFACTURING DEPARTMENT							
I. Visitors to this Works							
V. B. Day General Electric Company New York, New York	Labor relations problems	C.A. Priode	1-31-52	2-1-52	X		300-303; 100-D 105; 100-F XXX; 100-H 105; 200-W 221-T, 231; Redox
M. E. Norby International Business Machines Richland, Washington	Service IBM equipment	L.T. Hagie	1-3-52	1-3-52		X	100-H 105
			1-17-52	1-17-52		X	100-H 105
			1-21-52	1-21-52		X	100-H 105
			1-24-52	1-24-52		X	100-H 105
			1-29-52	1-29-52		X	100-H 105
D. F. Crumb International Business Machines Richland, Washington	Service IBM equipment	L.T. Hagie	1-29-52	1-29-52		X	100-H 105
G. M. Cloudy York Refrigeration Company Seattle, Washington	Service equipment	E. E. Weyerts	1-5-52	1-11-52		X	100-D 189-D
II. Visits to other Installations							
H. A. Carlberg to: Knolls Atomic Power Lab. Schenectady, New York	Inspection and liaison on power reactors	B. R. Prentice	1-17-52	1-19-52	X		
F. A. Hollenbach to: Atomic Energy Commission Wilmington, Delaware and Savannah River Works Aiken, South Carolina	Discuss chemical plant design criteria plus review of SR00	D. E. Irons	1-21-52	1-25-52	X		
F. A. Hollenbach to: Argonne National Lab. Chicago, Illinois	Design engineering consultation	H. L. Hull	1-25-52	1-25-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
F. A. Hollenbach to: Idaho Operations Office Arco, Idaho	Design engineering consultation	A. C. Johnson	1-28-52	1-29-52	X		
R. T. Jessen to: Knolls Atomic Power Lab. Schenectady, New York	Study of maintenance methods and problems	B. R. Prentice	1-17-52	1-18-52	X		
R. T. Jessen to: General Engineering Lab. Schenectady, New York	Study of maintenance methods and problems	J. R. Alexander	1-17-52	1-18-52	X		
R. R. Meyers to: Knolls Atomic Power Lab. Schenectady, New York	Study of maintenance methods and problems	B. R. Prentice	1-17-52	1-18-52	X		
R. R. Meyers to: General Engineering Lab. Schenectady, New York	Study of maintenance methods and problems	J. R. Alexander	1-17-52	1-18-52	X		
E. W. O'Rorke to: Alleghany Ludlum Steel Co. Watervliet, New York	Discuss material specifications (process) and observe process material fabrication methods	F. G. Stroke	1-20-52	1-20-52	X		
E. W. O'Rorke to: U. S. Atomic Energy Comm. New York, New York	Discuss material specifications (process) and observe process material fabrication methods	F. N. Fellmore R. J. Smith	1-21-52	1-21-52	X		
E. W. O'Rorke to: Aluminum Company of America Edgewater, New Jersey	Discuss material specifications (process) and observe process material fabrication methods	K. Baker	1-23-52	1-23-52	X		
E. W. O'Rorke to: Simonds Saw & Steel Co. Lockport, New York	Discuss material specifications (process) and observe process material fabrication methods	A. D. Potts	1-24-52	1-24-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Department	Restricted Class.	Unclass Areas
E. W. O'Rorke to: Bethlehem Steel Company Lackawanna, New York	Discuss material specifications (process) and observe process material fabrication methods	F. G. Stroke	1-26-52	1-27-52	X	
PURCHASING AND STORES DEPARTMENT						
I. Visitors to this Works						
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order HW 83029-M	W. H. Sutton	1-4-52	1-4-52		X 100-D 105
	Deliver material on order HW 83029-M	W. H. Sutton	1-9-52	1-9-52		X 100-D 105
	Deliver material on order HW 83029-M	W. H. Sutton	1-24-52	1-24-52		X 100-D 105
W. S. Jackson Consolidated Freightways Kennewick, Washington	Deliver material on order HW 89545	W. H. Sutton	1-5-52	1-5-52		X 303-J, 300
C. Freauff Lee and Estes Kennewick, Washington	Deliver material on order HW 77701-M	W. H. Sutton	1-14-52	1-14-52		X 300 303-J
	Deliver material on order HW 77701-M	W. H. Sutton	1-28-52	1-28-52		X 300 303-J
F. Colbert United Truck Lines Kennewick, Washington	Deliver material on order HW 83029-M	W. H. Sutton	1-16-52	1-16-52		X 100-F 105
F. F? Smith Inland Motor Freight Kennewick, Washington	Deliver material on order HW 89564-M	W. H. Sutton	1-16-52	1-16-52		X 100-H 1713
W. H. McEachern Inland Motor Freight Kennewick, Washington	Deliver material on order HW 89564-M	W. H. Sutton	1-16-52	1-16-52		X 100-H 1713
	Deliver material on order HW 89564-M	W. H. Sutton	1-21-52	1-21-52		X 100-F 189

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Restricted Data Areas
B. Richmond United Truck Lines Kennewick, Washington	Deliver material on order HW 89908-M	W. H. Sutton	1-17-52	1-17-52		X	200-E XXX
A. Schuman United Truck Lines Kennewick, Washington	Deliver material on order HW 83029-M	W. H. Sutton	1-21-52	1-21-52		X	100-B 105 100-D 105
	Deliver material on AEC 58538 order	W. H. Sutton	1-31-52	1-31-52		X	300 303-J
W. H. McEachern Inland Motor Freight Kennewick, Washington	Deliver material on order HW 92962	W. H. Sutton	1-22-52	1-22-52		X	100-B 1717
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order HW 90853-M	W. H. Sutton	1-31-52	1-31-52		X	100-B 105 100-D 105 100-F 105
J. Holman West Coast Fast Freight Kennewick, Washington	Deliver material on order HW 93277-M	W. H. Sutton	1-28-52	1-28-52		X	300 303-J
	Deliver material on order HW 93277-M	W. H. Sutton	1-30-52	1-30-52		X	300 303-F
	Deliver material on order HW 93277-M	W. H. Sutton	1-31-52	1-31-52		X	300 303-J
R. Y. Moss E. W. Bliss Company Canton, Ohio	Discussion of manufacturing component parts	J. C. Hamilton	1-23-52	1-25-52		X	700
P. E. Atkinson Sun Shipbuilding Company Chester, Pennsylvania	Observe stainless steel vessels used in process work with idea of establishing manufacturing facilities	G. L. Jordan	1-14-52	1-15-52		X	700
B. E. Shaver Sun Shipbuilding Company Chester, Pennsylvania	Observe stainless steel vessels used in process work with idea of establishing manufacturing facilities	G. L. Jordan	1-14-52	1-15-52		X	700

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Da Class.	Unclass	Areas
B. H. Engelhardt Perkins Elmer Company Norwalk, Connecticut	Convert a Perkin Elmer Infrared spectrophotometer	J. C. Hamilton	1-10-52	1-18-52		X	300-XXX
T. V. Megy Union Pacific Railroad Kennewick, Washington	Inspect damaged cars	D. H. Knapp	1-16-52	1-16-52		X	100-C
J. F. Eckel Knolls Atomic Power Laboratory Schenectady, New York	Review Hanford supply of stainless steel for possible use at SIR	H. J. Wolte M. Engel L. P. Bupp (Tech.)	1-8-52	1-15-52	X		100-H 105 White Bluffs
F. H. Croninger, Jr. Knolls Atomic Power Laboratory Schenectady, New York	Review Hanford supply of stainless steel for possible use at SIR	H. J. Wolte M. Engel L. P. Bupp (Tech.)	1-8-52	1-12-52	X		100-H-105 White Bluffs
R. J. Driggs Dresser Industries Bradford, Pennsylvania	Inspect piping	- -	1-24-52	1-24-52		X	Pipe Yard, 100-C Area
F. R. Haddock Robert Filter Company Darby, Pennsylvania	Inspect filter plants	- -	1-31-52	2-1-52		X	100-C and 100-D Filter plants
J. W. Burton Robert Filter Company Darby, Pennsylvania	Inspect filter plants	- -	1-31-52	2-1-52		X	100-C and 100-D Filter plants
G. P. White Robert Filter Company Darby, Pennsylvania	Inspect filter plants	- -	1-31-52	2-1-52		X	100-C and 100-D Filter plants
C. A. Eillison High Voltage Eng. Corp. Cambridge, Massachusetts	Supervise installation of electrostatic generator	- -	1-16-52	1-30-52		X	300 3745-A Bldg
J. F. Bromberger High Voltage Eng. Corp. Cambridge, Massachusetts	Supervise installation of electrostatic generator	- -	1-16-52	1-30-52		X	300 3745-A

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
II. Visits to other Installations							
H. J. Wolte to: Puget Sound Navy Shipyard Bremerton, Washington	Expedite material on order	S. L. Allison C. H. Powell	1-14-52	1-15-52	X		
H. J. Wolte to: Alaskan Copper Company Seattle, Washington	Expedite material on order	E. T. Cahill	1-14-52	1-15-52		X	
H. J. Wolte to: Aluminum Company of America Los Angeles, California	Expedite material on order	Mr. Kamb	1-16-52	1-16-52		X	
H. J. Wolte to: Pacific Screw Products Los Angeles, California	Expedite material on order	Mr. Smith	1-17-52	1-17-52		X	
H. J. Wolte to: Service Metal Fabricators Beverly Hills, California	Expedite material on order	Mr. Hayes	1-18-52	1-18-52		X	
J. C. Hamilton to: Alaskan Copper Company Seattle, Washington	Expedite material on order	E. T. Cahill	1-14-52	1-15-52		X	
J. C. Hamilton to: Aluminum Company of America Los Angeles, California	Expedite material on order	Mr. Kamb	1-16-52	1-16-52		X	
J. C. Hamilton to: Pacific Screw Products Los Angeles, California	Expedite material on order	Mr. Smith	1-17-52	1-17-52		X	
J. C. Hamilton to: Service Metal Fabricators Beverly Hills, California	Expedite material on order	Mr. Hayes	1-18-52	1-18-52		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Class.	Unclass	Areas
R. J. Gandy to: Aluminum Company of America Seattle, Washington	Contact vendor of materials used at Hanford	J. C. Finley	1-9-52	1-9-52		X	
R. J. Gandy to: General Chemical Division Allied Chemical & Dye Corp. Seattle, Washington	Contact vendor of materials used at Hanford	S. Russell	1-9-52	1-9-52		X	
R. J. Gandy to: Pennsylvania Salt Mfg. Co. Portland, Oregon	Contact vendor of materials used at Hanford	L. M. Shanaman	1-10-52	1-10-52		X	
R. J. Gandy to: Stauffer Chemical Co. Portland, Oregon	Contact vendor of materials used at Hanford	Mr. Keating	1-11-52	1-11-52		X	
L. G. Jones to: E. W. Bliss Company Canton, Ohio	Inspection and expedite material	R. Y. Moss	1-7-52	1-15-52		X	
L. G. Jones to: Puget Sound Navy Shipyard Bremerton, Washington	Inspection and expedite material	C. S. Powers	1-17-52	1-17-52	X		
C. P. Lawson to: Alaskan Copper Company Seattle, Washington	Expedite material on order	E. T. Cahill E. T. Cahill	1-6-52 1-13-52	1-7-52 1-18-52		X X	
C. P. Lawson to: William Powell Company Cincinnati, Ohio	Expedite material on order.	Mr. Heilig	1-29-52	2-1-52		X	

PLANT SECURITY AND SERVICES SECTION

I. Visitors to this Works

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
W. R. Cooke Knolls Atomic Power Laboratory Schenectady, New York	Inspection of plant protection and security units	T. B. Farley	1-21-52	1-25-52	X		200-W (Op) 234 Redox; 221-U; 100-H 105; 100-C 105; 300 303
TECHNICAL SECTION							
I. Visitors to this Works							
E. L. Bernier E. I. du Pont de Nemours & Co. Savannah River Works Aiken, South Carolina	Discuss counter davelopment and analytical methods	F. W. Albaugh A. H. Bushey H. R. Schmidt	1-28-52	2-1-52	X		300-3706; 200-W 221-T; Redox; 221-U, 224-U;
P. C. Bogiages General Engineering Laboratory Schenectady, New York	Conference on mechanical developments concerning P-10 Project	H. F. Zuhr J. T. Stringer	1-22-52	1-24-52	X		300-XXX; Redox; 221-U; 224-U 100-B 105, 108
P. M. Boothe U. S. Atomic Energy Commission Schenectady, New York	Observe design of hot laboratories and inspect construction facilities	L. D. Turner H. G. Spencer	1-30-52	2-2-52	X		100-B 105; 300 303; 105-C; Redox
C. J. Christy Charles T. Main Co. Inc. Boston, Massachusetts	Inspect corrosion laboratory	M. Lewis	1-23-52	1-23-52	X		100-D 189
F. H. Croninger Knolls Atomic Power Laboratory Schenectady, New York	Consultation on graphite and stainless steel for use at SIR and metallurgical consultation	L. P. Bupp R. Ward J. H. Bach K. L. Sanborn	1-11-52	1-12-52	X		100-H 105
S. Dunning American Pipe, Amercoat Division Seattle, Washington	Demonstrate recent developments on protective coatings	F. W. Woodfield	1-14-52	1-21-52	X		300 XXX
J. F. Eckel Knolls Atomic Power Laboratory Schenectady, New York	Consultation on graphite and stainless steel for use at SIR and metallurgical consultation	L. P. Bupp J. H. Bach R. Ward J. M. Fox	1-11-52	1-15-52	X		100-H 105 300 3706

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
B. H. Engelhardt Perkins-Elmer Corporation Norwalk, Connecticut	Modify Model 21-152 infrared spectrometer	R. H. Moore	1-14-52	1-16-52		X	300 XXX
R. C. Feber Knolls Atomic Power Laboratory Schenectady, New York	Consultation on Redox processes	O. F. Hill	1-8-52	1-11-52	X		300 XXX; Redox
T. J. E. Glasson Knolls Atomic Power Laboratory Schenectady, New York	Observe design of hot laboratory	L. D. Turner	1-30-52	2-2-52	X		300 303; 100-B 105; Redox
W. H. Keller Mallinckrodt Chemical Works St. Louis, Missouri	Technical consultations	R. B. Richards	1-28-52	1-30-52	X		300 xxx; 221-U; 224-U; 200-W 221-T; 231, 234;
R. A. Koehler General Engineering Laboratory Schenectady, New York	P-10 Consultation	H. F. Zuhr	1-21-52	1-23-52	X		100-B 108
C. G. Kruse International Business Machines Richland, Washington	Service IBM machines	D. E. Stephens B. F. Butler	1-26-52	1-26-52	X	X	300 XXX
J. H. Manley University of Washington Seattle, Washington	Consultation on physics problems	W. J. Ozeroff	1-18-52	1-18-52	X		100-D 189, 105; 300 303; 100-C 105
C. G. Munger American Pipe, Amerocat Division Seattle, Washington	Demonstrate recent developments on protective coatings	F. W. Woodfield	1-14-52	1-21-52	X		300 XXX
M. E. Norby International Business Machines Richland, Washington	Service IBM equipment	B. F. Butler	1-26-52	1-26-52		X	300 XXX
S. T. Powell Charles T. Main Company, Inc. Boston, Massachusetts	Inspect corrosion laboratory	M. Lewis	1-23-52	1-23-52	X		100-D 189

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass Areas
B. F. Rider Knolls Atomic Power Laboratory Schenectady, New York	Discuss counter development and analytical methods	F. W. Albaugh A. H. Bushey H. R. Schmidt	1-28-52	1-31-52	X	300 3706 200-W 221-T; Redox
J. W. Ryan General Engineering Laboratory Schenectady, New York	Discuss irradiation on electrical installations	H. L. Henry	1-18-52	1-23-52	X	108-B 105; 100-D 105; 100-F 105; 100-H 105; 300 XXX then 303, 305
G. W. Watt University of Texas Austin, Texas	Research and development consultations on Redox and P-10	R. B. Richards	1-21-52	1-26-52	X	300 XXX; 200-E 221-B; 200-W 221-T. 231; 234, 235; 221-U; 224-U; 234-5 Const; Redox 100-B 105, 108
T. G. Will Consolidated Engineering Corp. Pasadena, California	Install Consolidated Eng. Corp. Mass spectrometer	R. J. Brouns	1-7-52	1-31-52	X	Redox; 300 3706
II. Visits to other Installations						
J. A. Berberet to: Knolls Atomic Power Lab. Schenectady New York	Discuss experiments with shielding materials	R. W. Lockhard P. R. Mathews	1-28-52	1-28-52	X	
J. A. Berberet to: Brookhaven National Lab. Upton, Long Island, New York	Discuss shielding problems	M. Fox	1-29-52	1-30-52	X	
R. S. Dalrymple to: General Engineering Lab. Schenectady, New York	Corrosion discussion and attend symposium on replacement of copper by aluminum	L. L. Ingraham	1-29-52	1-29-52	X	
R. S. Dalrymple to: Knolls Atomic Power Lab. Schenectady, New York	Corrosion discussion and attend symposium on replacement of copper by aluminum	A. U. Seybolt	1-31-52	1-31-52	X	
E. A. Eschbach to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss new fuel element development program	E. J. Boyle	1-15-52	1-15-52	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
E. A. Eschbach to: Battelle Memorial Institute Columbus, Ohio	Discuss new fuel element development program	H. A. Saller	1-16-52	1-16-52	X		
E. A. Eschbach to: Westinghouse Atomic Power Div. Pittsburgh, Pennsylvania	Discuss new fuel element development program	W. E. Johnson	1-17-52	1-17-52	X		
E. A. Eschbach to: Knolls Atomic Power Lab. Schenectady, New York	Discuss new fuel element development program	E. S. Baker	1-18-52	1-18-52	X		
E. A. Eschbach to: General Engineering Lab. Schenectady, New York	Discuss new fuel element development program	A. U. Seybolt	1-18-52	1-18-52	X		
E. A. Eschbach to: Brookhaven National Lab. Upton, Long Island, New York	Discuss new fuel element development program	D. Gurinsky	1-21-52	1-21-52	X		
E. A. Eschbach to: U. S. Atomic Energy Comm. New York, New York	Discuss new fuel element development program	S.B. Roboff	1-21-52	1-21-52	X		
E. A. Eschbach to: E. I. du Pont de Nemours & Co. Wilmington, Delaware	Discuss new fuel element development program	J. C. Woodhouse	1-19-52	1-19-52	X		
E. A. Eschbach to: Mass. Inst. Technology Cambridge, Massachusetts	Discuss new fuel element development Program	A. R. Kaufman	1-22-52	1-22-52	X		
E. A. Eschbach to: Sylvania Electric Products Co. Bayside, New York	Discuss new fuel element development program	H. H. Hausner	1-23-52	1-23-52	X		
E. A. Eschbach to: Argonne National Lab. Chicago, Illinois	Discuss new fuel element development program	F. Foote	1-24-52	1-24-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
E. A. Eschbach to: Iowa State College Ames Laboratory Ames, Iowar	Discuss new fuel element development program	H. A. Wilhelm	1-25-52	1-25-52	X		
E. A. Eschbach to: Battelle Memorial Institute Columbus, Ohio	Discuss new fuel element development program	H. A. Saller	1-28-52	1-28-52	X		
J. E. Faulkner to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Consultations on reactor reactivity changes	Dr. Krasick	1-3-52	1-4-52	X		
J. E. Faulkner to: Knolls Atomic Power Lab. Schenectady, New York	Discuss cross section measurements	L. Tonks	1-7-52	1-8-52	X		
J. E. Faulkner to: Argonne National Lab. Chicago, Illinois	Discuss cross section measurements	M. Ingraham	1-9-52	1-10-52	X		
P. F. Gast to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Consultations on reactor reactivity changes	Dr. Krasick	1-3-52	1-4-52	X		
J. W. Goffard to: Knolls Atomic Power Lab. Schenectady, New York	Follow up ultrasonic wetting methods	R. O. Fehr	1-29-52	2-1-52	X		
J. W. Goffard to: General Engineering Lab. Schenectady, New York	Follow up ultrasonic wetting methods	D. H. Marquis	1-29-52	2-1-52	X		
T. W. Gore to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on radio-metallurgy problems	T. J.E. Glasson	1-9-52	1-10-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Class.	Unclass	Area
C. Groot to: Brookhaven National Lab. Upton, Long Island, New York	Conferences on separations processes	W. R. Page	1-23-52	1-25-52	X		
C. Groot to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultations on separations processes	H. A. Bernhardt	1-28-52	2-15-52	X		
F. J. Leitz, Jr. to: Brookhaven National Lab. Upton, Long Island, New York	Conferences on separations processes	W. R. Page	1-23-52	1-25-52	X		
J. W. Riches to: Simonds Saw & Steel Co. Lockport, New York	Observeation of uranium rolling	A. D.Potts	1-24-52	1-25-52	X		
J. W. Riches to: Bethlehem Steel Co. Lackawanna, New York	Observation of uranium rolling	F. G. Stroke	1-26-52	1-27-52	X		
W. L. Schalliol to: U. S. Atomic Energy Comm. New York, New York	Observation of uranium rolling	F. M. Belmore R. J. Smith	1-21-52	1-21-52	X		
W. L. Schalliol to: Battelle Memorial Inst. Columbus, Ohio	Al-Si and creep al investigations	H. A. Sallers W. F. Simmons C. M. Craighead H. R. Nelson	1-16-52	1-17-52	X		
W. L. Schalliol to: Knolls Atomic Power Lab. Schenectady, New York	Metallurgy of uranium	A. U. Seybolt D.White C. E. Lacy	1-18-52	1-19-52	X		
W. L. Schalliol to: Allegheny Ludlum Steel Co. Watervliet, New York	Observation of uranium rolling	Mill Supt.	1-19-52	1-19-52	X		
W. L. Schalliol to: Mass. Inst. of Tech. Cambridge, Massachusetts	Metallurgy of uranium	A. R. Kaufman	1-22-52	1-22-52	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Areas Class.	Unclass
W. L. Schalliol to: Simonds Saw & Steel Lockport, New York	Observation of uranium rolling	A. D. Potts	1-23-52	1-24-52	X	
R. J. Schier to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss new fuel element development program	E. J. Boyle	1-15-52	1-15-52	X	
R. J. Schier to: Battelle Memorial Inst. Columbus, Ohio	Discuss new fuel element development program	H. A. Saller	1-16-52	1-16-52	X	
R. J. Schier to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Discuss new fuel element development program	W. E. Johnson	1-17-52	1-17-52	X	
R. J. Schier to: Knolls Atomic Power Lab. Schenectady, New York	Discuss new fuel element development program	E. S. Baker	1-18-52	1-18-52	X	
R. J. Schier to: General Engineering Lab. Schenectady, New York	Discuss new fuel element development program	A. U. Seybolt	1-18-52	1-18-52	X	
R. J. Schier to: E. I. du Pont de Nemours Wilmington, Delaware	Discuss new fuel element development program	J. C. Woodhouse	1-19-52	1-19-52	X	
R. J. Schier to: Brookhaven National Lab. Upton, Long Island, New York	Discuss new fuel element development program	D. Gurinsky	1-21-52	1-21-52	X	
R. J. Schier to: U.S. Atomic Energy Comm. New York, New York	Discuss new fuel element development program	S. B. Roboff	1-21-52	1-21-52	X	
R. J. Schier to: Mass. Inst. Technology Cambridge, Massachusetts	Discuss new fuel element development program	A. R. Kaufman	1-22-52	1-22-52	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. J. Schier to: Sylvania Electric Products Bayside, New York	Discuss new fuel element development program	H. H. Hausner	1-23-52	1-23-52	X		
R. J. Schier to: Argonne National Lab. Chicago, Illinois	Discuss new fuel element development program	F. Foote	1-24-52	1-24-52	X		
R. J. Schier to: Iowa State College Ames Laboratory Ames, Iowa	Discuss new fuel element development program	H. A. Wilhelm	1-25-52	1-25-52	X		
R. J. Schier to: Battelle Memoral Inst. Columbus, Ohio	Discuss new fuel element development program	H. A. Saller	1-28-52	1-28-52	X		
C. M. Slansky to: Idaho Operations Office Arco, Idaho	Consultation on laboratory operations	T. W. Clapper	1-4-52	1-5-52	X		
L. D. Turner to: Knolls Atomic Power Lab. Schenectady, New York	Discuss radio metallurgy laboratory facilities	T. J. E. Glasson	1-9-52	1-10-52	X		
L. D. Turner to: Westinghouse Atomic Power Pittsburgh, Pennsylvania	Discuss radio metallurgy laboratory facilities	W. E. Johnson	1-11-52	1-11-52	X		
L. D. Turner to: Oak Ridge National Lab. Oak Ridge, Tennessee	"J" slug examination	S. E. Dismuke	1-14-52	1-14-52	X		
W. K. Woods to: Knolls Atomic Power Lab. Schenectady, New York	Discussion of metallurgical development	K. H. Kingdon	1-9-52	1-9-52	X		
W. C. Schmidt to: National Blower Tacoma, Washington	Supervise packing of filter	- -	1-16-52	1-17-52		X	

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DECLASSIFIED

DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. T. Stringer to: General Electric Company Schenectady, New York	Sleeve bearing and long range bearing programs	- -	1-11-52	1-21-52		X	
M. Altman to: Pacific Scientific Co. Portland, Oregon	Discuss design of an electric analog	Mr.Corbett	1-7-52	1-8-52		X	
L. E. Foster to: Pacific Scientific Co. Portland, Oregon	Discuss design of an electric analog	Mr. Corbett	1-7-52	1-8-52		X	
R. M. Fryar to: General Chemical Company Cliffside, New Jersey	Discuss water treatment problems	R. W. Oschershausen	1-7-52	1-14-52		X	
W. T. Kattner to: Allegheny Ludlum Steel Watervliet, New York	Discuss metal fabrication development program	Mill Supt.	1-19-52	1-19-52	X		
W. T. Kattner to: U. S. Atomic Energy Comm. New York, New York	Discuss metal fabrication development program	F. N. Belmore R. J. Smith	1-19-52	1-23-52	X		
W. T. Kattner to: Simonds Saw & Steel Co. Lockport, New York	Discuss metal fabrication development program	A. D. Potts	1-24-52	1-25-52	X		
W. T. Kattner to: Bethlehem Steel Co. Lackwanna, New York	Discuss metal fabrication development program	F. G. Stroke	1-26-52	1-26-52	X		
R. J. Brouns to: Coates Chemical Lab. Baton Rouge, Louisiana	Attend symposium		1-28-52	1-31-52		X	

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PURCHASING AND STORES SECTION
UTILITIES AND GENERAL SERVICES DEPARTMENT
SUMMARY - JANUARY 1952

Personnel of the Purchasing and Stores Section showed a net decrease of six as noted below:

TOTAL PERSONNEL

	12-31-51	1-31-52	Net Change
Exempt	87	92	+5
Non-Exempt	344	333	-11
	431	425	-6

National Production Authority assurance of an adequate supply of ammonia for Hedges Works Nitric Acid Plant was received.

Records of controlled materials allotment receipts and disbursements to lump sum sub-contractors have been forwarded to the Commission on six of the contracts affected by the transfer of administrative responsibility.

Unused balances of controlled material allotments for the fourth quarter were returned to the Commission. Less than 10% of the total allotments were unused.

Developing facts and establishing responsibility relative to vendor claims constituted a large part of the construction procurement activity for the month.

Due to the inability of the fabricator to produce balls for the 3X System which were free from imperfections, orders for experimental quantities were placed with three other manufacturers in an attempt to locate an acceptable source.

Difficulty is being experienced in procuring practically all aluminum items, both fabricated and non-fabricated. Directives have been obtained covering most of our requirements and others are in the process of preparation.

Indications are that production of gun barrels will meet our required delivery dates.

Increased activity was experienced in inspection work as a number of vendors were unable to meet delivery dates and additional inspection personnel were assigned to vendors' plants full time to assist in working out production difficulties.

The status of many items for Project C-431-B, which have been of a critical nature, has been improved to the point that special emphasis can be relaxed. However, in addition to some material shortages the improper forming of fittings, which require extensive work to correct, will seriously affect the completion date of the outlet header assemblies for this project.

Approximately 3940 pounds of stainless steel remnants returned to the project from fabricators have been utilized to fill requirements of other vendors.

PURCHASING AND STORES SECTION
SUMMARY

A technical inspector was assigned to the Seattle Area to assist in handling the heavy work load.

During the last six months the dollar realization on excess materials used on the project was 93% and for shipments to other government agencies the realization was 66.6%. An overall average of 83.3% realization for all excess materials disposed of during this period was attained

Construction of the New Central Stores Warehouse was started at North Richland during the latter part of the month.

3214 purchase requisitions were processed through screening and 1296 items were furnished from Stores Unit inventories. Thirty items of stainless steel were furnished to fabricators from stock.

Through negotiations with rail carriers, reduced rates between Los Angeles, Calif., and Richland and Hanford were obtained on carloads of machinery or machinery parts. This reduction will result in a savings of about $66 per car.

As a result of rate reductions obtained from the carriers there was a total savings in freight charges for the month of January amounting to $15,413.61. This makes a total savings from September 1, 1946 to date of $1,688,295.98

PURCHASING AND STORES SECTION
GENERAL
JANUARY 1952

Our Washington, D. C. Priorities Representative visited the Works on January 9th at Richland. Mutual problems were discussed with personnel from various departments. A tour of the Area was made in order that he would have first hand knowledge of cases which he receives on these projects. Mutually benificial discussions were also held with our Priorities Group.

National Production Authority assurance of an adequate supply of ammonia for Hedges Works Nitric Acid Plant was received.

A determination of which controlled material and ceiling price regulations would affect the sale of 120 tons of carbon steel plate edgings and remants from the Bremerton B-block steel was completed and submitted to the Scrap Sales Group.

Records of controlled materials allotment receipts and disbursements to lump sum sub-contractors have been compiled and forwarded to the Commission on six of the contracts affected by the transfer of administrative responsibility. The Commission has assured us that the balance will be taken over by them as rapidly as they can.

Unused balances of controlled material allotments received for the fourth quarter have been determined and returned to the Commission. Less than 10 per cent of the total allotments received were returned as unused.

Twenty-two requests for NPA Directive or DX action were received during January.

Fourteen cases were submitted to AEC for directive or DX rating.

Special requirements studies requested and submitted to the AEC included thiokol requirements, stainless steel tubing, inside handling equipment, nitric acid and aluminum nitrate.

The requisitions assigned during January show a 25% increase and requisitions placed show a 13% increase over preceeding month.

The responsibility of preparing and submitting Open Requisition and Open Order Status Reports for construction projects was transferred from Expediting to Reports and Statistics.

A requisition to procure Remington Rand Linedex panels and strips has been issued. Installation of the Linedex, for printing of Stores Catalogs, will result in an annual savings of $2,064 over present system.

PERSONNEL

	As of 12-31-51			As of 1-31-52			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	1	3	2	3	5	0	+2	+2
Priorities	2	12	14	6	7	13	+4	-5	-1
Inventory Audits	2	11	13	2	11	13	0	0	0
Clerical	2	37	39	2	33	35	0	-4	-4
	10	62	72	14	55	69	+4	-7	-3

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Number of Employees Attending	58

STATISTICS

The following schedule reflects total allotments received from the AEC and allotments used and extended to suppliers and contractors through January. Top figures under each item number indicate allotment received from AEC. Lower figures under each item number reflect material allotment used or allotted for the quarter indicated.

CONSTRUCTION

Controlled Material	Unit Measure	1052	2052	3052
	Short	1000.00	90.00	8.00
Carbon Steel Plate	Tons	504.56	39.13	.05
Carbon Steel	Short	1240.00	163.00	5.00
Structural Shapes	Tons	705.90	45.13	.05
	Short	1800.00	645.00	125.00
Other Carbon Steel	Tons	1534.46	589.20	9.05
Alloy Steel (excluding	Short	10.00	3.00	3.00
Stainless Steel)	Tons	8.51	..05	.05
		270,000	44,995	2,000
Stainless Steel	Lbs.	250,047	34,502	2,000
Copper & Copper Base Alloy		39,914	2,000	1,000
Brass Mill Products	Lbs.	29,887	1,300	200
		111,796	27,448	10,884
Copper Wire Mill Products	Lbs.	99,199	25,787	200
Copper & Copper Base Alloy		4,000	None	None
Foundry Products & Powder	Lbs.	3,079		
		22,800	5,000	200
Aluminum	Lbs.	21,490	1,056	200

OPERATIONS

Controlled Material	Unit Measure	1052	2052	3052
Carbon Steel (including	Short	145.00	65.00	100.00
Wrought Iron)	Tons	49.31	31.30	0
Alloy Steel (excluding	Short	3.00	2.00	2.00
Stainless Steel)	Tons	1.49	0	0
		36,000	40,000	46,000
Stainless Steel	Lbs.	11,095	6,382	0
Copper & Copper Base Alloy		10,000	6,878	6,990
Brass Mill Products	Lbs.	7,803	313	0
		15,545	10,000	7,858
Copper Wire Mill Products	Lbs.	5,437	1,160	0
Copper & Copper Base Alloy		500	500	2,700
Foundry Products & Powder	Lbs.	0	0	200
		314,200	209,000	175,108
Aluminum	Lbs.	291,215	195,325	92,519

	G	D	TOTAL
Requisitions on Hand 1-1-52 (Includes 106 Assigned to Gov't.)	828	379	1207
Requisitions Assigned During January	2276	917	3193
Requisitions Placed During January	2179	925	3104
Requisitions on Hand 1-31-52 (Includes 112 Assigned to Gov't.)	925	371	1296

		NUMBER	VALUE
H. W. Orders Placed		1435	$ 580,514.58
H. W. Alterations Placed		138	43,948.93 Cr.
	TOTAL	1573	$ 536,565.65
H. W. C. Orders Placed		707	$ 423,742.95
H. W. C. Alterations Placed		193	216,546.00 Cr.
	TOTAL	900	$ 207,196.95
A. E. C. Orders Placed		130	$ 134,934.23
D. C. Orders Placed		64	54,025.05

	OR	ORC
Gov't. Transfers	0	0

	NUMBER
Return Orders Issued	149

2136361

PURCHASING AND STORES SECTION
CONSTRUCTION PROCUREMENT UNIT
JANUARY 1952

As of January 31, 1952 there were 186 open requisitions in the Unit. Thirty-nine requisitions were for Project C-431-B material and 11 requisitions for Project C-431-A material. The balance of the open requisitions originated in the Minor Construction, Project Engineering and Separations Units of Engineering.

Vendor claims were the order of the month and considerable manhours were utilized in developing facts and establishing responsibility relative to the claims. A file is being assembled of evidence which has a bearing on the Crane Company claim mentioned in last month's report.

A claim received from Vulcan Copper & Supply Company asking for $4,799.37 in excess of the maximum price on HWC 9580 was refused by General Electric Company and the Atomic Energy Commission.

An agreement was reached between General Electric Company and Pacific Coast Engineering Company relative to counter claims submitted by both companies on order HWC 10585. The agreement is ready to present to the Atomic Energy Commission for final approval.

A claim totaling approximately $190,000 was received from the Southwest Welding & Mfg. Company for costs incurred over and above the purchase order prices on several orders for stainless steel vessels for Projects C-187-D and C-362. The additional costs are attributed to increased production costs resulting from expediting delivery of vessels, escalation of wages and material, and increased production costs resulting from delays in delivery of raw material. The claims were considered from a legal standpoint, and the vendor advised that the only portion of the claim which could be considered, was attributed to expediting action requested by General Electric Company.

The fabricator of the balls for the 3X system was not able to manufacture them without surface cracks and other imperfections. Although satisfactory for use in some areas they were not acceptable in others. Orders for experimental quantities were placed with three other manufacturers in an attempt to locate an acceptable source.

At the recommendation of Inspection and Expediting, the Purchasing Agent reviewed the order for Bellows Assemblies (HWC-10497) and considered cancellation of the present order and placement for a new order with another vendor. After two trips to the vendor's plant in Seattle, it was determined impractical to cancel the current order. Arrangements to sub-let part of the work and to work two eight-hour shifts six days per week at no cost to General Electric were agreed upon. Indications are that delivery of assemblies under this arrangement will meet construction requirements.

PERSONNEL

As of 12-31-51			As of 1-31-52			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 - 16

1210352

PURCHASING AND STORES SECTION
OPERATIONS PROCUREMENT UNIT

JANUARY -- 1952

No new contracts were negotiated during the month. Plant requirements for oxygen, acetylene, and sulphuric acid are being determined and bids covering our requirements will be requested during the coming month.

Items presently difficult to procure include practically all aluminum items, both fabricated and non-fabricated. Directives have been obtained covering most of our requirements and others are in the process of preparation. We do not anticipate serious difficulties, unless the aluminum industry is burdened with a strike.

Prices on chemicals have tended to fluctuate slightly, with some items moving upward and others slightly downward. No difficulty of supply is being experienced.

Present agitation of United Mine Workers of America indicates that there will be some additional cost for coal after expiration of the present agreement. As our coal contracts carry escalation clauses, based on the United Mine Workers wage agreement, this cost will directly affect the price of coal furnished to us. The exact increase will not be known until contract negotiations are completed between the United Mine Workers and the coal operators.

Personnel

As of 12-31-51			As of 1-31-52			Net Change		
Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
8	16	24	10	14	24	+ 2	- 2	0

Safety and Security

Safety and Security Meetings scheduled - 1
Number of employees attending - 24

1213333

PURCHASING AND STORES SECTION
INSPECTION AND EXPEDITING UNIT
JANUARY 1952

The Superintendent of Inspection and Expediting accompanied by the Manager of Purchasing and Stores Section completed a one-week tour of the West Coast. Vendors holding the more critical orders were visited as well as the inspectors assigned to these orders.

The Supervisor of Expediting completed two trips during the past month - one being made to Seattle and one made to the East Coast. Both of these visits were necessary to expedite highly critical orders.

The Supervisor of Inspection spent 10 days during the early part of this past month with the vendor fabricating gun barrels in the East to assist in production problems. This was the second visit which was required to this vendor. Results now indicate that production of gun barrels will meet our required delivery dates.

Increased inspection activity was due primarily to a number of vendors being unable to meet delivery dates, and it was necessary to assign additional inspection personnel to the vendors' plants full time to assist in working out production difficulties.

Many of the items reported as "critical" for Project C-431-B in January Report have been improved to the point that special emphasis can be relaxed. The inlet nozzle castings from Alcoa were completed and will be shipped to Iron Fireman early in February. The outlet nozzle castings from Alcoa were in production during the month and a sizable backlog of castings is on hand at Service Metal Fabricators. It now appears that both of these orders can be machined in time to meet field requirements.

The Alaskan Copper Bellows Assembly work has been well coordinated through six sub-vendors and approximately 25% of the order has been shipped to the Project. It appears that this material will be shipped in time to meet field requirements.

The first H Rod was completed successfully during the month and will be shipped the first week in February. The remaining 17 rods were put into production, and a schedule of completion is expected early in February.

VS Rods are not in production at American Machine and Foundry because of a machining sub-vendor's inability to produce boron stainless tube components. Machining has been very difficult because of lack of homogeneity of castings. Inspection Unit has worked closely with Electric Steel Foundry Company Metallurgist in attempts to improve machinability of castings with no loss of physical properties. In addition the Bremerton Navy Yard is working on these castings in an attempt to develop a machining technique and possibly to assist in machining some of the components. Another sub-vendor was located for American Machine and Foundry, and an order was placed by this firm to machine these parts. Tubes were shipped to this sub-vendor in late January and should be in machining early in February.

The decision to bring stainless steel remnant material from vendor's plants to the Project site is already paying dividends. The Inspection Unit personnel located and selected material for a shipment of approximately 3,240 pounds of stainless steel which was made from remnant stocks to A. O. Smith Corporation, and a shipment of approximately 700 pounds from same stocks will be made in early February to O. G. Kelley Company.

American Boiler Works performance in fabricating outlet header assemblies for C-431-B has been impeded by 2 factors. The 45° fittings furnished to them were improperly

formed requiring individual matching and pipe-cutting to compensate for the error induced. This problem has been resolved with Design Division, but will seriously affect completion date. In addition, several material shortages exist on material we are to furnish.

Operation control valves from Hammel-Dahl for the TBP Project were shipped complete.

Stearns-Roger connector orders are completed and operational pumps from Johnston Pump Company have been shipped.

The greater portion of expediting activity is on orders for C-431 Project. This is largely due to the fact that work has started in the 105 Building, and we are endeavoring to complete the material coming in ahead of the actual construction needs.

The work load in the Seattle Area is still very heavy and necessitated sending one of the office technical inspectors to that area to assist in handling the work.

Two technical graduates were returned to Technical Personnel during the month. With the anticipated completion of the gun barrel job and Bremerton Navy Yard shielding job during February, it is expected that 6-7 more technical graduates will be returned without replacement.

PERSONNEL

	As of 12-31-51			As of 1-31-52			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Inspection	31½	20	51½	30½	18	48½	-1	-2	-3
Expediting	14½	10	24½	12½	9	21½	-2	-1	-3
	46	30	76	43	27	70	-3	-3	-6

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Number of Employees Attending Each Meeting	25

STATISTICS

Inspection

Number of open orders requiring inspection	269
Number of open orders being inspected	260
Number of new orders requiring inspection	34
Number of open requisitions requiring inspection	46
Number of completed orders (cancelled, waived, etc.)	41
Number of open orders requiring inspection - sub-vendor	33
Number of open orders being inspected - sub-vendor	32
Number of completed orders - sub-vendor	3

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PURCHASING AND STORES SECTION
INSPECTION AND EXPEDITING UNIT
JANUARY 1952

STATISTICS CONT'D

Expediting -

HW Orders expedited in January (active)	521
HW Orders expedited in January (routine)	1453
HWC Orders expedited in January	1253
Sub-vendor Orders expedited in January	2200*
HW Orders completed in January	1573
HWC Orders completed in January	807

*Estimated

1218566

279

PURCHASING AND STORES SECTION
STORES UNIT
JANUARY, 1952

GENERAL

A report received from the Finance Department showed that during the past six months the dollar realization on excess materials used on the project was 93% and for shipments to other government agencies the dollar realization was 66.6%. The report shows an over-all average of 83.3% realization for all excess materials disposed of during the period July 1st to December 31, 1951.

Work is progressing satisfactorily on the 200 West Area Store and this store is scheduled to be in operation the week of February 4, 1952.

The following items of excess materials have been added to the list of materials which are being held at the specific request of other departments and the Atomic Energy Commission.

HELD FOR A.E.C.

"B" Block Equipment	$ 478.30
Automotive Parts	1 024,582.38

HELD FOR ENGINEERING DEPARTMENT

100-G and H Materials	505,418.82
Instruments from "U" Plant	27,351.22
Stainless Steel (Stores Accounts Only)	211,474.95

Construction of the New Central Stores Warehouse was started at North Richland during the latter part of the month.

The Surplus Warehouse No. 6 at Pasco has been closed except for shipping operations. Personnel formerly assigned to this warehouse have been reassigned to new work. A substantial quantity of material still remains in the warehouse.

3214 purchase requisitions were processed through screening and 1296 items were furnished from Stores Unit inventories. Thirty items of stainless steel not immediately available on the open market were also furnished to fabricators from Stores Unit inventories.

Maintenance materials, supplies and spare parts disbursed from Operations inventories were valued at $324,979.75.

27,700 Store Orders for operations materials were filled during the month. 5683 shipments received and 4892 receiving reports were issued.

Materials and equipment valued at $54,432.87 from 16 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 $10,719.46 were withdrawn by Operations forces and materials valued at $147,358.09

11.

1213567

GENERAL (Continued)

were shipped as directed by the Commission. Materials declared excess from the above account totaled $62,139.55. The total value of materials disposed of during the month was $274,649.97.

Materials and equipment valued at $51,032.73 were withdrawn from the 10.10 Account (Excess) for use on the project. Excess materials and equipment valued at $340,405.31 were shipped from the project as directed by the Commission. Total value of excess materials disposed of this month was $391,438.04.

During the month, 32 formal excess lists totaling $893,662.67 were submitted to the Commission for disposition.

94 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. Seven scrap sales were completed this month for a revenue of $920.70. Four sales are currently in process.

3 A.E.C. Surplus and Salvage Sales conducted by our personnel during January resulted in a total revenue of $34,814.70. One sale is currently in process.

Statistics previously reported on this report are now incorporated in Inventory Report issued by K. L. Robertson.

PERSONNEL

	As of 12-31-51			As of 1-31-52			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	6		6	6		6			
Construction Mat'l	1	29	30	1	28	29		- 1	- 1
Operations Mat'l	4	120	124	4	123	127		+ 3	+ 3
Surplus Salvage & Scrap Materials	3	69	72	3	67	70		- 2	- 2
TOTALS	14	218	232	14	218	232		0	0

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	13
Number of Employees Attending	201
Minor Injuries	9

281

PURCHASING & STORES SECTION
TRAFFIC UNIT
January 1952

GENERAL

Through negotiations with the rail carriers PSFB Section 22 Quotation No. 241, NPCFB Section 22 Quotation No. 130, was issued to be effective January 8 covering reduced rates on Machinery or Machines, or Parts thereof, carloads from Los Angeles, California, to Hanford and Richland, Washington. This reduction will effect a savings of approximately $66 per car and was made retroactive to cover two carloads of pumps from the Byron Jackson Company of Los Angeles, California.

Effective January 7, 1952, the Washington Public Service Commission issued supplements increasing all motor carrier rates and charges 6 per cent.

As a result of rate reductions obtained from the carriers there was a total savings in freight charges for the month of January amounting to $15,413.61. This makes a total savings from September 1, 1946, to date of $1,688,295.98.

[redacted]

As of 12-31-51			As of 1-31-52			Net Change		
Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
2	9	11	2	10	12	0	+1	+1

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:

Commodity	Origin	Savings for January	Savings 9-1-46 thru Dec. 1951	Total Savings 9-1-46 to date
"B" Blocks	Bremerton, Wash.	$13,248.95		
Castings, Rough	Los Angeles, Cal.	1,926.19		
Salt, Crude, Undried	Newark, Cal.	140.03		
Sand	Pioneer Spur, Wash.	22.10		
Truck	Various	66.10		
Methane Gas	Various	10.24		
		$15,413.61	$1,672,882.37	$1,688,295.98
2. Freight Bill Audit		2,599.40	77,146.00	79,745.40
3. Loss & Damage & Overcharge Claims		323.64	109,141.39	109,465.03

PURCHASING & STORES SECTION
TRAFFIC UNIT
January 1952

STATISTICS (CONT.)

Savings Report (Cont.)

	Savings for January	Savings 9-1-46 thru Dec. 1951	Total Savings 9-1-46 to date
4. Ticket Refund Claims	$ 562.56	$ 21,760.89	$ 22,323.45
5. Household Goods Claims	2.70	16,092.81	16,095.51
	$18,901.91	$1,897,023.46	$1,915,925.37

Work Volume Report

Reservations Made	Rail	246
	Air	84
	Hotel	216
Expense Accounts Checked		162
Household Goods & Automobiles	Movements Arranged Outbound	3
	Shipments Traced	1
	Insurance Riders Issued	1
	Requests for Claim Billing	4
	Claims Filed	6
	Claims Collected - Number	1
	Claims Collected - Amount	$2.70
Ticket Refund Claims	Filed	33
	Collected - Number	34
	Collected - Amount	$562.56
Freight Claims	Filed	7
	Collected - Number	13
	Collected - Amount	$323.64
	Over & Shorts Processed	8
	Damage Reports Processed	10
Freight Bill Audit Savings		$2,599.40
Freight Shipments Traced		123
Quotations	Freight Rates	226
	Routes	293
Bills Approved	Air Freight	4
	Air Express	40
	Carloading	241
	Express	163
	Rail	1,080
	Truck	458

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STATISTICS (CONT.)

Work Volume Report (Cont.)

Return Orders Processed		57
Carload Shipments	Inbound -GE - AEC	986
	All Others	171
	Outbound - GE - AEC	27
	All Others	16

Report of Carloads Received

	CMSTP&P	N.P.	U.P.	TOTAL
General Electric Company				
Aluminum Sulphate		1		1
Aluminum Tubing			1	1
Castings		4	2	6
Caustic Soda		4	4	8
Chlorine		1	1	2
Coal	140	60	674	874
Ferric Sulphate	1	2		3
Iron Ore		1		1
Lime		1	1	2
Machinery		2		2
Machinery, Conveying		1		1
Methyl Isobutyl Ketone	1		1	2
Nitric Acid		5	8	13
Phosphoric Acid	1	1	1	3
Pipe			16	16
Pipe Fittings		1		1
Porcelain Grinding Balls	1			1
Potash, Caustic	1			1
Pumps		1		1
Salt			1	1
Sand		1		1
Shovel Parts		2		2
Sluice Gates	3			3
Soda Ash	1	1		2
Steel Scrap			1	1
Steel Sheet	1			1
Steel Structural	2	2		4
Sulphuric Acid		1		1
Tanks	2			2
Transformers	1			1
Valves	1			1
Express Cars	6			6
Mdse. Cars	3	3	4	10
TOTAL	165	95	715	975

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STATISTICS (CONT.)

Report of Carloads Received (Cont.)

	CMSTP&P	N.P.	U.P.	TOTAL
A.E.C.				
Chemicals	4			4
Copper Wire			1	1
Filing Cabinets		3		3
Lumber			1	1
Transformers		2		2
TOTAL	4	5	2	11
Atkinson & Jones Const. Co.				
Asbestos		1		1
Asbestos Wallboard	2	1		3
Cement	14	15	15	44
Pipe	3			3
Pipe Coating	3			3
Steel		3	1	4
Steel Bars	3			3
Steel Joists		2		2
Steel Plates			2	2
Steel Sheet	1			1
Steel Structural	3			3
Mdse. Cars	5			5
TOTAL	34	22	18	74
Bonneville Power Administration				
Generator Parts	2			2
Chicago Bridge & Iron Co.				
Steel			9	9
Welding Material			1	1
TOTAL			10	10
Haughton Elevator Co.				
Steel Trusses	1			1
E. F. Hauserman Co.				
Steel Partitions			2	2
Hoge Warren Zimmermann				
Plaster & Plaster Board	3			3
Steel Bars	1			1
TOTAL	4			4
Chalmer D. Joseph Co.				
Lumber		1		1

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STATISTICS (CONT.)

Report of Carloads Received (Cont.)

	CMSTP&P	N.P.	U.P.	TOTAL
Pittsburgh Des Moines Steel Co.				
Steel Plates		8		8
Richland Fuel Co.				
Coal		19	28	47
Sound Const. & Engr. Co.				
Furniture	1			1
Wire Mesh		1		1
TOTAL	1	1		2
U. S. Army				
Autos, Freight	2	6	1	9
Guns	1			1
Ordnance Stores			4	4
Tractors & Scrapers	1			1
Trailers		3		3
TOTAL	4	9	5	18
West Coast Htg. & Plbg. Co.				
Pipe			2	2
TOTAL - SUBCONTRACTORS	46	60	65	171
TOTAL - ENTIRE PROJECT	215	160	782	1,157

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TRANSPORTATION SECTION
MONTHLY REPORT
JANUARY 1951

GENERAL

Transportation Section personnel forces decreased from 524 to 523 employees during the month by 12 new hires, 3 transfers in, 1 reactivation - personal illness 9 transfers out and 8 terminations.

RAILROAD ACTIVITIES

Commercial cars handled during January decreased 12.6% over December. Decline was due to a reduction in coal receipts caused by cold weather which created unloading difficulties.

Process movements continued slightly above normal and increased 13.9% over December.

Cars handled during January including process movements totaled 2,909 compared to 3,129 in December.

The following recapitulation indicates the number of commercial cars handled:

Carload Movements -	Loads In	Empties In	Loads Out	Empties Out
General Electric Company	989	31	28	1012
Atkinson & Jones Company	92	-	-	87
Browne Morris Co.	1	-	-	1
F. J. Early Co.	1	-	-	0
Haughton Elevator Co.	1	-	-	1
E. F. Hauserman Co.	1	-	-	1
Hogue Warren Zimmerman	4	-	-	4
Richland Fuel Co.	47	-	-	45
Sound Construction Co.	1	-	-	1
West Coast Heating & Plumbing Co.	2	-	-	3
Woodward Co.	0	-	-	1
U. S. Army	20	15	11	23
	1159	46	39	1179

Some difficulty was experienced in early January with the automatic switches and altitude valve on the newly constructed Riverland Elevated Water Tank. Corrections have been made and an excessive pressure switch in the pump circuit was installed.

Completed engine repairs on 120-ton diesel electric locomotive 39-373 and returned to service on January 21. This unit was taken out of operation on January 4 when the oil pressure dropped below normal. Inspection revealed that one piston pin cup had disintegrated and passed by the piston through the connecting rod into the pan. Damage was confined to the piston and cylinder liner and one main bearing.

[redacted]

Transportation Section

A survey on January 8 disclosed that 80-ton diesel electric locomotive 39-3719 was contaminated. This unit was sent to 200-West Area for cleaning and was unconditionally released on January 17.

Railroad track maintenance and rehabilitation work continued on a routine basis except for ice and snow removal which required 2,936 man-hours. Lining, surfacing and dressing of track required 244 man-hours. Inspection of track which included adjusting and oiling switches required 702 man-hours. Handling of track materials required 1,850 man-hours. Burning of weeds required 1,019 man-hours. Installing track materials required 620 man-hours.

AUTOMOTIVE ACTIVITIES

The Plant Bus System transported 12.5% more passengers in January than in December. The January passenger volume of 173,970 surpassed the previous recorded high of 161,232 in October 1951. The following tabulation indicates the January passenger volume by shifts and the total revenue received:

No. 1 outbound and No. 3 inbound	32,364
No. 2 outbound and No. 1 inbound	71,238
No. 3 outbound and No. 2 inbound	70,368
Total	173,970
Revenue	$ 8,698.50

The following is a comparative breakdown of average daily round trips to the Plant Areas:

Passenger buses - 100-B	11
Passenger buses - 100-D	12
Passenger buses - 100-F	11
Passenger buses - 100-H	9
Passenger buses - Hanford	4
Passenger buses - 200-West	34
Passenger buses - 200-East	9
Passenger buses - 300 Area	6
Passenger buses - Riverland	2
Passenger buses - Pistol Range	1
Passenger buses - White Bluffs	4
Passenger buses - North Richland	3
700-300 Area Shuttle Service	21
Inter-Area Passenger Service	3
Inter-Area Express Service	1
Inter-Area Mail Service	1

Effective January 2, the evening portion of Shift Schedule VI-20 was revised from 6:00 p.m. - 2:36 a.m. to 5:00 p.m. - 1:36 a.m. This change affects 66 Bus Drivers and is expected to improve employee morale and manpower utilization.

[redacted]

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Transportation Section

The Richland Local Bus System continued to show a seasonal increase by transporting 12.2% more passengers in January than in December. The following tabulation indicates the January passenger volume and revenue received:

Total passengers including transfers	48,002
Revenue	$ 3,361.05

The following statistics further indicate the magnitude of passenger service rendered by the Plant and Richland Local Bus Systems:

	Bus Trips	Bus Miles	Passenger miles
Plant	7,520	153,873	3,895,858
Richland Local	3,644	20,020	118,430

Off-Plant automobile trips (Company business and/or official visitors totaled 214.

The following tabulation indicates the volume of Drivers Test Service rendered including the new permits issued in compliance with AEC Bulletin GM-181 and H.W. Instructions Letter No. 15.

Applicants:	Male	111	Number rejected	1
	Female	11	Number tests given	122

Permits Issued:	Limited to driving with glasses	32
	Unlimited	89

Permits Reissued:	Routine	28
	New AEC	200
	New AEC to date	4,900

The following tabulation indicates the volume of fuel distribution by Equipment Maintenance personnel:

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	29,442	15,787	18,150	2,008	252
Received during month	130,697	15,705	20,056	8,605	0
Total	160,139	31,492	38,206	10,613	252
Disbursed during month	131,712	21,855	31,543	7,793	66
Stock at end of month	28,427	9,637	6,663	2,820	186

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by Equipment Maintenance personnel: 27 motor overhauls: 102 Class A Inspections and Repairs: 1,090 Class B Inspections and Lubrications: 2,215 other routine maintenance repairs and service calls: 544 tire repairs: and 507 wash jobs.

Transportation Section

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	319	555,564
1B	Buses	155	232,671
1C	Pickup Trucks	452	262,062
1D	Panel,Carryall,Sta.Wagon	125	145,058
1E	Armored Cars	12	281
1G	Jeeps	2	741
68 Series	Trucks	280	85,884
		1,345	1,282,261

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of road asphalt material handled by the Transportation Services personnel:

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	11,401	0	2,803
Received during month	0	0	0	0
Dispensed during month	0	11,006	0	0
Stock at end of month	0	395	0	2,803

Maintenance of primary roads required 410 man-hours; ice and snow removal 1,344 man-hours.

Handling of miscellaneous materials for the Stores Unit at White Bluffs included 11 carloads and 22 truckloads and required 2,342 man-hours.

Handling of materials for the Stores Unit in the 700-1100 Areas included 10 carloads and required 2,320 man-hours.

Handling of Area deliveries required 1,818 man-hours; Stores deliveries 193 man-hours and office furniture 1,403 man-hours.

Handling of 4 carloads of equipment, 20 carloads of material, 36 truckloads of equipment and 142 truckloads of material required 3,134 man-hours.

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ELECTRICAL DISTRIBUTION AND
TELEPHONE SECTION

JANUARY 1952

February 6, 1952

GENERAL

The Section scheduled work backlog totaled 5,075 man days as of February 1. This is a decrease of 2.5 per cent from the previous month distributed as follows:

	Days Per Craftsman	Total Man Days	Net Change - Man Days
Line Maintenance	66.5	2,063	100 Increase
Substation Maintenance	39.3	708	78 Decrease
Telephone Unit	60.6	2,304	154 Decrease

Scheduled "sixth day" Saturday work has been discontinued for line crews.

The total work force was increased to 183 people by employment of a Substation Operator and a Telephone Operator. Two weekly roll employees were promoted to Foreman in the Telephone Unit as required by gradually increasing activities in the work areas.

Electric power peak demands for January were:

	Date	January KW Demand	Comparative December
Process Load	1-29-52 (9-10 a.m.)	78,600	75,400
Richland Load	1-3-52 (4-5 p.m.)	32,500	32,130

Process demand is a new all time peak reflecting addition of Redox load. The Village demand was below seasonal expectation and less than January 1950 undoubtedly due to mild weather conditions.

A method of accounting was established to remove pole and anchor replacement costs from the Construction Budget. Pole replacement costs will be charged to plant investment and anchor replacement costs to maintenance. Untreated anchor logs were used extensively on initial plant construction and a sizeable replacement program is necessary in the near future.

The Electrical Standards Subcommittee was reorganized. Four groups are to develop standards, as assigned by the Chairman, respectively for: inside electrical work, distribution systems and substations, telephone (inside and outside plant), and special assignments.

[redacted]

Electrical Distribution and Telephone Section

Development of standards should be facilitated by using individuals directly associated with the work concerned assigned to the respective groups. Work of these groups will be reviewed in monthly meetings of the Subcommittee.

Five-year power forecasts for Richland and the Processing Areas were completed and sent to the Atomic Energy Commission.

ELECTRICAL DISTRIBUTION UNIT

Maintenance and Operation

A two-minute complete power outage was scheduled for the 200 Areas during a Critical "W" Power Condition established on the 230 KV System on January 3. The two-minute outage extended to nineteen minutes owing to difficulties encountered in closing a BPA system circuit breaker at Midway.

A 282-W Substation outage was scheduled January 6 to tie in a new circuit breaker on an additional circuit to Building 282-W. The outage was utilized to perform delayed maintenance and to rebalance loading on the circuits supplied by this substation.

Based on past experience with system disturbances, a voltage-frequency table was developed to guide the dispatchers in establishing Critical Power Grade "Y" Conditions, and in releasing such conditions to normal operation. It is expected that this system of control which was established in agreement with the Reactor Section will permit more uniform decisions by the dispatchers, and will result in less frequent and shorter periods of production curtailment arising from system disturbances.

System Expansion and Planning

Project C-295 (Expansion of 251 Substation). Final tie work is complete and the project is essentially completed.

TELEPHONE UNIT

Maintenance and Operation

Service was interrupted to the 5300 group of telephones on the White Bluffs Exchange for approximately twenty-three hours on January 29, 1952. Damage to Exchange equipment was caused by failure of the heating element in a soldering iron being used for repairs.

A summary of telephone subscriber service is as follows:

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Electrical Distribution and Telephone Section

	Subscriber Stations in Service	Lines Available for Service	Sides Available for Service	Exchange Lines in Service
Richland	6,374	61	280	3,844
North Richland	532	143	17	457
Process Areas	1,307	529	0	1,221
Total	8,213	733	297	5,522

System Expansion and Planning

A PBX switchboard was installed in the temporary Civil Defense Control Center with nine trunks to the Richland Telephone Exchange, and eleven lines in the Center. Direct lines are run to five District Aid Centers and Kadlec Hospital.

A survey initiated to consolidate or eliminate the use of official telephones resulted in the release of thirty-five official lines for reassignment. This represents an equivalent capital investment of approximately $7,000.

Recommended design and construction specifications for new housing area telephone cable distribution systems were furnished to the Atomic Energy Commission Engineering and Construction Division. They will also serve as a guide for development of cable plant standards.

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POWER STATISTICS
ELECTRICAL DISTRIBUTION AND TELEPHONE SECTION
FOR MONTH ENDING JANUARY 31, 1952

ITEM	ENERGY - MW HRS. Dec.	ENERGY - MW HRS. Jan.	MAX. DEMAND - KW Dec.	MAX. DEMAND - KW Jan.	LOAD FACTOR - % Dec.	LOAD FACTOR - % Jan.
230 KV SYSTEM						
A-2 Out (100-B)	7,970	7,830	12,800	12,400	83.7	84.9
A-4 Out (100-D)	15,130	14,490	22,600	22,600	90.0	86.2
A-5 Out (100-H)	9,216	9,396	15,000	14,040	82.6	90.0
A-6 Out (100-F)	5,960	8,390	11,500	15,900	69.7	71.0
A-8 Out (200 Area)	5,796	5,940	9,720	9,720	80.1	82.1
TOTAL OUT	44,072	46,046	71,620**	74,660**	82.7	82.9
MIDWAY IN	44,757	46,823	69,200*	68,800*	86.9	91.5
Transm. Loss	685	777				
Percent Loss	1.5	1.7				
115 KV SYSTEM						
B1-B4 Out (N.Rich.)	2,861	2,885	4,723	4,838	81.4	80.1
Richland	15,992	16,742	31,680*	32,320*	67.8	69.6
BB1-B3 Out (300 Area)	952	1,016	2,000	2,080	64.0	65.6
TOTAL OUT	19,805	20,643	38,403**	39,238**	69.3	70.7
Benton In	4,080	5,480	57,600*	49,200*	9.5	13.0
So. Richland In	15,800	15,400	36,000*	37,200*	59.0	55.6
TOTAL IN	19,880	20,880	93,600**	86,400**	28.5	32.3
Transm. Loss	75	237				
Percent Loss	.4	1.1				
66 KV SYSTEM						
B9-S11 Out (100-C)	431	427	750	800	77.2	71.7
B7-S10 Out (W. Bluffs)	612	561	1,440	1,440	57.1	52.4
Hanford Out	435	404	600**	600**	97.4	90.5
TOTAL OUT	1,478	1,392	2,790**	2,840**	71.2	65.9
HANFORD IN	1,361	1,299	2,600*	2,700*	70.3	64.7
Transm. Loss	/ 117	/ 93				
Percent Loss	/ 8.6	/ 7.2				
PROJECT TOTAL						
230 KV Out	44,072	46,046	71,620**	74,660**	82.7	82.9
115 KV Out	19,805	20,643	38,403**	39,238**	69.3	70.7
66 KV Out	1,478	1,392	2,790**	2,840**	71.2	65.9
TOTAL OUT	65,355	68,081	112,813**	116,738**	77.8	78.4
230 KV IN	44,757	46,823	69,200*	68,800*	86.9	91.5
115 KV In	19,880	20,880	93,600**	86,400**	28.5	32.5
66 KV In	1,361	1,299	2,600**	2,700**	70.3	64.7
TOTAL IN	65,998	69,002				
Transm. Loss	643	921				
Percent Loss	.9	1.3				

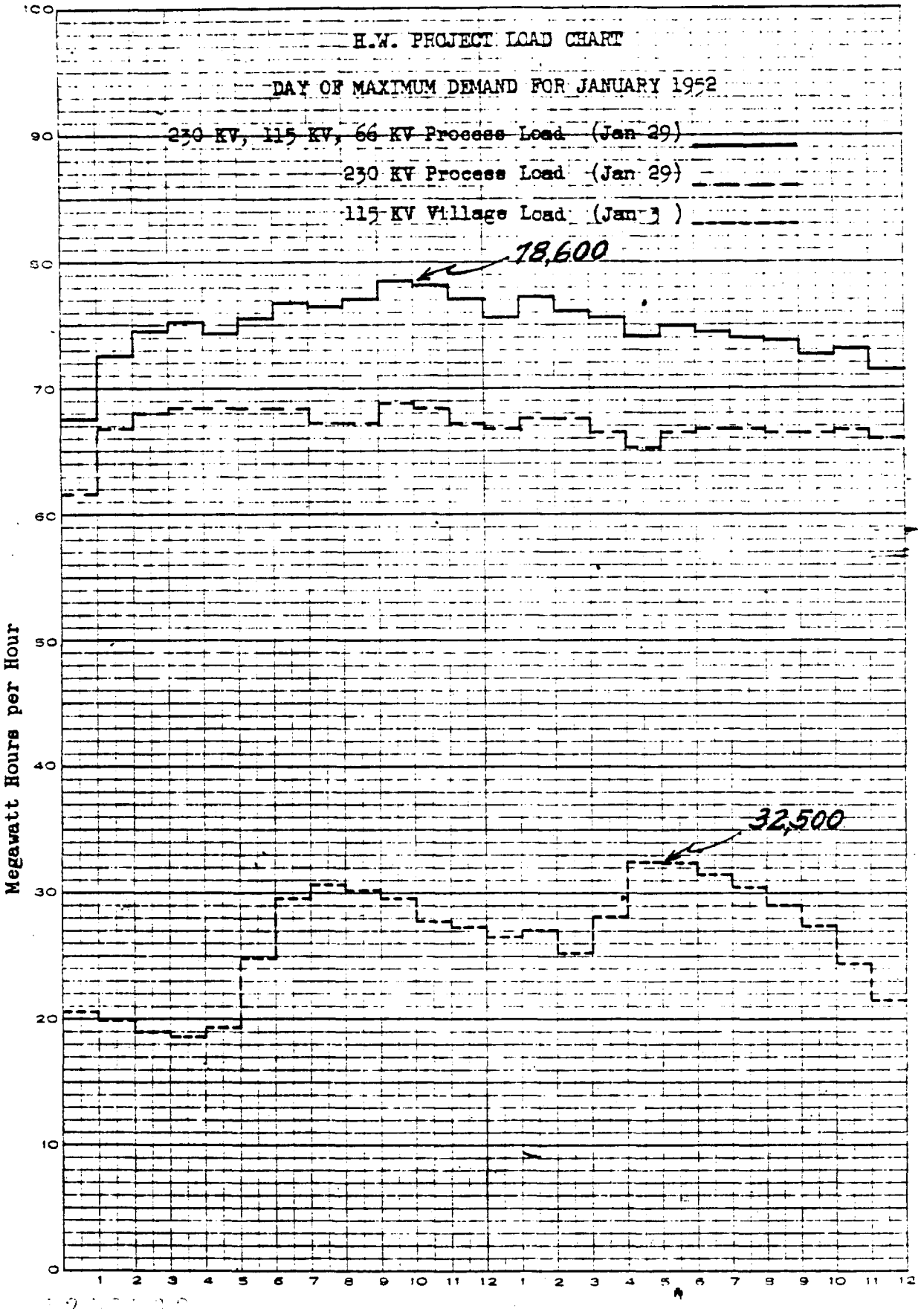
*Coincidental Demand
**Non-Coincidental Demand

Average Power Factor - 230 KV System--93.3
Average Power Factor - 115 KV System--95.3
Average Power Factor - 66 KV System--88.8

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STATISTICAL AND COMPUTING SERVICES SECTION

MONTHLY REPORT - JANUARY 1952

GENERAL:

Effective January 1, 1952 the Statistical and Computing Services Section was established concurrent with the transfer of statistical, computing and IBM functions to the Utilities and General Services Department. It is the function of the new section to provide the scientific, engineering, manufacturing, financial, and administrative activities of the Division with whatever statistical, computing, and tabulating support that may be required.

The Statistics Unit of the new section will make available to all departments the services of a staff of professional statisticians; the Computing Unit will operate a centralized IBM installation equipped with the most efficient computing and tabulating machines available.

Personnel transferred to the new section on January 1, 1952 consisted of eleven exempt and eighteen non-exempt employees from the Engineering Department, and one exempt and twenty-five non-exempt employees from the Financial Department. Organization and personnel for the month are summarized as follows:

	Transferred on 1/1/52			As of 1/31/52			Net Change		
	Ex	Non-Ex	Total	Ex	Non-Ex	Total	Ex	Non-Ex	Total
Staff	1	1	2	1	1	2	0	0	0
Statistics Unit	6	6	12	7	7	14	+1	+1	+2
Computing Unit	5	36	41	5	36	41	0	0	0
TOTAL	12	43	55	13	44	57	+1	+1	+2

In the Statistics Unit one statistician and one stenographer were added. There were no terminations. In the Computing Unit one technical graduate (from the Rotational Training Program), one stenographer, and two key punch operators were added to the non-exempt roll. One technical graduate (Mathematician) was drafted into the Armed Services. One key punch operator terminated to return to college, and one IBM machine operator terminated to accept a position in Seattle. One IBM machine operator was granted a leave of absence.

On January 21 and 22 equipment and personnel of the Computing Unit located in the 300 Area were moved to the 700 Area to be consolidated with the balance of the Unit located in 722-A Building. The Statistics Unit, however, will remain in the 300 Area until space is available in the 700 Area.

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STATISTICS UNIT:

From an experiment to study the distribution of impurities throughout Hanford Works uranium billet sample eggs, in which four wafers were sectioned from top to bottom of each egg and each resulting wafer was cut into three rings from outside to center, the chemical analyses showed no statistically significant evidence of systematic stratification. Correlation analyses made between bare uranium slug Test Pile reactivity results and the corresponding billet egg wafer chemical analyses revealed statistically significant reactivity-density and reactivity-nitrogen relationships. As soon as the individual billet egg tests are made the study will be completed.

The print weight scale for weighing uranium rods in bundles rather than individually has arrived and was used for weighing three shipments of bundled rods during January. The sum of the individual rod weights for each bundle (determined by the rolling mill) is being compared with the weight of bundle to gain information for setting up a statistical control for a new weighing procedure.

A study is being made to determine an optimum sampling plan for incoming aluminum can shipments. Because of the extensive information that is required from a small sample, it was decided that a sampling plan to measure variables rather than attributes would be required. A procedure known as the Triangular Sampling Plan, developed by the research of the Statistics Unit here at Hanford for evaluating fuel slugs in the Test Pile, is best suited to fulfill the acceptance conditions imposed, and hence will be recommended to the Metal Preparation Section for adoption.

Statistical analyses of dimensional measurements of the latest shipments of 4" and 8" Alcoa aluminum cases were supplied for use at a meeting with the vendor. Information on the dimensional stability of several lots of uranium rods was obtained for another meeting.

A report from Oak Ridge (GEH-19,099 "Reject Slugs" by F. C. Uffelman, Oak Ridge, dated 11-12-51) indicated that 1.8 grams of uranium per slug must have been removed by the canning process at Hanford. The best estimate at Hanford of the amount removed was considerably lower (Document HW-21695, "Loss of U_{235} During the Canning of Fuel Slugs", by L. G. Waters, dated 7-20-51). The S. F. Accountability Unit requested an investigation. A study revealed that the loss previously determined by Hanford was correct (Document HW-23358 "Comments on Fuel Slug Canning Loss", L. G. Waters to E. N. Wooley, January 25, 1952.)

From normal uranium slugs weighed immediately preceding and following deoxidizing the best estimate of the average loss of uranium per slug processed through the bath was found to be 0.00145 pounds, and the 99% confidence limits on this estimate ± 0.00015 pounds (Document HW-23259, "Best Estimate of the Average Loss of Uranium Per Piece Processed Through the Deoxidizing Bath", L. G. Waters to E. W. O'Rorke, January 11, 1952).

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Data from an experiment comparing uranium slugs canned in pre-heated can-sleeve assemblies with slugs canned by standard process treatment in the same bath, at the same time, and by the same operator revealed no statistically significant difference in penetration of the can wall by aluminum-silicon.

Data from the statistically designed experiment to determine the effect of welding machines and welders on the variation in the width of the weld bead of canned uranium slugs were analyzed. The analysis showed that these effects are not significant from an engineering viewpoint, and therefore can be disregarded in future welding studies. The weld bead penetration will be the next phase of the study. These experiments are being performed for setting up process specifications for better production control.

A review of the C-6 uranium oxide analytical results obtained during the past year was made for the purpose of establishing experience factors of the percentage of metal in oxides precipitated from nitric acid and in oxides precipitated from hydrofluoric acid. (Document HW-23237, "C-6 Experience Factors", L. G. Waters to E. W. O'Rorke, January 8, 1952). A study is being made to determine CRD-2 and CRD-6 uranium oxide experience factors to be used in processing material through the chip briquetting operation.

Statistical quality control results were reported on Metal Preparation Section operations at Machining, Pickling, Canning and Autoclave, Test Pile, and Melt Plant. Statistical results pertaining to the canning process for the year 1951 were supplied to the Pile Technology Unit as requested.

A statistical investigation of the effects of various water treatments on film build-up in 100-D Flow Laboratory tubes was begun for the Water Studies Group. Analysis of the relationship between thermocouple readings in B, D, and F, piles was continued for the Heat Transfer group. Analysis of slug failure data continued, with one person assigned on a full-time basis to this work. Correlation studies, curve fitting and preparation of charts were carried on. A fourth degree polynomial was derived for the Theoretical Physics group, and computation on graphite diffusion length from sigma-pile measurements were performed for the same group.

Consultation and research services was given the Pile Technology Unit on a problem dealing with Laplace Transformations and uniqueness criterion for the Stieltjes moment problem. In particular it was found that the set of moments which they were interested in were a unique set.

A study was made for the Engineering Department to determine the better of two alternate plans for the wiring of a battery of heaters. The analyses was made with regard to the expected life of the unit under each plan and the relative costs of the two methods of wiring, other conditions affecting the two heating systems being the same. The final decision was based upon the consideration of whether or not the increased expected life under Plan A was sufficiently larger than B to warrant the more expensive method of wiring called for in Plan A.

[redacted]

Four steps in a program of establishing reliability data for Redox, TBP, and UO_3 accountability were taken during the month. For Redox, a test involving duplicate sampling of metal solution at the first sampling point past the dissolver (in tank H-7) was planned and inaugurated. This test has the three fold objective of establishing the reliability of plutonium assays and uranium assays at this point, and of providing data for a control on these assays based upon a relationship between pile exposure and the ratio of plutonium to uranium in the metal solution. A similar test involving duplicate sampling of the Redox uranium product concentrate in tank E12 was planned and inaugurated for the purpose of establishing the reliability of the uranium assays at this point. Utilizing the weight factor and specific gravity instrumentation of tank H-7, at Redox, a third test to determine the precision of these measurements was planned and was executed by Separations Section operators. The result of this test in combination with the first two will show the reliability of plutonium and uranium measurements at H-7. In discussion with representatives of the Separations Section plans were made for similar evaluations at UO_3 in the near future.

In cooperation with representatives of the Process Unit, Separations Section, a program for statistical evaluation of all determinations made on Redox samples was developed. Immediately, such evaluations will be made on key samples, with extension to all samples as arrangements are made for personnel to handle the large volume of data.

Considerable effort was expended to find a suitable experimental procedure and a promising method for analysis of a proposed production test of extraction cycle variables in the $BiPO_4$ process. The objective of the test is to determine optimum times for the various steps in extraction so that plutonium losses will be a minimum, given any of several overall extraction time cycles. An experimental procedure which gives promise of providing data for adequate representation by a mathematical equation (which can then be employed to estimate the required optimum times) was recommended.

A summary for the year 1951 of Hanford - Los Alamos assay differences on product shipments was completed, and indicated two conclusions: first, that an average difference of 0.6% existed between the two sites, with Los Alamos the higher; second, that the previously noted lack of measurement control was shown by the data on the differences.

The running comparison of actual plutonium yields based on extraction plutonium assays with theoretical yield figures based on pile exposure, was maintained up-to-date.

The regular semi-monthly reports of certain Kr-85 computations were completed and forwarded to the AEC.

An experiment was designed and the resultant data were analyzed for the Analytical Unit on the effect of acid and oxalate concentrations on the

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circumin color development method for assay of boron. As a result of this experiment optimum conditions for acid and oxalate were established.

Analysis of plutonium distribution data relating to Recuplex studies was completed early in the month.

In connection with Columbia River water radioactivity studies, a comprehensive experiment was designed to discover the major sources of error in measuring the activity in 107 water basins and was completed by the Radiological Sciences Department. Analysis of the data showed that the primary source of error is due to analytical procedures, rather than to the sampling methods or counting instruments.

Control limits based on 96 plants grown in the Radiological Sciences Biology Section climatizer unit were obtained to apply to plant dry weight and uptake of Sr 89. In addition, the relative amounts of variation due to counting and biological procedural errors were estimated.

A statistical study is being performed on stores data for the Procedures Analysis group, to derive optimum levels of inventory for those items having definite demand distributions. Data submitted by the Operations Procurement Unit is being analyzed to re-evaluate the estimates of inventory on hand. Relationships between material usages in the various areas are also being investigated.

A project is underway to place in the hands of the statisticians useable and applicable abstracts of the statistical techniques obtained from the recent extensive review of mathematical research literature. One pamphlet dealing with a general problem in testing hypotheses has been prepared and two others are near completion. Such a set of pamphlets will be an invaluable aid to the statisticians in the determination of the most expeditious and efficient manner of solving various statistical problems.

COMPUTING UNIT:

The weekly and monthly cost analysis reports prepared for the Financial Department constitute the body of the accounting work processed this month. These reports are an integral part of the plant cost accounting system. Promptness and accuracy are of primary importance. Commitments have been made to the Financial Department on the completion dates of these reports through May, 1952.

The routine weekly and monthly reports of the cost distribution classification of non-exempt labor for the Technical Section of the Engineering Department were prepared. The cost classifications desired requires a complicated sorting of cost code figures, a procedure ideally suited to IBM methods.

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The initial stage of the Debasset calculation is nearing completion. This project has involved the recording of historic financial data on IBM cards by the mark sense method (direct marking of cards by pencil). Approximately 249,000 cards were involved. At least one statistical report of the Debasset data is contemplated. It will be prepared upon completion of minor changes in the original data.

Monthly statistical reports on public health activity are being placed on the machines for the Medical Department beginning with the January report. Preliminary reports have been prepared and approved. Five types of reports will be printed each month from data submitted on mark sense cards. In addition to supplying the statistical needs for the local office, the cards will be forwarded to the State office for their use.

Salary and rating statistics for exempt employees are reported routinely on a monthly basis. Much of this work is still in the development stage, however, and will require procedure work to reach the desired efficiency. Considerable time is spent on file maintenance as many of the items recorded on cards are subject to frequent changes. This is highly confidential information and is restricted to one operator.

A tentative procedure has been completed for calculating and preparing electricity bills by machine. Meter readings will be recorded directly on cards by mark sensing and the process will be automatic from reading to bill printing. Printed cards and bill forms for a three months supply have been procured. The master card file for residential meters has been set up and checked. Changes are being made in this file to keep it current. The master file for the commercial users has been punched and is presently in the hands of the Electrical Distribution and Telephone Section to establish reading sequence and to enter meter numbers. Complete listings will be made for verification by the Electrical Distribution Unit and the Community Real Estate Section.

Motorized equipment costs and statistical reports for all Hanford Works mileage vehicles have been prepared by machine for the fiscal years 1950 and 1951. Six types of reports are printed each quarter and several additiona additional types are made for annual reports. Considerable clerical and contact work is involved in order that controls may be maintained between AEC and contractor records. The quarterly reports for the period ended December 21 are now almost complete. Additional statistics and changes in report forms have been requested by the Transportation Section. The AEC has also indicated a need for additional information. At present it appears that both needs will be met with a single procedural revision.

One of the most important scientific calculations made during the month pertained to the slug rupture problem. Listings are being prepared for each discharge at each pile for the year 1951 and will be prepared routinely for each discharge henceforth. The following frequency distributions are listed for each discharge: (1) tube exposure level, (2) power per

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tube at discharge (obtained by applying a correction factor to the average power over the exposure interval), (3) exposure level of slugs remaining in the pile, and (4) power per slug. Frequency distributions of charging date, discharge date and exposure levels at discharge for all 1951 discharges are also being prepared. This information may be requested routinely on future discharges.

It appears that a solution may be obtained for the buckling of a cube in an infinite reflector. A promising approximation has been obtained and it appears that better approximations can be calculated. This buckling problem is basic to the theory of pile physics and a solution will be of considerable value.

Work has begun on water flow calculations on 105-H data. On the basis of Panellit pressure readings and empirical constants calculated by pile engineers the water flow per tube is determined. Frequency distributions are made and the total flow calculated which is compared to flow gauge readings. A further check is made by calculating power per tube and comparing the results to corresponding pile power readings.

A machine method is being prepared to solve square matrixes of varying size with dominant main diagonal. Solutions for all of the variables in each case will not be required.

The integration of the xenon density over the pile to determine reactivity loss has been completed. The Gamma flux problem for the laminated shield has also been completed. The results represent the uncollided flux at any point. Both of these problems involved very extensive calculations of a complicated nature.

Programming has been completed for the calculation of the maximum slug jacket temperature and maximum axial temperature and calculation is under way on 20 sets of data. Calculation of 320 cases of maximum slug skin temperature was completed.

The values of 1800 constants have been calculated to determine coefficients in a set of simultaneous equations. The solution of the equations will make possible the calculation of various stress relationships. A method of handling determinants of order larger than 20 using the internal memory of the machine has been developed which will expedite the calculation of the above simultaneous equations.

Several numerical integrations involving Bessel functions, solutions to simultaneous equations, and series summations were evaluated. Routine calculations were made on special request exposures, aquatic biology, sheep thyroid, meteorological data, wind distribution, graphite temperature, printing of temperature maps, pile temperature data, and a backlog of 6 months of metal quality data.

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COMPUTING UNIT IBM Services	IBM Card Volume	Machine Utilization Index	Number of Reports
FOR THE MANUFACTURING DEPARTMENT			
Metal Quality Studies	750	21	1
FOR THE ENGINEERING DEPARTMENT			
Slug rupture studies	152,900	1047	11
Xenon studies	2,500	334	2
Pile reactivity study	2,100	214	1
Radiation shielding study	6,000	5	1
Graphite temperature study	2,100	152	1
Series Summation	5,000	342	1
Flow Laboratory studies	1,600	24	1
Slug temperature studies	5,150	309	3
Slug stress analysis calc.	2,840	224	
Totals	180,190	2651	21
FOR THE RADIOLOGICAL SCIENCES DEPARTMENT			
Meteorological Studies	3,350	69	1
Aquatic Biology	400	29	1
Totals	3,750	98	2
FOR THE MEDICAL DEPARTMENT			
Public Health Activities	2,500	63	5
FOR THE EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT			
Manpower Survey	1,000	5	3
FOR SALARY ADMINISTRATION			
Exempt Salary Statistics	5,500	105	11
FOR THE FINANCIAL DEPARTMENT			
Technical Section Payroll Statistics	8,000	338	6
Exempt Salary Distribution	61,500	1300	14
General Payroll Distribution	27,800	565	10
Manufacturing Work Order Cost	33,000	538	38
Community Work Order Cost	17,000	243	26
General Work Order Cost	54,500	710	36
Debasset	3,000	697	20
Motorized Equipment Costs	11,500	200	14
Electricity Billing	6,000	8	
Totals	222,300	4599	164
FOR THE ATOMIC ENERGY COMMISSION			
Motorized Equipment Reports	2,400	173	6
GRAND TOTALS	418,390	7715	213

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EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

SUMMARY -- JANUARY, 1952

The number of applicants interviewed in January was 1,538 as compared to 1,110 in December. Of these applicants, 457 were individuals who applied for employment with General Electric for the first time. In addition, 150 new applications were submitted through the mail. Open, nonexempt, nontechnical requisitions decreased from 178 at the beginning of the month to 149 at month end. Total plant roll decreased from 9,104 to 9,094. Turnover rate increased from 1.41% in December to 1.64% in January. During January, 54 new requests for transfer to other type of work were received in the Employment Office, and 22 transfers were effected. Attendance recognition award pins and wallet cards were distributed and presented to 123 employees who qualified for one-year awards during December. A committee of 8 women employees met during the month to discuss and plan the forming of a Women's Club, with tentative arrangements being made to introduce the plan at a dinner-style show during March.

Five employees died during the month, and two employees retired. One hundred eighty-six visits were made to employees confined at Kadlec Hospital and 67 checks were delivered to employees confined either at home or at the hospital. At month end, participation in the Pension Plan was 95.1%, in the Insurance Plan 98.2%, and in the Employee Savings and Stock Bonus Plan 48.1%. During January, final arrangements were made with the Apparatus Office in Seattle to purchase certain G.E. items of merchandise at employee discounts which cannot be obtained locally. To date 183 employees have retired at Hanford Works. As of the end of January, there were 1,036 employees registered under Selective Service, and 758 military reservists on the rolls. Since August 1, 1950, 178 employees have terminated to enter military service, of which 15 have returned, leaving 163 still in military leave status.

The Management Orientation Program was presented January 7, 1952, for the first time. An 8-Hour program designed to welcome new exempt personnel to the "management team" and how necessary information and management aids will be made available, this program was attended by 65 new exempt personnel enrolled from all major departments of the Nucleonics Division.

A new Supervisors 40-Hour Training Program was presented during the week of January 14-18. A total of 9 supervisors were enrolled by the departments to attend this program.

Four groups completed their Principles and Methods of Supervision conferences on January 29, and will attend a special dinner meeting early in February. Groups 21,22,23, and 24, completed PMS Conferences through No. 8 session.

Including 1 reinstate and 109 new employees, a total of 110 were given Orientation during January.

HOBSO was presented before a group of 63 members of the Lions Club at Grandview, Washington, and 32 members of the Seattle First National Bank, Richland Branch Office.

Personality Development presentations were made to two groups totaling 82 persons.

Employee and Public Relations
Summary

Training accomplishments include the preparation and completion of the Training Section Accomplishment Report for 1951, in addition to the development of training manuals for all programs which are being presented or to be presented by the Training Section through 1952.

In-Service Training meetings included a discussion of Roethlisberger's paper on "Training Supervisors in Human Relations" and Andrews' paper on "Executive Training by the Case Method".

A total of 51 news releases were distributed during the month. Of these, 18 were sent to the "local list". Ten stories were written for the Walla Walla Union Bulletin progress edition.

Information on Richland, its crime rate, its churches, and the education level of Hanford Works employees was sent to the Christian Century.

Luncheon meetings with community leaders were held. Approximately 125 business, religious, school and professional leaders heard the Assistant General Manager discuss General Electric's 1951 plant and community accomplishments.

The first issue of the Hanford Works NEWSLETTER was mailed to approximately 225 business, religious, school and professional leaders in Richland.

A total of fifteen speeches and lectures were delivered by Hanford Works personnel, and nine manuscripts and tests were submitted for clearance during the month of January.

Talks about civil defense were given by local CD officials before approximately 200 businessmen, ministers, educators and professional leaders.

Civil defense movies were shown to 660 members of clubs and organizations in Richland and G-E personnel.

A total of 8,763 prints of photos were produced during the month. Of the total prints produced, 6,154 were for employee identification and area admittance badges.

Seven films were booked during the month for showings in the community.

Seven spot announcements were written, recorded, and released to local radio stations as a community service to various local projects.

Three women's pages were prepared and published in the Works NEWS during the month.

Three different letters were written to supervisors during January.

The annual report of the Employee and Public Relations Department, entitled "The E and PR Record," was produced in newspaper form.

Twenty-six layouts, five sketches and designs with 14 illustrations were completed by the illustrator for departmental clients during the month.

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Employee and Public Relations
Summary

Due to AEC's assuming responsibility for Construction, the Hanford Atomic Metal Trades Council withdrew their petition for representation election covering Janitors on the D & C rolls. The HAMTC notified the Company that it is taking to arbitration the grievance filed as a result of the discharge of bus driver Loren Taylor. The Davis Panel has taken jurisdiction on the union shop issue.

WSB forms were sent to the New York Office on the change in vacation schedule to three-weeks' vacation after 15 years of service.

WSB granted 62½-cent per day increase in isolation pay, $2.52 per hour to Sheet Metal Workers and 50-cents per day increase for Plumbers.

Godfrey Schmidt of the Davis Panel was in Richland to confer with parties in the Machinists' Dispute. No progress was made in the Boilermaker negotiations. The Technical Engineers peittioned NLRB to expand bargaining unit. Elevator Constructors requested an increase to $2.70 (now $2.56). Boilermakers refused to supply men to AJ lump sum subcontractors. An Operating Engineers' work stoppage occurred on January 18; settled on January 21. A jurisdictional dispute between the Ironworkers and the Plumbers & Steamfitters resulted in a work stoppage from January 22, to January 28, which involved approximately 2,000 men. Twenty-six Machinists were off the job on January 30, due to a jurisdictional dispute with the Millwrights.

EMPLOYEE AND PUBLIC RELATIONS DEPARTMENT

JANUARY, 1952

ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective January 7, 1952, an H.I. Inspector in the Separations Section of Manufacturing was transferred to Investigations and Files as an Employment Investigator.

Effective January 7, 1952, a Messenger was engaged and assigned to Investigations and Files to replace a Messenger who terminated voluntarily in December.

Effective January 28, 1952, a General Clerk "D" assigned to Investigations and Files was transferred to Employee Services.

Training and Program Development

Effective January 17, 1952, one Technical Gradnate on three-month job rotation was assigned to this section.

Public Relations

Effective January 9, 1952, one Publicity Writer was added.

Effective January 28, 1952, one Reporduction and Photographic was added.

Union Relations

Effective January 25, 1952, one General Clark "B" was deactivated due to personal illness.

Number of Employees on Roll	January, 1952
Beginning of Month	109
End of Month	113
Net Increase	4

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Employee and Public Relations

ACTIVITIES

Employment and Employee Services

Employment

	December, 1951	January, 1952
Applicants interviewed	1,110	1,538

457 of the above applicants interviewed during January were individuals who applied for employment with the Company for the first time. In addition, 150 new applications were received through the mail.

Open Requisitions	December, 1951	January, 1952
Exempt	1	2
Nonexempt	178	149

Of the 178 open, nonexempt, nontechnical requisitions at the beginning of the month, 95 were covered by interim commitments. Of the 149 open, nonexempt, nontechnical requisitions at month end, 78 were covered by interim commitments. During January, 117 new requisitions were received requesting the employment of 132 nonexempt, nontechnical employees.

	December, 1951	January, 1952
Employees added to the rolls	162	139
Employees removed from the rolls	128	149
NET GAIN OR LOSS	+ 34	- 10

Of the 149 employees removed from the rolls, 3 were removed due to lack of work, and all were outside the bargaining unit.

Turnover:	December, 1951		January, 1952	
	Male	Female	Male	Female
Including employees who were laid off for lack of work	.89%	3.36%	1.06%	3.81%
Excluding employees who were laid off for lack of work	.80	2.95	1.06	3.65

Over-all Turnover:	December, 1951	January, 1952
Including employees who were laid off for lack of work	1.41%	1.64%
Excluding employees who were laid off for lack of work	1.25	1.60

During January, 33 employees terminated voluntarily to accept other employment, 19 terminated to leave this vicinity and 10 terminated to remain at home.

Employee and Public Relations

Transfer Data

Accumulative total of requests for transfer received since 1-1-52	54
Number of requests for transfer received during January	54
No. interviewed in January, including promotional transfers	96
Transfers effected in January, including promotional transfers	22
Transfers effected since 1-1-52, including promotional transfers	22
Transfers effect in January for employees given lay off notices	3
Transfers effected since 1-1-52 for employees given lay off notices	3
No. of stenographers transferred out of stenographic pool in January	3
Transfer requests active at month end	165

During January, 29 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 123 employees in January, who qualified during December.

In addition to regular correspondence, the Auto Typist handled 10 letters for Employee Services, 87 letters for the Medical Department, and 48 letters for Technical Personnel during the past month.

A committee of 8 women employees met on January 30 to discuss and plan the forming of a Women's Club. It was decided to present the idea at a style show with a dinner or dessert-coffee preceding the show. A tentative date for the style show was set for March 13. A flyer announcing the style show will be sent out immediately to all women employees. After the questionnaires are returned the committee will again meet for further planning.

A total of forty female employees were visited at the hospital and given assistance in completing disability benefit applications. Checks were distributed each Friday to female employees hospitalized or ill at home.

A special service call was made to North Richland on January 17 to visit an employee absent three consecutive days without advising her supervisor.

Employment Statistics

Number of employees on rolls	12-31-51	1-31-52
Exempt - Male	1,947	1,950
Female	56	57
	2,003	2,007
Nonexempt - Male	5,180	5,181
Female	1,865	1,850
	7,045	7,031
Community Firemen	56	56
TOTAL	9,104	9,094

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Employee and Public Relations

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Community Firemen	Total
New Hires	5	96	0	101
Re-engaged	0	1	0	1
Reactivations	1	36	0	37
Transfers (from other plants)	0	0	0	0
Actual additions	6	133	0	139
Payroll Exchanges	19[a]	1[b]	0	20
GROSS ADDITIONS	25	134	0	159

TERMINATIONS FROM THE ROLLS

Actual terminations	11	90	0	101
Removals from the rolls (deactivations)	4	39	0	43
Payroll exchanges	1[c]	19[d]	0	20
Transfers (to other plants)	5	0	0	5
GROSS TERMINATIONS	21	148	0	169

GENERAL

	12-1951	1-1952
Applicants interviewed	1,110	1,538
Photographs taken	255	370
Fingerprint impressions (taken in duplicate)	273	427

ABSENTEEISM STATISTICS (Weekly Salary Roll) [e]

Male	2.15%	2.22%
Female	4.36	4.28
Total plant average	2.57	2.65

PERSONNEL SECURITY QUESTIONNAIRES PROCESSED

General Electric cases	140	122
Facility cases	57	78
TOTAL	197	200

INVESTIGATION STATISTICS

Cases received during the month	261	144
Cases closed	347	338
Cases found satisfactory for employment	284	148
Cases found unsatisfactory for employment	11	6
Cases closed before investigations completed	5	27
Special investigations conducted	13	7

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PRIVACY ACT MATERIAL REMOVED

Employee and Public Relations

PERFECT ATTENDANCE RECOGNITION AWARDS

Total one-year awards to date	2,504
One-year awards made during January for those qualifying in December	123

a Transferred from Weekly Payroll
b Transferred from Monthly Payroll
c Transferred to Weekly Payroll
d Transferred to Monthly Payroll
e Statistics furnished b 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	186
Salary checks delivered to employees at Kadlec Hospital	50
Salary checks delivered to employees at home	16
Disability checks delivered to employees at home	1

As of the end of January, participation in Company Benefit Plans was as follows:

Pension Plan	95.1%
Life and Health Insurance Plan	98.2
Employee Savings and Stock Bonus Plan	48.1

Five employees died during January, namely:

W-2145-ZW, Manufacturing;
W-6031-VMW, Community Real Estate and Services;
W-4191-UB, Utilities and General Services;
, W-3311-YW, Manufacturing; and
W-8327-UB, Utilities and General Services.

Forty-six letters were written to deceased employees' families during January, concerning payment of monies due them from the Company, as well as answering other pertinent questions for them.

Since September 1, 1946, 77 life insurance claims have been paid totaling $ 423,000.00.

Two employees retired during the month, namely:

H. R. Hills, W-8959-VMR, Community Real Estate and Services; and
D. R. Manning, W-7933-MP, Manufacturing.

During January, 40 letters were written to retired employees providing them with information of a general interest to them. To date 183 employees have retired at Hanford Works.

In connection with the Pre-Retirement Program, 35 contacts were made during January.

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PRIVACY ACT MATERIAL REMOVED

Employee and Public Relations

During January, final arrangements were made with the Apparatus Office of the Company in Seattle to purchase certain items of G.E. merchandise at the employee discount which cannot be obtained locally.

Military Reserve and Selective Service

The statistics with respect to employees registered under Selective service are as follows:

Employees registered	1,036
Employees registered who are veterans	497
Employees registered who are nonveterans	539
Employees vulnerable to the draft	378
Deferments requested to date (including renewal requests)	432
Deferments granted	279
Deferments denied and appealed at state levels	17
Deferments denied and appealed at national level	2
Deferments denied by local board and not appealed	2
Deferments denied by state board and not appealed	3
Deferments denied at natl. level (by Gen.Hershey's office)	1
Deferments denied by local and state board and pending for review	4
Deferments requested, employees later reclassified	44
Deferments requested, later withdrawn	25
Deferments pending	55

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on the rolls	758
Number who returned to active duty to date	89
Number who returned to active duty in January	0
Deferments requested to date	104
Deferments granted	96
Deferments pending	1
Deferments denied	4
Deferment requests withdrawn	3

Military terminations since 8-1-1950 are as follows:

Reservists recalled	89
Selective Service	87
Female employees enlisted	2
TOTAL	178

Employees returned from military service:

Reservists	14
Selective Service	1
TOTAL	15

Number of employees still in military leave status 163

Employee and Public Relations

TRAINING AND PROGRAM DEVELOPMENT

MANAGEMENT ORIENTATION PROGRAM was presented January 7, 1952 for the first time. An 8-hour program designed to welcome new exempt personnel to the "management team" and how necessary information and management aids will be made available. This program was attended by 65 new exempt personnel enrolled from all major departments of the Nucleonics Division. Mr. W. E. Johnson gave the welcoming comments to this group.

NEW SUPERVISORS 40-HOUR TRAINING PROGRAM was presented during the week of January 14-18. A total of 9 supervisors were enrolled by the departments to attend this program. This was the first presentation of this program since it was re-edited for new supervisors, and through an anonymous questionnaire survey it was learned that participants definitely felt that this helped to improve the "part of management" feeling among supervisors and the feeling of being a member of our General Electric family. Considerable time was spent in the editing of the material and revision of continuity throughout this program to assure uniformity in conjunction with other management training. On Friday of this program week, a special luncheon was held at which time Mr. H. E. Callahan gave a talk on the importance of human relations in every supervisor's job.

PRINCIPLES AND METHODS OF SUPERVISION. The four groups, 17, 18, 19 and 20, completed their conferences on January 29 and will attend a special dinner meeting early in February. Groups 21, 22, 23 and 24 completed PMS Conferences through No. 8 session. Consideration is being given to offering PMS to supervisors working shift in a straight 40 hour presentation. This will be discussed with members of senior management at Hanford Works.

SUPERVISOR'S HANDBOOK ON EMPLOYEE RELATIONS. Complete inventory of Handbooks issued and on hand indicate that 1478 of the 1500 total copies are assigned. Lists of Handbook holders will be sent to Section Managers requesting the return of any copies not properly assigned since we now have a waiting list of approximately 150 supervisors on our Handbook list.

ORIENTATION OF NEW EMPLOYEES. Including 1 reinstate and 109 new employees, a total of 110 were given Orientation during January. Of this number, 90.9% elected to participate in our Group Insurance Plan; and 90.9% elected to participate in the Pension Plan. Opportunity to sign up to participate in the Pension Plan was made a part of Orientation effective January 2, 1952.

NON-EXEMPT 8-HOUR TRAINING PROGRAM was attended by a total of 95 employees at four meetings conducted during January. This is an informative program designed to assist new employees in better

understanding the organization and some of the plans, policies and procedures which affect them in their activities. Comments from the supervisors of participating employees in this program state that this informative method is assisting considerably in building better morale and improving attitudes. All of the participating members at this program in January were employees of the D&C Services Unit of the Engineering Department.

HOBSO was presented before a group of 63 members of the Lions Club at Grandview, Washington, and 32 members of the Seattle First National Bank, Richland Branch Office, at the request of these two organizations.

PERSONALITY DEVELOPMENT PRESENTATION was presented to the employees of the Seattle First National Bank, Richland Branch, at their request and 32 were in attendance. It also was presented before the Business and Professional Women's Club of Kennewick with 50 members in attendance. This is a presentation developed by a member of Training Section and much in demand because of the importance attached to personality and attitude by business people.

TRAINING ACCOMPLISHMENTS include the preparation and completion of the Training Section Accomplishment Report for 1951 in addition to the development of training manuals for all programs which are being presented or to be presented by Training Section through 1952. A complete inventory manual has been established of Training material now on hand. A technique manual is being prepared to assist all Training personnel in the fine points necessary as qualifications in this profession. The following program manuals have been completed: 9-Point Better Job, Management Orientation, Supervisors 40-Hour Training, Supervisor's Handbook, and Non-Exempt 8-Hour Training Program.

ORGANIZATION. Miss Norvelle Ebbersol has been assigned to Training Section for a three month period beginning January 17, 1952. This is in accordance with job rotational schedule established by Technical Procurement for this new Tech Grad.

IN-SERVICE TRAINING meetings were held in conjunction with section staff meetings and included a discussion of Roethlisberger's paper on "Training Supervisors in Human Relations" and Andrews' paper on "Executive Training by the Case Method".

SALE OF "MEN AND VOLTS". In January the last issue of "Men and Volts" was sold and 100 additional copies have been ordered from Schenectady.

Employee and Public Relations

TRAINING AND PROGRAM DEVELOPMENT

BOOKLETS. During the month of January, 52 copies of the HAMTC Agreement were furnished to Union Relations Section, 250 Pension Plan booklets to Monthly Payroll Section, 10 Safety booklets to Housing Unit, and 600 Employee Security booklets to Technical Procurement. This distribution is in addition to these booklets being given to new employees at time of orientation.

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PUBLIC INFORMATION

A total of 51 news releases were distributed during the month. Of these, 18 were sent to the "local list" and four were sent to the "daily list". Nineteen were answers to special requests from various newspapers. Ten feature stories were written for the Walla Walla Union Bulletin progress edition.

Fifteen requests were received and answered from the Tri-City Herald. Subjects included the "Richland Town Plan", ground leases, parking space, 3.58 per cent an hour wage increase, discharged G.E. employee still holding a house, poundmaster resignation, and total community fire loss in 1951.

Two requests were received from the Columbia Basin News concerning wage rates for craftsmen and what G.E. thinks about the Greenway.

The Dalles Chronicle requested material on the progress of developing electricity-producing nuclear reactors.

The Spokane Chronicle stringer requested information on the Richland telephone system.

Information on Richland, its crime rate, and churches and the education level of Hanford Works employees was sent to the Christian Century.

Arrangements were made with radio stations KALE and KWIE whereby a representative of each station would pick-up news releases each day in the News Bureau office.

Luncheon meetings with community leaders were held. Approximately 125 business, religious, school and professional leaders heard the Assistant General Manager discuss General Electric's 1951 plant and community accomplishments, as well as anticipated developments of the future. The Chairman of the Hanford District Civil Defense Development Committee talked about the local CD organization and its achievements, to-date. Messages by both speakers were recorded and scheduled for local radio release. Name cards for both luncheons were made up and distributed to each guest attending. An informal survey showed that the community leaders felt the meeting was interesting and informative. They expressed a desire for similar meetings in the future.

The first issue of the Hanford Works NEWSLETTER was mailed to approximately 225 business, religious, school and professional leaders in Richland. Such subjects as the current employment situation at Hanford Works, Company activities, and G-E benefit plans are discussed in the NEWSLETTER.

A total of nine manuscripts and texts were submitted for clearance during the month.

A total of fifteen speeches and lectures were delivered by Hanford Works personnel during the month of January.

The General Manager appeared as principal speaker on four occassions during the month: Yakima Chamber of Commerce, January 7, 1952, on the subject of "Hanford Works and the Atomic Energy Program"; Kiwanis Installation Banquet, Kennewick, Washington, January 9, 1952; Kiwanis Club, Spokane, Washington, January 31, 1952, "Hanford Works and the Atomic Energy Program". Mr. Prout also delivered the welcoming address to the Richland businessmen's luncheon on January 24, and gave his annual report

Message" at a meeting of Hanford Works Supervisors on January [illegible].

The Public Relations Manager appeared on two occassions during the month: Kennewick Parent-Teacher Association, January 14, "Atomic Energy...from a Layman's Viewpoint"; and Supervisor's 40-Hour Training Program, Richland, Washington, January 17, "Public Relations in Human Relations".

The Assistant General Manager was principal speaker on two occassions during the month: Richland businessmen's luncheon, January 24, and Richland Ministers and Educator's Luncheon, January 31, "Some Accomplishments at Hanford Works."

The Hanford District Civil Defense Director spoke on Civil Defense at the businessmen's and ministers' and educators' luncheons on January 24 and 31.

At the request of the Technical Association of the Pulp and Paper Industry, a speaker was furnished on the occassion of their Pacific Section semi-annual meeting. The speaker was Dr. John H. Rediske, Radiological Sciences Department, "Radioisotope Tracers in Industry", Olympia, Washington, January 14.

The Director, Radiological Sciences, spoke to the Richland Chapter, A.S.M.E., January 17, "Nuclear Hazards in Mechanical Engineering."

A member of the Training Section spoke on two occassions during the month: Kennewick Business and Professional Women's Club, Kennewick, January 17, and Richland Branch, the First National Bank, January 23, "Personality Development".

Civil Defense news stories and pictures released to local newspapers and the Works NEWS concerned the following: the contents and distribution of CD Bulletin No. 7; distribution of an illustrated A-bomb booklet to school children; a meeting of the Warden Services Group; the role of the schools and the clergy in Civil Defense.

Civil Defense Bulletin No. 7, "What You Should Know About Biological Warfare", was distributed to Richland and North Richland residents.

A biological warfare publicity schedule was outlined for incorporation in the overall civil defense public information program.

The Civil Defense Basic Plan was reviewed to be certain that the portion pertaining to the functions of the Public Relations Section is accurate.

Local schools were furnished 6500 copies of the civil defense comic book, "What You Can Do When An Atom Bomb Strikes." The booklet was distributed to all Richland and North Richland school children.

Talks about civil defense were given by local CD officials before approximately 200 businessmen, ministers, educators, and professional leaders, as well as members of the Lions Club and nurses at the local hospital.

CD movies were shown to 660 members of clubs and organizations in Richland and G-E personnel.

[illegible]iological Warfare", a fifteen minute CD radio program, was cast and tape recorded from among Public Relations personnel.

more

The Warden Service has been concerned with fitting the personnel from the old organization into the new organization. This entails placing each Warden in the new Block, Zone, and District outlines. Each District Warden was presented with lists of the zone personnel who still are on the project.

Bulletin No. 1, Warden Organization Functions, was prepared and distribution begun to the wardens. Bulletin No. 1 supplements the Preliminary Draft of the Basic Plan.

A CD meeting of all the District Wardens and any Zone people whom they had contacted was held in the Banquet Room at the Community House. The G.E. film "And A Voice Shall Be Heard..." was shown. Distribution of Preliminary Draft of Basic Plan and Bulletin No. 1 was made. About 13 wardens attended.

PHOTOGRAPHIC SERVICES

A total of 8,763 prints of photos were produced during the month. Of the total prints produced, 6,154 were for employee identification and area admittance badges.

See statistical report of Photo House activities attached.

PROGRAM DEVELOPMENT

A total of seven films were booked during the month for showing to civic and plant groups. Films also were requested by the Public Information Office of the Atomic Energy Commission at Hanford Works.

"Here's to Your Health", was shown to a Kadlec Hospital Safety meeting. The hospital employees present were impressed favorably by the film, and it was felt that employee relations were benefited by the showing.

Production is underway on sound-slide films requested by Hanford District Civil Defense and Employee Relations, the latter on the Suggestion System.

An auditorium presentation was coordinated for the General Manager's annual report of accomplishments and 1952 objectives to the Hanford Works Supervisors. The presentation included a color slide chart feature, tape-recording, slogan-banner and all details pertinent to a finished production for a secured meeting.

A total of seven spot announcements were written, recorded and released to local radio stations as a community service.

Four 15-minute interviews with Richland physicians that will form part of a Public Health Radio Program Series were tape-recorded.

The testimony of sixty-five witnesses was tape-recorded for Union Relations in a current case and was an important aid in providing an expeditious and accurate decision from testimony of key witnesses.

An address made to the Kennewick Parent-Teachers' Association by the Manager, Public Relations on January 14 was rerecorded at the request of the Post Commanding Officer at Camp Hanford for use by his staff officers in educational meetings.

Two network radio stations at Spokane tape-recorded and broadcast, as public service features, an interview conducted with the General Manager, and a 30-minute program of his address before the Kiwanis Club in that city on Thursday, January 31.

15

4-4-4-4-4-4

A half-hour radio progra, "Science Forum", was requested from WFL, Schenectady and auditioned.

Arrangements were completed for the installation of two horn-type speakers on the marquee of the 705 Building for use in transmitting tape-recorded Safety and Traffic messages to motorists and pedestrians during congested periods and inclement weather.

Public address system and recording equipment was installed in Chief Joseph Junior High School to record the General Manager's Annual Report to Supervisors and a transcript was produced. The annual message to all General Electric Supervisors was reviewed in the Works NEWS with emphasis given to the progress that has been made at Hanford Works over the last five years.

Auditions were held on the proposed radio program for Kadlec Hospital following the present 13-weeks period.

Visual aid material was furnished for the Manager, Radiological Sciences, in conjunction with a presentation made to the Wahluke Slope Committee.

EMPLOYEE INFORMATION

Three women's pages were prepared and published in the Works NEWS during the month. The pages featured a story on child care and mental health classes offered in Columbia High Adult Education program.

Safety gifts being awarded all Hanford Works people for winning the Nucleonics Safety Council Award were pictured in the Works NEWS, and continual information has been published advising people on how to make their selections.

The Red Cross Blood Program has been publicized from time to time in the Works NEWS. A full page feature was devoted to it showing Hanford Works people donating blood, and the names of donors were run. In a following issue a letter from a former employee showing his association with the program in Japan was run to help publicize the program.

The Adult Evening School received full coverage in the Works NEWS on their announcement of new classes just starting.

A new column on property management, was introduced to the Works NEWS at the request of A.E.C. The column, which will appear from time to time, will explain employees' responsibilities for handling and care of government property.

Bids for printing of Hanford Works NEWS were called by Purchasing. Anticipated performance of the Works NEWS for the coming year was provided to bidders as the basis for figuring their bids. Arrangements were made for bids to be opened in the presence of the interested bidders, and Columbia Basin News was the successful bidder.

A form was printed and installed in the employment section whereby newly-hired employees give personal information and pictures for publicity in small weeklies and home town papers. Arrangements are now underway to have pictures included in the Works NEWS on all new employees. Efforts are being made to run pictures of people representing all job classifications on the plant. It is expected that pictures of new employees will help them feel more welcome and help acquaint old employees with new people coming on the job. Forms are now awaiting completion. Employment has not yet

approved the latter plan.

Letters to supervisors included the following subjects: reallocation of responsibility between G.E. and the A.E.C. for construction; General Manager's annual report meeting; Salary Stabilization Board's approval of a change in Hanford Works holiday pay policy, and a letter concerning the General Manager's radio broadcast.

The health bulletin for February "What About Backaches" was written and produced.

The safety topic of the month for February "Basic Facts are Essential" was written and produced for distribution to all supervisors.

The 1951 Safety Report, a 12-page, 2-color offset booklet, was produced and distributed to all supervisors.

A special four-page Works NEWS insert celebrating 200-E Area's third consecutive major injury free year was produced.

A reprint of 6,000 copies of "Let's Get Acquainted," Kadlec Hospital booklet, was ordered.

The annual report of the Employee and Public Relations Department, entitled "The E and PR Record," was produced in newspaper form.

A G-E Photo News Service type poster concerning the recent $1500 suggestion award was produced locally and placed in the standard poster frames throughout the plant.

Twenty-six layouts, five sketches and designs with 14 illustrations were completed by the illustrator for Departmental clients during the month.

Ten editorial cartoons were drawn and reproduced in the Hanford Works NEWS during January.

A hand-lettered sheep-skin scroll was prepared for presentation to the retiring assistant to the General Manager.

See attached News Bureau Space Report

NEWSPAPER SPACE REPORT
December, 1951
As Compiled from the Nucleonics Division News Bureau clipping files

SUBJECT	NEWSPAPER	COL. IN.	PHOTOS
Recreation	Tri-City Herald	22	3
	Columbia Basin News	21	2
	Richland Reporter	16	
	Walla Walla Union Bulletin	10	
Civil Defense	Richland Reporter	8	
	Tri-City Herald	3½	
	Columbia Basin News	5½	
Community Construction	Walla Walla Union Bulletin	6½	
Plant Safety	Columbia Basin News	17	
	Walla Walla Union Bulletin	21	
	Tri-City Herald	13	
	Seattle Post Intelligencer	1½	
	Yakima Herald	3½	
	Olympian Daily	2	
	Port Angeles	2	
	Yakima Republic	3	
	Spokesman-Review	8	
	Spokane Chronicle	6	
Employee Benefit Plan	Hanford Works News	5½	
	Tri-City Herald		1
	Walla Walla Union Bulletin	6½	
	Yakima Herald	2½	
	Columbia Basin News	9½	
Medical	Hanford Works News	10	
	Columbia Basin News	4½	
	Seattle Post Intelligencer	1½	
	Tri-City Herald	6½	
	Seattle Times	1	
	Walla Walla Union Bulletin	7½	
Plant Hiring	Columbia Basin News	13½	
	Walla Walla Union Bulletin	9	
	Tri-City Herald	8	
Personnel General	Tri-City Herald	3	
	Yakima Herald	2	
	Walla Walla Union Bulletin	1½	
	Columbia Basin News	3	1
	Hanford Works News		1
Speakers	Journal of Commerce, Seattle	4	
	Walla Walla Union Bulletin	12½	
	San Francisco Pacific Coast Business and Shipping Register	22	
	Columbia Basin News	7	

more

NEWSPAPER SPACE REPORT

Community General	Walla Walla Union Bulletin	3	
	Columbia Basin News	8½	1
	Tri-City Herald	6½	1
Plant General	Spokane Chronicle	6	
	Seattle Times	2	
	Oregon Journal	2½	
	Tri-City Herald	14	
	Columbia Basin News	10½	
	Hanford Works News	7½	
	Yakima Herald	44	
	Spokesman-Review	6	
	Walla Walla Union Bulletin	7	
Civil Defense	Richland Reporter	8	
	Tri-City Herald	3½	
	Columbia Basin News	5	
	TOTAL	403 col. in 10 photos	

...rd Works Photo House
Month of January

	2 x 2	2 x 4	5 x 7	8 x 10	Neg.	16MM	3½ x 4	11 x 14	Process and Contacts	35 MM
COMMUNITY REAL ESTATE & SERVICES										
Fire			6	15	8					
Housing				24	6					
Police			79	59					4	
Public Library										5
EMPLOYEE AND PUBLIC RELATIONS										
Employment	983				337					
News Bureau			144	122	69					
Special Programs			153	123	82					
Radio & Special Events			34	68	112					
Training			13	13						8
Works News	12		117	15	103			2	3 RLS	
Public Relations			30		6					
ENGINEERING										
Design & Construction				6		3				
Engineers				60	5					
...nical			32	242	66		30			
Rotational Training		5			2					
Separations			3							
MANUFACTURING										
Plant Engineers		391	102	60						
Reactor Section			2	2	7					
Separations Section				6	2					
RADIOLOGICAL SCIENCES										
Operational			12				8			
Survey		4								
Instrument				6	6					
Control Unit			30		4					
UTILITIES AND GENERAL SERVICES										
Security	3925	834		28						
Security & Service Unit				1194	77					
Telephone Section				22	21			6		
MISCELLANEOUS										
Civil Defense			6	6						
AEC Safety			28							
TOTALS	4920	1234	792	2071	913	3	38	8	7	13

TOTAL PRINTS	Nov. 8,385	Dec. 5,661	Jan. 9,999	
NEGATIVES	621	655	913	
ASSIGNMENTS	133	103	126	

323 [illegible]

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Employee and Public Relations

Union Relations

UNION RELATIONS - OPERATIONS PERSONNEL

The Company was advised that the petition for representation election which was processed with the National Labor Relations Board by the Hanford Atomic Metal Trades Council in behalf of Janitors, Maids, etc., on the D & C rolls in North Richland was being withdrawn. This was a natural sequence to the Atomic Energy Commission's assuming direct responsibility for this and related functions effective April 1, 1952.

The Company found it necessary to discharge Bus Driver Loren Taylor on January 10, 1952, for violating the Company's rule against fighting on the job. The HAMTC protested the discharge action at Step II of the grievance procedure and on January 29, notified the Company that they intended to take this case to arbitration. They contended that Mr. Taylor was not discharged for any justifiable reason.

The Company and the local unions continued their discussions on the union shop question and on January 8, Mr. Albin Peterson of the Federal Mediation and Conciliation Service met with the parties in an effort to resolve this issue. There was no change in the position of either the Company or the unions on the union security question. At the request of the Atomic Energy Commission, Mr. Godfrey Schmidt of the Davis Panel, who was in the vicinity on other business, met with the parties on January 22, to develop more information on this issue and to determine whether the Panel would take jurisdiction on the matter. All information and data requested by Mr. Schmidt was furnished to him and he advised that his colleagues would take the issue under consideration and very shortly a recommendation would be forthcoming.

Grievance Statistics:

Twenty-one grievances were received during the month of January.

Grievances were sent in this month from the following departments:

Utilities and General Services Department	
Electrical Distribution & Telephone Section	1
Transportation Section	3
Community, Real Estate and Services Department	
Community Real Estate Section	1
Community Services Section	1
Manufacturing Department	
Metal Preparation Section	3
Reactor Section	6
Separations Section	6
Total	21

Employee and Public Relations

Employee grievance reports were received regarding the following subjects:

Discrimination	1
Jurisdiction	7
Overtime Rates	8
Holidays	1
Wage Rates	4
Total	21

The status of grievances received in 1952 as compared to those received during the same period in 1951 is as follows:

	1952	1951
Received in January	21	16
Settled Satisfactorily, Step I, thru January 31	4	4
Pending at Step I thru January 31	2	--
Settled Step II thru January 31	--	--
Pending at Step II thru January 31	88*	12
At arbitration	5**	---

*Including 74 grievances received prior to January 1, 1952.
**Including 4 grievances received prior to January 1, 1952.

No grievances were received this year from employees outside the bargaining unit.

Three meetings were held during the month with the Hanford Atomic Metal Trades Council for the purpose of processing grievances at the Step II level.

On January 29, 1952, the Council indicated they wished to submit to arbitration a grievance concerning an employee who had been discharged on January 10, 1952. However, the Company does not regard the case as being arbitrable and has notified the Council to that effect.

CONSTRUCTION LIAISON

On January 30, unofficial information was received to the effect that the Wage Stabilization Board had handed down a unanimous decision granting an increase of 62½ cents per day for isolation pay, effective the first full pay roll period following January 16, and a Sheet Metal Workers' rate of $2.52 per hour effective August 1, 1951. The Wage Stabilization Board has approved the 50-cent per day increase in isolation pay for plumbers effective August 15, 1951. It is expected that Atkinson-Jones will formally offer the 62½-cent increase to this craft on the basis of maintaining uniformity.

Godfrey Schmidt, Davis Panel member, arrived in Richland on January 19, to attempt to arbitrate the wage dispute with the Machinists. Discussions were held with the Atomic Energy Commission, Atkinson-Jones and union representatives and trips were arranged to the White Bluffs Machine Shop and the 101 Shop, as well as the

spread to include the entire Operating Engineer day force in the area (approximately 180 men). All the men were back on the job January 21, and apparently AJ made certain concessions with respect to their actions in docking the men.

A jurisdictional dispute over the installation of adapter rings at the TPB Tank Farm resulted in a work stoppage in minor construction on January 22, which spread throughout the entire construction project the following day. Approximately 2,000 men, including supporting crafts, were off the job at the peak of the stoppage, which ended on January 28. This action was in direct violation of the Master Agreement, the National Plan for the Settlement of Jurisdictional Disputes and the Taft-Hartley Act. After lengthy discussions with the business agents involved, AJ eventually invoked the procedure as outlined in the National Plan for the Settlement of Jurisdictional Disputes by wiring John Dunlop in Washington, D. C., requesting a "cease work stoppage" order. The resulting wire from Dunlop to the International Union was instrumental in effecting a return to work.

A work stoppage involving 26 Machinists employed in the 101 Shop occurred on January 30, as a result of a jurisdictional dispute involving the repair of a radio drill prior to installation by the Millwrights. AJ spent the entire day in discussions with the stewards and the business agent with no progress having been made at the time of this report.

WAGE RATES

A reimbursement authorization request was submitted to the Atomic Energy Commission and tentative approval was received for a change in the holiday pay for Supervisors-in-Training.

A petition requesting Wage Stabilization Board approval for the above-mentioned modification was forwarded to the Federal Agencies Division of the Wage Stabilization Board.

Tentative approval was received from the Atomic Energy Commission on a submitted reimbursement authorization request for the 3.58% productivity and cost-of-living adjustment now pending before the Wage Stabilization Board.

The Wage Rates Unit issued lists of employees with preferential rates to all department managers. This report indicates that the total number of preferentials decreased from 924 employees with such rates on May 1, 1951, to 865 at present, a decrease of 59 preferential rates.

We participated in a wage survey conducted by the Corps of Engineers, Walla Walla, Washington.

Wage Stabilization Board forms and Supplementary Agreements bearing the signatures of representatives of unions at the Hanford Works were forwarded to the New York Office of General Electric Company to be used in the Company's application to the Wage Stabilization Board for a change in the vacation schedule, which would result in all employees receiving a three-week vacation after fifteen years' service instead of the present twenty years' service.

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Washington Ironworks in Seattle, in order to give Schmidt a first-hand comparison between the relative skills required in a normal machine shop and work performed on the Project. It is expected that Schmidt will submit a report to the Panel, copies of which will be furnished the parties to the dispute. If within one week after receipt of this report the parties notify the Panel that they wish a recommendation, "The Panel will promptly hold a meeting and take further action without delay."

Three negotiation meetings were held with the Boilermakers during January, with the Federal Mediation and Conciliation Service present at the last meeting. No progress was made toward a settlement.

The National Labor Relations Board notified AJ of a petition filed by the Technical Engineers and Architects Association requesting a representation election for a unit to consist of "all engineering employees within the following classifications: Construction Engineers, Chiefs of Party, Safety Engineers, Designers and Office Engineers," all of which are currently on AJ's exempt roll.

Haughton Elevator has requested permission from AJ to pay $2.70 per hour to Journeymen Elevator Constructors ($2.56 now approved). The rate has been confined as prevailing in the Spokane area.

Requests for Reimbursement Authorization handled during the month:

1. Operating Engineers - Wage Rates
2. Technical Engineers - Wage Rates
3. Secretary to the General Manager - Classification and rate
4. Elevator Constructors - Wage Rates
5. No. 105 Plug Welders - Wage Rates
6. Electrician Wiremen - Overtime
7. Laborers - Classification and Rate

Reimbursement Authorizations Received during the Month:

1. Blacksmiths - Wage Rate
2. Carpenters - Mealtime Duty Status

Work Stoppages - Actual or Threatened:

The Boilermakers' Union is refusing to furnish men to certain Boilermaker lump sum subcontractors in protest of restrictions contractually imposed by Atkinson-Jones. Although these subcontractors are signatory to the Seven Western States Agreement, AJ's contract with the Commission and with these subcontractors prohibits payment of rates or fringe benefits at variance with those approved on the Project. Indications are that the Union is withholding men from these subcontractors at other locations in protest over the situation on the Project.

A work stoppage involving 60 Operating Engineers at 100-C occurred on January 18, in protest over a 1/5 hour dock given to a number of men for clocking out a few minutes prior to the quitting whistle the preceding day. The work stoppage later

Employee and Public Relations

A decision was received from Harry Weiss, Executive Director of the Wage Stabilization Board, to the effect that we may without prior Board approval set up new classifications and change the title of any job where there is no change in the duties performed by the employees affected or the rates of pay for such employees.

As a result of the above Wage Stabilization Board ruling, a reimbursement authorization request was submitted to the Atomic Energy Commission for an addition to our plan of the following new non-unit classifications:

Calibrator A	Grade 12
Calibrator B	Grade 10
Calibrator C	Grade 8
Field Inspector A	Grade 18
Field Inspector B	Grade 16
Field Inspector C	Grade 14
Engineering Assistant	Grade 19
Engineering Assistant	Grade 17
Engineering Assistant	Grade 8

SUGGESTIONS AND INSURANCE

Suggestion System:

	December, 1951	January, 1952	Total since 7-15-47
Suggestions Received	214	325	8243
Investigation Reports Completed	134	202	
Awards granted by Suggestion Committee	66	37	
Cash Awards	$ 2,645.00	$ 1,455.00	
Estimated Savings	$ 40,643.90	$15,768.98	

The highest award of $800 was made to an employee in the Reactor Section for his suggestion regarding a drying cave for process pieces. Considerable savings in material was realized through adoption of this suggestion.

The second highest award was made to an employee of the Reactor Section for his suggestion of a lesser expensive oil to be used in the Welsh and Kenney Vacuum Pumps. The suggester received a $160 award for his suggestion. Material costs were reduced as a result of this suggestion.

[redacted]

Workmen's Compensation:

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 28 insurance companies and investigation agencies during the month of January, 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.

Employee and Public Relations

Insurance Statistics:

	December, 1951	January, 1952	Total since Sept., 1946
Claims reported to the Department of Labor and Industries	85	201	5599
Claims reported to Travelers Insurance Co.	9	13*	585

*Of the above claims reported during January to the Travelers Insurance Company, 7 were property damage, 4 bodily injury, and 2 were both property damage and bodily injury.

COMMUNITY REAL ESTATE & SERVICES
DEPARTMENT
SUMMARY - JANUARY, 1952

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg. of Month	End of Month
Administration	21	21
Community Services Section - (Total - 209)		
Public Works	92	85
Recreation & Civic Affairs	10	10
Library	12	10
Police (Richland)	43	43
Fire (Richland)	50	50
Engineering	11	11
Community Real Estate Section - (Total - 197)		
Housing and Maintenance	184	184
Commercial Property	13	13
700-1100-3000 Area Services Section - (Total - 115)		
700-1100 Maintenance	61	61
Patrol (North Richland)	21	21
Fire (North Richland)	33	33
	551	542

There was a decrease of nine employees in the Department during the month of January, 1952.

GENERAL

The National Fire Protection Association awarded Richland first place in the State of Washington for its 1951 entry in the National Fire Prevention Week Contest.

The responsibility for all public grounds maintenance within Richland will be transferred to the Public Works Unit March 15, 1952.

The responsibility for the maintenance of the Bomber Bowl has been given to the School District effective January 1, 1952.

Preparations are being completed for the annual Community Council election which is to be held in conjunction with the School Board election on March 11, 1952.

Sears, Roebuck & Company began operation of an order office as a sublessee in McVicker Building No. 4, in the Uptown Business District.

Gamble's Western Auto Store began operation of an auto supply store as a sublessee in McVicker Building No. 4, in the Uptown Business District.

On January 15, 1952, the driver of a shuttle bus suffered a heart attack and the bus crashed into the rear of an "A" type house at 1311 Swift Boulevard causing extensive damage.

Total housing applications pending - 668.

HARoot/jak
2/11/52

CONTRACT SECTION

Contract Number	Contractor	Title & Status	Project Number
G-334	Erwen Construction Company	Additions to Sewage Lift Station. The delayed shipment of equipment was received and the work was completed January 29, 1952. Awaiting action by AEC on Modification #2 extending contract completion date to Feb. 15, 1952. Closing-out papers for the contract are being processed.	C-357
G-373	R. A. Neuman & Son	Interior Painting Prefabricated Houses. Modification #1 adjusting final quantities approved by AEC 1-30-52. Contract closed and final payment made 1-31-52. This subcontract was not assigned to the Commission.	S-379
G-390	D & H Paving Company	1951 Street Improvements, Parking Lots at The Mart (south) & Campbells, Construction of Sidewalk to Jason Lee School, Extension of Parking Lot Dorm W-20. All work completed December 7, 1951. Modification #3 for additional work and extending time to December 10 approved by AEC January 16, 1952. Report of final quantities sent to contractor for signature. Contract to be modified adjusting final quantities during February.	C-426 L-575 L-589
G-410	Seattle Chain Link Fences	Fencing Riverside Park and Columbia Playfield, Fencing around Sewage Lift Station. All work completed 12-6-51. Contract closed January 3, 1952 and final payment made.	C-425 S-450 C-357
AT(45-1)-608	Associated Engineers Inc.	Site Grading, Irrigation, Landscaping, Construction of Restroom, Sewer Lines, Water Lines and Shelterbelts. Recommendation of Award to Associated Engineers, Inc., dated 12-4-51, approved by AEC 1-8-52, in the amount of $124,562.20. Contract approved by AEC 1-11-52. Notice to Proceed given 1-15-52. Contractor started work January 16, 1952.	C-425 L-262 K-562 C-408

Payments to contractors during the month totalled $6,898.49. Invitations to bid for the painting of 331 houses and three non-commercial buildings sent to 48 contractors January 17, 1952. Thirty-two have requested bid assemblies. Bids are to be opened the middle of February. Contract services will be requested early in February to install additional fire protection at Desert Inn, Richland Theatre and Birch Avenue.

COMMUNITY SERVICES SECTION

SUMMARY

JANUARY, 1952

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
ENGINEERING	7	4	7	4
FIRE	50	0	50	0
LIBRARY	4	8	4	6
POLICE	16	27	16	27
PUBLIC WORKS	17	75	15	70
RECREATION & CIVIC AFFAIRS	5	5	5	5
	99	119	97	112

The complete responsibility for the maintenance of the Bomber Bowl has been turned over to the School District effective January 1, 1952.

A decision has been made whereby the entire public grounds maintenance within Richland will be the responsibility of the Public Works Unit. The transfer of this responsibility will be completed by March 15, 1952.

Preparations are being completed for the annual Community Council elections which are to be held in conjunction with the School Board elections on March 11, 1952. Several candidates have filed petitions.

COMMUNITY REAL ESTATE AND SERVICES DEPARTMENT
PUBLIC WORKS UNIT
JANUARY 31, 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Employees Beginning of Month	17	75
Transfers In		1
Transfers Out	2	6
New Employees		
Terminations		
Total - End of Month	15	70

SANITATION

Total weight of waste material collected during January was 1,316 tons. Collections were according to schedule except during the first week, when collections normally scheduled for Monday and Tuesday were post-poned until Wednesday to allow for the New Year holiday, and collections scheduled for Wednesday, Thursday, and Friday were all made one day later.

ROADS AND STREETS

Project C-486, improvement of Thayer Drive from Van Giesen to Swift, was approved by the AEC on January 16, 1952, and Field Release No. 1, authorizing design and engineering work necessary prior to construction was issued on January 24, 1952.

Weather conditions during most of the month were such that streets iced over frequently and sanding operations were carried out at all hazardous locations.

The responsibility for the performance of snow removal work on sidewalks and service walks of the Real Estate and General Services Sections, (where such responsibility is not placed with the tenant), has been assigned to the Public Works Unit as of January 28, 1952.

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ROADS AND STREETS (CONTINUED)

Routine seasonal maintenance of streets, sidewalks, and street drainage systems was continued as required.

GROUNDS MAINTENANCE

A policy determination made during January, placed responsibility for performance of all grounds maintenance work of the Community Real Estate and Services Department in the Public Works Unit. This pooling of the work load will allow for greater efficiency and economy, and cost distribution will be made on an acreage basis.

Pruning of trees and shrubs, fertilizing of grassed areas, and seasonal clean-up work was carried on during the month.

DOMESTIC WATER

Normal operations and maintenance were continued and the average daily water consumption during the month was 5.387 million gallons.

The water table at the 3000 Area well field has dropped to a point that has allowed the pumping of air on several occasions recently, and plans have been made to turn water into the recharge basin about the end of February.

Production and consumption recordings for January are as follows:

Domestic Water

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallons	Avg. Daily Consumption
Richland	89.8395	2.8981	76.0196	2.4522
North Richland	48.0910	1.5513	65.9929	2.1288
Columbia Field	28.3936	0.9159		
300 Area			24.3971	0.7870
Total	166.3241	5.3653	166.4096	5.3680

2.

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Public Works Unit

SEWERAGE SYSTEM

Project C-357, "Additional Pumping Capacity - Sewage Lift Station", has been completed, and acceptance inspection was made on January 29, 1952.

Treatment of the collection system with copper sulphate, for the prevention of root growth in the lines was continued, and introduction of the chemical was made at approximately 600 locations during January.

Normal operation and maintenance of the collection system, lift station and treatment plants were continued, and average daily flow through the treatment plants was 3.299 million gallons.

Flow records for the month are as follows:

Sewerage

	Total Sewage Flow Million Gallons	Average Daily Flow Million Gal. GPD	Average Rate Flow Gals. Per Min.
Plant No. 1	26.430	0.853	592
Plant No. 2	75.814	2.446	1,698
Total	102.244	3.299	2,290

IRRIGATION SYSTEM

Cleaning of canals and cutting of brush and weeds from banks has been continued, and it is anticipated that water will be turned in from Horn Rapids Dam to the 3000 Area by the end of February.

RECREATION AND CIVIC AFFAIRS UNIT
MONTHLY REPORT
January, 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-exempt
Beginning of month	5	5
New hires	0	1
Terminations	0	1
Transfers - IN	0	0
OUT	0	0
	5	5

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of January 31, 1952:

Administration	6
Principals & Supervisors	14
Clerical	23
Teachers	280
Health Audiometer	1
Cooks	43
Nursery School & Ext. Day Care	11
Bus Drivers	1
Maintenance	9
Operations	47
	435

CLUBS AND ORGANIZATIONS

As of January 31, 1952, the employees of the listed organizations, exclusive of those included in the Real Estate, Commercial and Other Properties Unit report, include:

Youth Council - Chest	1
Boy Scouts	1
Camp Fire Girls	1
Hi-Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	2
Chamber of Commerce	1
	11

The Richland Junior Chamber of Commerce officially notified the Recreation and Civic Affairs Unit that they would sponsor the 1952 Atomic Frontier Days Program. The celebration is to be held on August 8, 9, and 10, and will follow somewhat the 1951 Frontier Days Program.

Recreation and Civic Affairs Unit

On January 10, 1952 the regular monthly meeting of the Parks and Recreation Board was held at the Community House. Mr. L. G. Kom was elected to serve as Chairman of the Board for the calendar year 1952. The next regular meeting of the Parks and Recreation Board will be held on Thursday, February 7, 1952.

The Recreation and Civic Affairs Unit gave assistance to the Latter Day Saints Church in arranging for a Sub-District Basketball Tournament to be held at the Spalding Grade School on the evenings of February 16 and 17. Teams from Seattle, Richland, Spokane and Portland will participate in the Tournament.

The following new community organizations were given approval by the A.E.C. to use available goverment facilities:

1. Pioneer Trail Associates
2. Richland Philharmonic Society
3. Colyak Bowhunters

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	15
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
	315

RECREATION

The Recreation and Civic Affairs Unit called a meeting on January 25, 1952, in the conference room at the Community House, to discuss the development of the well field on Wellsian Way. Present plans are to make this into a juvenile fishing area. Divisions represented at the meeting were Public Works, Public Health, Biology, and Recreation and Civic Affairs Unit. It was generally agreed by all concerned that the project would be feasible if the following work was completed:

Recreation and Civic Affairs Unit

1. Dike off the northern part of the lake for fishing. (Approximately 5 acres.)
2. Maintain a water level of 3 ft., with one-half acre gradually sloped to 6 ft. for wintering purposes.
3. Create a spillway in remaining undeveloped area to release water.

The following was also decided upon:

1. The taste of the water would not be effected as long as excavation results show a fine silt floor.
2. Public Health will continue to spray D.D.T. on the undeveloped area.
3. Volunteer help will be utilized to perform labor with needed equipment being loaned them on approval of the Atomic Energy Commission.

The instructional basketball clinics for the elementary school boys of the city were completed with the sessions held during the month of January at the Spalding, Sacajawea, and Jefferson Grade Schools.

Adjustment of the elementary school backboard standards to a height of 8½ ft., commensurate with the physical size and abilities of boys and girls 8 through eleven years of age, has been progressing satisfactorily. Two standards already have been completed. This work was done for the Spalding Grade School gymnasium in conjunction with the Richland Public Schools.

An adult archery program was initiated at the Columbia High School Girl's Gymnasium on January 3, with the aid and assistance of the Roving Bowmen's Association. Sessions are being held each Thursday through the months of January, February, and March, between the hours of 7:30 P.M. and 10:00 P.M.

The Seattle Post-Intelligencer's Annual Hoop Shoot contest, under the direction of the Recreation and Civic Affairs Unit, was scheduled for preliminary eliminations in the schools of Richland with the assistance of the Physical Education instructors. The contest is locally sponsored by the Columbia Basin News.

The Athletics and Playground Supervisor was guest speaker at the January 10 joint meeting of the Tropicana Aquarium Society of Richland and Kennewick.

Attendance figures for January, 1952, of participants in the Fall and Winter Adult and Family Group Program sponsored by the Recreation and Civic Affairs Unit and held in the gymnasium at Spalding Grade School, are as follows:

	Children	Adults	Totals
General Attendance		1,393	1,393
Special Events - Participants	430		430
Spectators		19	19
Assisted Activities		37	37
Totals for Month	430	1,449	1,879

Indoor Total to Date - 5,322.

Recreation and Civic Affairs Unit

Organized groups and classes conducted during January, 1952, by the Recreation and Civic Affairs Unit, are as follows:

	Children	Adults	Totals
Basketball Clinic:			
Spalding (Jan. 2, 3 & 4)	158	3	161
Sacajawea (Jan. 9, 10 & 11)	143	11	154
Jefferson (Jan. 15, 16 & 18)	129	5	134
Tropicana Aquarium Society:			
Program Speaker		37	37
Totals	430	56	486

COMMUNITY HOUSE

Arrangements have been made between the Community House Supervision and the Richland Gardenaires to furnish seasonal floral displays in the Community House once a month and a special floral display for special seasonal functions.

The Richland Photographers' Club has discontinued it's program, and John P. Kerr, past treasurer of the organization submitted $23.43 to the Youth Council for the purpose of furthering photography for youth. The money was placed in a separate fund for youth photography.

A new program of youth leadership was started this month, headed by a Youth Council part-time employee. The group is limited to twenty boys and twenty girls not over the age of 13 years. The class has made great progress and the participants are of value in helping with the Friday evening program, which reaches the figure of approximately 600 participants per evening.

A new class in adult crafts was started this month under the leadership of the Recreation and Civic Affairs Unit. Another adult class, that of photography, is being planned and is to be correlated with the young adult groups program.

Plans are underway for Valentine activities by groups that make use of the Community House. The Rec-A-Teers, Servicemen's Club, and Hi Spot Club are all planning gala activities for the occasion.

It was suggested and approved by the Parks and Recreation Board that the 1951 Community House Committee would retain their duties and continue through 1952 as a functional body. This Committee held it's first meeting on January 25, 1952.

The dramatics class, co-sponsored by the Recreation and Civic Affairs Unit and the Richland Players, presented a play for the children of Richland at the Public Library, and to the Richland Players at the Desert Inn.

Another special event at the Community House was a tea, by the Beta Sigma Phi, Sunday, January 20. The Public Health Department started their lecture series for expectant parents, in January. The Women's Republican Club had a kick-off meeting and luncheon for the 1952 season.

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Recreation and Civic Affairs Unit

The Community House attendance once again went to a new high with a 10,451 figure for January over the December figure of 10,311.

Attendance - Community House

	Children	Adults	Totals
General Attendance	6,435	3,297	9,732
Special Events - Participants	40	19	59
Spectators	178	209	387
Assisted Activities	72	1,128	1,200
Totals for the Month	6,725	4,653	11,378
At end of Previous Month	37,293	29,339	66,632
Fiscal Year Total to Date	44,018	33,992	78,010

Indoor attendance to date - 78,010
Outdoor attendance to date- 77,862

COMMUNITY SERVICES

RICHLAND PUBLIC LIBRARY

JANUARY 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-exempt
Employees - Beginning of Month	4	8
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	2
End of Month	4	6

GENERAL

Circulation

Books	18,683	(Adult - 11,538; Juvenile - 7,145)
Magazines	507	
Records	926	
Pamphlets	4	
Interlibrary Loans	74	
Grand total	20,194	

Books added this month 761 (Adult - 606; Juvenile - 155)

Current book stock 18,583

Registration

Adult	452
Juvenile	141
Total	593

Total registered borrowers 8,654

Children's Story Hour Attendance - 512 (Includes attendance at children's theater party - 200)

Fifteen meetings were held in the North Hall this month. An exhibit of Mr. Covington's religious and landscape paintings was displayed in the North Hall the first ten days of the month.

The Richland American Heritage Project Steering Committee met January 31, 1952 and planned a definite program for the community's participation in the project. This plan will be submitted to the Library Board.

Miss Hoyler, Children's librarian, spoke to the Rotary Club at their luncheon meeting, January 22, 1952, on the proposed children's activities program. Miss Hoyler also addressed the Spaulding School Parent Teachers' Association, January 17, 1952, on the subject of "character development through children's books".

The Library has been informed by Mr. Henry Thurston, president, Richland chapter, Rotary International, that the club has decided to underwrite the expenses of the special activities of the children's program (summer reading club, special holiday parties, prizes for contests). This sum will be approximately $100.00. This assistance and interest shown in the library's program is greatly appreciated.

The special party provided for the children this month was the theater party on January 12, 1952 attended by 200 children. This was a "dress-up" party with prizes given for the best costume. Two plays were presented by the Richland Children's Theater.

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COMMUNITY SERVICES

RICHLAND POLICE DEPARTMENT

JANUARY 1952

ORGANIZATION AND PERSONNEL

	Exempt	Non-exempt
Employees - Beginning of Month	16	27
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	0
Total - End of Month	16	27

GENERAL

Capt. J. S. Johnson of Crime Prevention and Investigation spoke to two science classes at Chief Joseph Junior High School on narcotics. Sgt. H. V. Meigs also spoke to a science group at the school regarding fingerprints.

New black leather garrison belts were received during the month and were issued to all uniformed officers.

New notebooks have been issued to all officers for use in accident investigations and in checking facilities.

During the month, a total of 133 letters were received, compared to 88 last month. These consisted of 122 inquiries on arrests and 11 requests for assistance.

During the month, 28 prisoners were processed through the Richland Jail. Nine of these were from North Richland.

During the month, 31 gun registrations were recorded.

During the month, 117 bicycle registrations were recorded.

During the month, 378 traffic violation reports were received. These consisted mainly of speeding, illegal parking, invalid license plates and accidents. A total of 105 other reports were received. These consisted mainly of larceny and public intoxication cases.

Seventeen safety films were available for the use of personnel groups, civic organizations and schools during the month. Approximately 750 school children and adults viewed these safety films during the month.

TRAFFIC

There were 48 reportable accidents during the month of January. This is an increase of eight over the preceeding month and 28 more than the same month last year. There have not been this many accidents in any one month since June of 1948.

1

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Total property damage this month was $17,453 or an average of $363.60 as compared to $182.34 average last month. This great increase can be contributed largely to one accident in which a bus struck a house. The carelessness of drivers cannot be justified by unfavorable driving conditions that prevailed throughout most of the month as these conditions were common knowledge and driving habits should have been altered accordingly.

There were four persons injured in motor vehicle accidents this month as compared to two last month and eight for January of last year. All four of these persons were treated for minor injuries.

Thirty-three of the above accidents were investigated at the scene by members of the Richland Police Department, and these investigations resulted in the arrest of 25 persons for traffic violations.

Driving violations which contributed to the 48 accidents this month were:

Cases where unsafe speed contributed to following too close or failure to yield right of way			28
Failure to yield right of way	10	Inattention to Driving	2
Reckless Driving	1	Improper Backing	1
Negligent Driving	5	Improper Turn	1

One accident was the result of heart failure to the driver.

Checks have been made regularly at the corners where school boy patrol are stationed and they seem to be performing their duties very efficiently. A new group has been organized at the Jason Lee School and will soon be completely outfitted.

Weather conditions have made it difficult to install signs and only seven were installed this month; however, careless drivers have slid into and destroyed a large number of signs which have been replaced with portable signs until such time as the originals can be replaced.

TRAINING

The subject for classroom training for the month was report writing.

Training at the small arms range for the period in field instruction consisted of one hour pistol instruction and one hour machine gun instruction.

Qualifications on the Army-L Course were as follows:

Score	No. Men	Per Cent
Expert	14	61%
Sharpshooter	3	13%
Marksman	4	17%
Unqualified	2	9%

Richland Police Department - Continued

Qualifications on the Machine Gun Course were as follows:

Score	No. Men	Per Cent
Expert	9	39%
Sharpshooter	6	26%
Marksman	5	22%
Unqualified	3	13%

A total of 23 men reported for police training.

ACTIVITIES AND SERVICES

	November	December	January
Doors and windows found open in facilities	15	37	55
Children lost or found	18	18	8
Dogs, cats reported lost or found	38	45	43
Dog, cat, loose stock complaints	30	42	23
Persons injured by dogs	3	1	4
Bank escorts and details	0	0	1
Fires investigated	13	10	16
Miscellaneous escorts	15	8	4
Complaints investigated (no enforcement action)	40	74	43
Deaths reported	2	1	1
Property lost or found	37	17	25
Records inquiries	162	171	147
Law enforcement agencies assisted	5	19	14
Private individuals assisted	6	9	14
Plant departments assisted	69	149	118
Emergency messages delivered	35	47	39
Street lights out reported to Electrical	157	107	124
Totals	645	755	679

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RICHLAND POLICE DEPARTMENT
RICHLAND JUSTICE COURT CASES
JANUARY 1952

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES DISM.	WARR ISS.	SENT JAIL	SENT SUSP.	LIC. REV.	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF.	FINES	FINES SUSP.
Defective equipment	8	5	2	1						2	5	$ 3.50	$ 5.00	$
Drunken driving	5	5					1		5				207.50	
Drivers license	46	22	21	2		1				4	25	46.00	85.50	75.00
Driving w/out lights	1		1								1			
Failure to dim lights	1	1								1	1			
F.T.S. & I.	3	1	1		1							27.50	27.50	10.00
F.T.Y.R.O.W.	12	1	9	1	1							107.50	17.50	
Illegal parking	84	28	40	16						1		144.00	102.00	73.50
Illegal turn	1	1											3.50	
[illegible] license plates	61	21	33	5	1	1				1	8	131.50	68.50	20.00
Inattention to driving	1	1											15.00	
Negligent driving	32	14	12	4	1	1				2		260.00	265.00	12.50
No registration	1					1					1			
Operating vehicle across fire hose.	1					1					1			
Reckless driving	5	3		1					2	1			142.50	
Speeding	48	17	25	3	2	1				4		322.50	175.00	
Stop sign	39	18	19	1		1				1	4	100.50	81.00	
Disorderly conduct	2		2									30.00		
Grand larceny	1				1									
Injury to personal prop.	1	1											27.50	
Public intoxication	16	8	8				1					125.00	90.00	
Public nuisance	3		3									47.50		
Resisting an officer	1		1								1			
Third degree assault	1		1									37.50		
Violation of Benton Co. Dog Ordinance	1	1											17.50	17.50
TOTAL	375	148	178	34	8	7	2		7	17	47	$ 1383.00	$ 1330.50	$208.50

One negligent driving case amended to inattention to driving.
One drunken driving case amended to negligent driving.
One drunken driving case amended to public intoxication.

POLICE DIVISION & TRAFFIC CONTROL STATISTICS
JANUARY, 1952

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.
Richland	40	48	0	0	1	0	1	2

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Cases	
	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.
Richland	4	5	13	10	2	1	26	37

PLANT WARNING TRAFFIC TICKETS ISSUED:

Richland: NO WARNING TICKETS ISSUED FOR DECEMBER, 1951 AND JANUARY, 1952.

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		Stop Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Drvg.		Parking V.		Other V.		Totals	
	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.	Dec.	Jan.
Richland	31	44	11	38	3	7	5	4	8	12	20	29	71	83	36	116	185	333

TRAFFIC VOLUME: No Traffic Volume Count taken for the month of January, 1952, due to weather conditions.

NOTE: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
JANUARY, 1952

OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART I				
1. Murder	0	0	0	0
2. Rape	0	0	0	0
3. Robbery	0	0	0	0
4. Aggravated Assault	0	0	0	0
5. Burglary - Break & Ent.	1	0	0	0
6. Larceny - Over $50.00	9	1	2	2
Larceny - Under $50.00	12	1	2	3
Bicycle Theft	15	0	0	13
7. Auto Theft	0	0	0	0
TOTAL PART I CASES	37	2	4	18
PART II				
8. Other Assaults	4	0	2	1
9. Forgery & Counterfeit	1	0	0	1
10. Embezzlement & Fraud	2	0	0	0
11. Stolen Prop:Buy:Rec:Pos.	0	0	0	0
12. Weapons:Carrying:Poss.	0	0	0	0
13. Prostitution	0	0	0	0
14. Sex Offenses	1	0	0	0
15. Offense Ag. Fam. & Child	0	0	0	0
16. Narcotics-Drug Laws	0	0	0	0
17. Liquor Laws	0	0	0	0
Drunkenness	10	0	10	0
19. Disorderly Conduct	1	0	1	0
20. Vagrancy	0	0	0	0
21. Gambling	0	0	0	0
22. Driving While Intox.	7	0	7	0
23. Violation Rd. & Dr. Laws:				
Speeding	44	0	44	0
Stop Sign	30	0	30	0
Reckless Driving	2	0	2	0
Right of Way	10	0	10	0
Negligent Driving	30	0	30	0
Defective Equipment	1	0	1	0
24. Parking	98	0	98	0
25. All Other Traffic Vol.	71	0	71	0
26. All Other Offenses:				
Public Nuisance	1	0	1	0
Prowlers	3	0	0	3
Dest. of Pers. Property	0	0	0	0
Malicious Mischief	1	0	0	1
Vandalism	3	0	1	0
Car Prowl	0	0	0	0
Hitching Onto Cars	6	0	6	0
Disturbance	7	0	0	7
Investigation	3	0	0	3
27. Suspicion	1	1	0	0
TOTAL PART II CASES	337	1	314	22

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	OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART III					
28.	Missing Persons	16	0	0	14
	Lost Persons	3	0	0	3
	Lost Animals	6	0	0	3
	Lost Property	6	0	0	4
29.	Found Persons	0	0	0	0
	Found Animals	19	0	0	19
	Found Property	3	0	0	3
	TOTAL PART III CASES	53	0	0	46
PART IV					
30.	Fatal Mot.Veh.Traf.Acc.	0			
31.	Pers.Inj.Mot.Veh.Traf.Acc.	4			
32.	Prop.Dam.Mot.Veh.Acc.	44			
33.	Other Traffic Accidents	0			
34.	Public Accidents	)			
35.	Home Accidents	)	No Accurate Statistics Kept		
36.	Occupational Accidents	)			
37.	Firearms Accidents	8			
38.	Dog Bites	1			
39.	Suicides	1			1
40.	Suicide Attempts	1			1
41.	Sudden Death & Bodies Fd.	0			
42.	Sick Cared For	0			
43.	Mental Cases	1			1
	TOTAL PART IV CASES	51			3
	COMPOSITE TOTALS				
	PARTS I,II,III,IV CASES	478	3	318	83

* Cases listed under "Cleared Other" are those cleared by various means other then 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.

Property reported stolen $2556.40 (includes 15 bikes)
Property recovered $1514.29 (includes 13 bikes)

OFFENSE	NO.	JUVENILES	SEX	8	9	10	11	12	13	14	15	16	17	TOTAL
Malicious Mischief	1	1	M			1								1
Assault	1	1	M								1			1
Hitching onto cars	2	6	M								2	3	1	6
Disturbance	2	2	M	1		1								2
Shoplifting	2	2	M							1	1			
		4	F					1	1	2				6
Investigation	1	2	M		1	1								2
Vandalism	1	2	M							2				2
TOTALS	10	20		1	1	3	0	1	1	5	4	3	1	20

COMMUNITY SERVICES

RICHLAND FIRE DEPARTMENT

JANUARY 1952

Organization and Personnel	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	$ 44.00
	Personal	338.00
	Total	$382.00

Response To Fire Alarms	11
Investigation of Minor Fires and Incidents	16
Ambulance Responses	54
Inside Drills Or Schools	36
Safety Meetings	8
Security Meetings	4
Fire Alarm Boxes Tested	196
Airport Standby	2

One Boy Scout was examined for Firemanship Merit Badge.

One teacher and 25 students from Jefferson Grade School visited No. 1 Fire Station on January 9th.

Three adult leaders and 12 Girl Scouts received first aid instruction at No. 1 Fire Station on January 28th.

All Fire Department storage was moved during the month from 1125-6 Warehouse to Hutment 722-J.

Dry fire hose was installed in a 700 Area hose box.

Fire Prevention

The Fire Marshal's staff completed 141 inspections during the month, 120 hours of which were backcharged to other sections. A total of 257 fire extinguishers were inspected, two were refilled, one additional installed and two removed (one of which was damaged). Nineteen fire hose standpipes were also inspected.

Newly installed temporary wiring for IBM machines in 722-C Building was found to be dangerously hot. The 700-1100 Area Services Section gave assurance of immediate correction.

Inoperative fire door in 703 Building was reported to building custodian.

Investigated a leaking boiler in the Pennywise Drug Store and checked on the installation of a replacement boiler plus a new stoker.

RICHLAND FIRE DEPARTMENT January 1952

Cause of a fire at the Recreation Hall bowling pin repair shop was investigated. It was determined that a spark from the lathe during sanding operations caused the flash fire. A report was forwarded, requesting several changes in operation, storage and ventilation of the structure.

Assistant Fire Marshal was detailed until January 26th to survey Richland buildings for Civil Defense shelter zones.

The National Fire Protection Association awarded Richland 1st place in the State of Washington for its 1951 entry in the National Fire Prevention Week Contest. Another report is being prepared for entry by March 15th in the U. S. Chamber of Commerce Fire Prevention Contest.

Arrangements were completed with Plant Safety for fire prevention orientation of all new Company employees and the Richland Fire Department's extinguisher display board loaned for this purpose.

Approval was given Recreation Hall management to lock the fire door at closing time to isolate the sporting goods section.

A follow-up inspection of all public schools revealed correction of all previously reported hazards. A letter of commendation was forwarded to the Superintendent of Schools.

The sprinkler system in the Chief Joseph School froze and burst. Standpipes for fire hose were also frozen. A meeting was held with school and AEC Engineers in an effort to obtain modifications to avoid future trouble. The systems were repaired and returned to service.

Numerous fire calls because of electrical failures resulted in recommendations for an electrical repair program in all Richland residences.

Conferences held with Housing representatives in renumbering tract houses in rural areas to avoid confusion on emergency calls. Recommended Community Engineering prepare an up-to-date map showing street and road locations of these tract houses.

Conferred with head of Community Engineering relative to fire codes on high pressure boilers, propane gas burners and other installations proposed for new commercial buildings.

Following an inspection, at tenant's request, of residential wiring at 413 George Washington Way, a report of code violations was forwarded to Real Estate.

Match test was given to so-called "Cremation Jacket" purchased from a door-to-door vendor. The sweater was entirely consumed in 30 seconds.

COMMUNITY REAL ESTATE AND SERVICES DEPT.

ENGINEERING UNIT

January, 1952

Personnel

	Exempt	Non-exempt	Total
Employees - Beginning of Month	7	4	11
Employees - End of Month	7	4	11

The Status of Active Projects is as follows:

K-562 - Automatic Irrigation Levee 2-C - Notice to Proceed given January 15, 1952. Work will progress as soon as the ground thaws.

K-611 - Parking Lot - W-20 - Final pay quantities are ready for contractor.

L-262 - Water and Sewer - Assembly of God Church - Notice to Proceed given January 15, 1952. Work will progress as soon as the ground thaws.

L-575 - Parking Lots - Facilities - Final pay quantities ready for contractors.

L-589 - Increased Radii - Swift and Goethals - Final pay quantities ready for contractor.

L-608 - Elimination of Odors Emanating from Sewage Lift Station - Project Proposal approved January 11, 1952. Field Release #1 issued January 28, 1952.

S-350 - Improved Lighting 705 Building - Work complete and accepted. Physical Completion Notice submitted.

S-405B - Street Tree Planting - Additional Erosion Control - No additional work has been done due to frozen ground.

S-552 - Additional Fire Protection - Desert Inn and Richland Theater - Design and specifications completed and bid package prepared.

C-357 - Alterations to Sewage Lift Station - Subcontractor's work complete and all exceptions cleared. Formal acceptance by Using Department and AEC made on January 29, 1952.

C-408 - Additional Erosion Control - Shelterbelt trees pruned and ready for planting as soon as the ground thaws out. Work is included in Notice to Proceed given January 15, 1952, contract AT (45-1)-608.

C-425 - 1951 Park Development Program - Trees and shrubs for park planting are pruned and ready for planting as soon as ground thaws out. Notice to Proceed given on all work January 15, 1952. Re-design of playground development - Chief Joseph Junior High School is in progress.

C-426 - Street Improvement Program 1951 - Units 1 to 7 inclusive - Contract G-390 - All work is completed. Final payment is ready for signature of contractor. Topsoil and seeding - plans complete and signed by AEC. Specifications forwarded to contract supervisor for review.

C-486 - 1952 Street Improvement Program - Preliminary drawings 25% complete.

ts of Active ESRs

235-PW Town Planning Board Work - Def. for other work.

369-CA Site Map CAP Field - Def. for other work.

473-M Westside United Protestant Church - Final inspection to be made.

510-M Roads and Streets Drawings - 1950 Construction - Def. for other work.

547-MD Fixed Irrigation System - Design in progress.

561-SD Chief Joseph Grounds - Notice to proceed given December 28. Work will proceed as soon as the ground thaws out.

565-RC Site South of Tract House 0-1224 - Def. for other work.

572-M First Baptist Church - Work progressing - 45% 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 progressing - 95% complete.

M Standard Oil Station - Construction progressing. 75% complete.

590-PR Rehabilitation Bomber Bowl Fence - Work abandoned - ESR cancelled.

591-M Preparation of Advice Pamphlet for Contractors - Rough completed. Temporarily delayed for other work.

595-M Shell Oil Company - Work progressing. 95% complete.

596-M Store Building No. 3 - CD Joseph - Work progressing. 95% complete.

597-RC Additions to Mart - Plans rejected for non-conformance to U.B.C.

598-RC Legal Description of Church and Club Sites - 100% complete.

603-RC Legal Description - McVicker Building #3 - Waiting for ground space assignment.

605-PR Erosion Control - Project Proposal submitted for portion of work.

606-RC Legal Description - 89 Lee - Waiting for ground assignment.

608-MU Elimination of Odors Emanating from Sewage Lift Station - Study completed. Now Project L-608. Field Release No. 1 issued January 28, 1952.

609-M Plan Checking - Store Bldg. #4 - CD Joseph - Delayed by electrical plans.

-RC Business Development - 100% complete.

612-RC "As Built" plans for Richland Thrifty Drug - Delayed for other work.

613-RC Building Alteration Permit #11 - Central United Protestant Church - Work progressing.

615-M Plan Checking - McVicker Building No. 4 - Completed. Building 75% complete.

616-M Level Control Valve - Sewage Treatment Plant - Def. for other work.

617-RC "As Builts" 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) - 75% 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 - Bid package prepared.

621-RC Housing Plots - Bauer-Day Lease - 75% complete.

622-RC RH Gillette Building - 50% complete.

623-M Request for preliminary Engineering on Additional Erosion Control - FY 1952 - 15% complete.

624-M Landscaping Estimate for Central Fire Station - 5% complete.

625-M Kirkpatrick Building No. 2, Block 4 - Construction progressing, 5% complete.

626-M Tract House Nos. - Plan complete.

627-M Temporary Loan of Employees to Design - Work completed.

628-M Prepare "As Built" plans for Richland Fire Alarm System - Temporarily delayed.

629-M Temporary Loan of Employees to Design - Still active.

COMMUNITY REAL ESTATE SECTION

SUMMARY

JANUARY
1 9 5 2

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial Property Unit	7	6	7	6
Housing & Maintenance Unit	22	162	22	162
	29	168	29	168

GENERAL

Sears, Roebuck & Company commenced operation of an order office as a sublessee in the McVicker Building No. 4, in the Uptown Business District.

Gamble's Western Auto Store commenced operation of an auto supply store as a sublessee in the McVicker Building No. 4, in the Uptown Business District.

On Tuesday evening January 15, 1952, the driver of a shuttle bus suffered a heart attack and the bus crashed into the rear of an "A" type house at 1311 Swift Boulevard causing extensive damage.

HOUSING AND REAL ESTATE MAINTENANCE UNIT

January, 1952

ORGANIZATION AND PERSONNEL

January

Number of employees on payroll:

Beginning of month	22 Exempt Employees	
	162 Non-Exempt Employees	
	184	184
End of month	22 Exempt Employees	
	162 Non-Exempt Employees	
	184	184

Richland Housing

Housing Utilization as of Month Ending January 31,1952

Houses occupied by Family Groups

	Conventional	Block	T	Precut	Ranch	Prefab	Apt	4th add	Tract	Total
G.E.Employees	2236	260	9	385	830	1174	59	271	40	5264
Commercial Facilities	88	11	1	33	77	60	8	8	4	290
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	87	29		19	45	18	1	12	3	214
Schools	48	1		5	12	53	1	2		122
Vitro Corporation	7	3		3	8	3				24
Atkinson Jones	7	13		3	10	4	4	1		42
Newberry Neon	3	1		1			1	1		7
Vernita Orchards									4	4
t's Filter	1									1
Jenkins					1					1
Urban-Smythe-Warren					2			1		3
Charles T. Main				1	3	10				14
Total	2495	333	10	450	997	1339	74	300	55	6053
Houses assgn.Leases written					1	1				2
Houses assgn.Leases not written	4				2	1				7
Houses available for assgn.	1					1			1	3
	2500	333	10	450	1000	1342	74	300	56	6065

	Begin Month	Moved in	Moved out	Month End	Difference
Conventional Type	2494	25	23	2496	Plus 2
Block Type	332	2	2	332	
"T" type	10	1	1	10	
Precut	450	4	2	452	Plus 2
Ranch type	996	12	11	997	Plus 1
Prefab type	1329	29	20	1338	Plus 9
Apartments	74	3	1	76	Plus 2
4th Housing Addition	299	1	2	298	Minus 1
Tract Houses	56	1	2	55	Minus 1
Total	6040	78	64	6054	Plus 14

DORMITORY STATISTICS

Dormitories:

		Occupants	Vacancies	Total Beds
Men Occupied	15	616	---	616
Men Unoccupied	0			
Women Occupied	12	*481	---	481*
Women Unoccupied	0			

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 213 men waiting for rooms in Richland.
There are 9 women waiting for rooms in Richland.

GENERAL

Houses Allocated to new tenants	43
Exchanged Houses	18
Moves (Within the village)	9
Turnovers	7
Total Leases Signed	78
Terminations	20
Total Cancellations	64
Applications Pending	668

ALLOCATION SECTION STATISTICS

Voluntary Terminations	2
R.O.F.	0
Discharge	0
Transfers	6
Retirement-Divorce-Misc.	1
Houses Assigned "As Is"	2
Move Off Project	1
Death	1
Houses sent to Renovation	1

TENANT RELATIONS WORK ORDER AND PROGRESS REPORT--MONTH OF JANUARY, 1952

Processing of Service Orders, Work Orders & Service Charges

	Orders Incomplete as of December 31	Orders Issued 12-31 to 1-31	Total Orders Incomplete as of January 31, 1952
Service Orders	265	2492	51
Work Orders	1341	404	961
Service Charges	8	300	1

Principal Work Order Loads

	Incomplete as of December 31, 1951	Incomplete as of January 31, 1952
Laundry tub replacements	63	38
Bathroom Renovations (tub, lino., tile)	28	34
Tileboard Only (Bathroom)	7	1
Kitchen Cabinet Linoleum	30	24
Kitchen Floor Linoleum	12	12
Shower Stalls	41	37

Alteration Permits Issued During the Month of January totaled 79 compared to 55 issued in December 1951.

Floors sanded	1	Reverse range and refer.	1
Install auto. dishwasher	3	Basement partitions	2
Install fence	2	Raise threshold	2
tall auto. coal stoker	1	Install air conditioner	1
Install auto. washer	17	Raise heat ducts in basement	1
Install auto. dryer	14	Change cold air registers	1
Basement excavations	5	Raise shelf in kitchen cupboard	1
Install wall receptacle	1	Install basement shelves	1
Install driveway	2	Install electric circuit	1
Install water softener	12		

1004 Inspections were made during the month of January compared to 1010 made during the month of December, 1951.

Alteration permits	91	Screen doors	15
Bathtubs	53	Shower stalls	5
Cupboards	5	Sidewalks	3
Drainage	6	Sinks	18
Floor boards	12	Tileboard	37
Grass seed	2	Toilet seats	28
Laundry Trays	2	Top soil	2
Jack & Shim	10	Walls	23
Leaking basements	4	Windows	4
Linoleum	124	Shows (New Tenants)	54
Lot Lines	2	First Inspections (Cancellations)	37
Paint	96	Renovations	24
Porch & Steps	4	Miscellaneous	343

Item of Interest: Freeze-ups December 27, 1951 through January 26, 1952 totalled 33 . Sum total starting December 21, 1951 through January 26, 1952 totaled 55 with the following distributions:

Precuts - 34	A & J - 2	Conventional - 2
Prefabs - 14	T -1	Tract - 1

1311 Swift -- House damaged by bus. Work will need to be done by contractor. 31

360

MISCELLANEOUS STORES WAREHOUSE INVENTORY SUMMARY
MONTH ENDING January - 1952

	EXPENDABLE ITEMS	FURNITURE (GEN.LEDGER)	FURNITURE (KARDEX CONT.)	PLANT ITEMS	TOTAL
BEGINNING BALANCE					
RECEIPTS:	$19,492.46	$10,966.06	$10,474.65	$45,597.77	$76,056.29
On Purchase Orders	21.00				
On Store Orders	470.19				
From Housing	174.57			2,857.78	
From Dormitories	12.68		251.16		
TOTAL RECEIPTS	$ 678.44	$	$ 251.16	$ 2,857.78	$
TOTAL AVAILABLE	$20,170.90	$10,966.06	$10,725.81	$48,455.55	$
DISBURSEMENTS:					
Cash sales(Backcharge)	75.25				
To Housing	600.24		260.07	1,510.63	
To Dormitories	364.89		135.49	332.93	
Dorm-Shades & Reflectors	16.51				
To Warehouse Supplies	39.32				
To Other (Misc.)	115.78			165.00	
TOTAL DISBURSEMENTS	$ 1,211.99	$	$ 395.56	$ 2,008.56	$
ENDING BALANCE(1) (2) (4)	$18,958.91 (1)	$10,966.06 (2)	$10,330.25 (3)	$46,446.00 (4)	$76,371.96
NET CHANGE	$ 533.55	$10,966.06	$ 144.40	$ 849.22	$ 315.67

ENDING BALANCE GENERAL LEDGER(Balance-COL.1 PLUS COL.2) $29,924.97

COLUMN 3 FOR LOCATION CONTROL ONLY-COLUMN 4 MEMO ACCOUNT ONLY

EXCHANGED:	PIECES
Dorm. Furniture	20
Ranges	3
Refrigerators	4
Prefab Heaters	5
Sent to Maintenance	77
From Maintenance	122

DORMITORY REPORT FOR January 1952

237 MINOR REPAIRS TO FUSES, PLUMBING, ETC.

19 WORK ORDERS STEAM, GLASS, EQUIPMENT, ETC.

122 PIECES OF FURNITURE REPAIRED.

55 HOUSEKEEPING CONTACTS.

592 LIGHT GLOBES REPLACED.

49 ROOMS VACATED.

LINENS LAUNDERED

8,499 SHEETS

4,356 PILLOW CASES

272 BED SPREADS

57 BED PADS

150 SHOWER CURTAINS

3 PAIRS DRAPES

362

REAL ESTATE ENGINEERING UNIT
JANUARY 31, 1952

Following is the status of active projects being handled by this unit:

K-918 - Exterior Painting - Three Government-Owned Buildings

Field Release (1) issued December 12, 1951. Plans and specifications completed December 28, 1951. Bid opening to be February 13, 1952.

L-911 - Resurface Parking Lot Between Campbell's Food Store No. 2 and Village Pharmacy

Manager's Appropriation Request approved January 4, 1952. Field Release (1) issued January 11, 1952. Preparation of plans and specifications in process.

L-921 - Repair of Fire Damaged Prefab - 1004 Wright Avenue

Manager's Appropriation Request approved January 25, 1952. Field Release (1) issued January 29, 1952. Preparation of plans and specifications in process.

S-909 - Exterior Cycle Painting-331 Houses - Divisions II and III

Plans and specifications completed and sent to Contractor's Unit December 28, 1951. Bid opening to be February 13, 1952.

S-379 - Interior Painting - Prefabs

Project completed June 30, 1951. Project Physical Completion Notice issued January 4, 1952. Final payment to the subcontractor in process.

Following is the status of active ESR's being handled by this unit:

903-RH - Alteration Inspections

Routine duties performed as required.

904-RM - Procurement Aid and Material Studies

Routine duties performed as required.

910-RC - Approval of Pasture Land Permits

Routine work.

912-RC - Heating Wagon Wheel Club

Inspections and recommendations made.

Real Estate Engineering Unit

913-RH - Study of Kitchen Light Fixtures in A & J and Ranch Houses

Study in Progress

916-RC - Richland Commercial and Industrial Area Maps

All maps completed.

917-RH - Drainage of Inner Block Area

Request for funds to cover preliminary engineering costs submitted January 8, 1952.

919-RC - Approval of Alterations - Desert Inn Hotel

Inspections in process.

920-RM - Maintenance Painting Estimate

10% Complete.

922-RH - Repair of Damaged "A" Type House - 1311 Swift Boulevard

Submitted request for funds for preliminary engineering January 17, 1952. Project cost estimate, appropriation request and informal letter request to cover funds for the repair of this damaged house submitted for approval and appropriation of funds January 25, 1952.

923-RH - Ranch House Furnace and Flue Cleaning

Request for funds to cover cost of preliminary engineering, preparation of cost estimates and informal letter request for project funds submitted January 30, 1952.

HOUSING AND REAL ESTATE MAINTENANCE

January, 1952

REALTY MAINTENANCE BACK-LOG REPORT

TYPE OF WORK	OLDEST ISSUE DATE		BACK-LOG	RATE OF REPLACEMENT
Bathtubs, including tile board (bath) floor lino (bath) painting (bath)	8-13-51		34	2 per day
Tile Board - A & J (other than tub installation)	1-11-52		1	None
Paint (Misc.) (Orders ready)	12-6-51		19	8-10 per week
Kitchen Floor Lino (Prefabs)	1-17-52		2	4 per week
Kitchen Floor Lino (Conventional)	12-18-51		10	4 per week
Bath Floor Lino (Prefabs)	2-23-51		2	Waiting for Shower Stall Installation
Bath Floor Lino (Conventional)	11-28-51		3	Waiting for Shower Stall Installation ("D" House)
Kitchen Sink Lino (Prefabs)	9-12-51		3	1 per week
Kitchen Sink Lino (Conventional)	11-15-51		21	14 per week
Shower Stall Installations	11-30-50 12-7-50 2-28-51	1 BR D Other	37	Emergencies Only
Laundry Trays	9-24-51		38	10-15 per week

III. MAINTENANCE TRANSPORTATION FACILITIES

TRUCK TYPE	NO. IN POSSESSION	CRAFT
1½ ton Flatbed	6	Carpenters
1/2 ton Pickups	9	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	2	Painters
1/2 ton Pickups	2	Painters
1/2 ton Pickups	2	Plumbers
3/4 ton Pickups	3	Plumbers
Subtotal:	39	
SERVICE ORDERS:		
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	1	Glazier
Subtotal:	12	
RENOVATIONS:		
Chevrolet Carryall	1	Painters & Janitresses
1/2 ton Pickup	2	Carpenters
Subtotal:	3	
GENERAL:		
Sedans	2	Supervision
Subtotal:	2	
GRAND TOTAL:	58	

IV. PROGRESS REPORT

A. INTERIOR PAINT PROGRAM:

Carpentry repair work, prior to painting on interior, was completed in 130 units of housing. This work included repair and replacing cupboard doors, checking doors and windows for free operation, replacing sash balances, cabinet door catches, loose molding, etc. This work is done only in portion of house that is to be painted.

Interior painting in Interior Paint Cycle was completed in 130 units of housing.

(Interior Paint, Cont'd)

Dormitory Interior Paint work was completed in M-5. The work consisted of painting 11 rooms, halls, lobby, shower and toilet rooms. Painting is in progress in Dorm. M-3 and is about 15% complete.

B. LINOLEUM AND TILE:

Floor linoleum installed:	60	Tileboard in Bath Shower recess:	41
Sink linoleum installed:	51	Chempoint Program:	117 units.

308 hours were used installing tile in Mens' Dorms.
Dining room floor of Desert Inn was patched with asphalt tile.
This crew also jacked and shimmed eight (8) A & J houses.

C. FIELD CARPENTRY:

The installation of house numbers is approximately 60% complete.

Replace sliding cupboard doors:	2	Repair window screens:	1
Repair roofs:	3	Repair windows, "The Mart":	1
Replace sash balances:	1	Repair wall; fire job:	1
Jack & Level Prefabs:	9	Repair flashing around chimney of "F" house:	4
Jack & Level Precuts:	1	Repair shower stalls, Dorms.:	4
Jack & Level "B" house:	1	Weatherstrip windows, "F" house:	1
Jack & Level "Q" house:	1	Paint shower stalls:	1
Sheetrock firewall:	1	Paint Bathroom:	1
Replace doors:	4	Repair & Paint kitchen ceiling:	2
Level rear landing; "B" house:	1	Paint kitchens, fire jobs:	2
Replace shelving, Ranch house:	3	Bath touch-up:	43
Repair floor:	2	Base board touch-up:	10
Replace screen door latches:	4	Paint cupboard doors:	2
Replace threshold:	1	Paint front & rear doors:	8
Repair threshold:	2	Minor repairs before Interior Paint:	5
Drill weep holes:	2	Repair floor; "Richland Bakery":	1
Repair doors:	4	Board up house - 1311 Swift:	1
Repair wall; Dorms.	6	Repair screen doors:	3
Install vents; Dorms.	1		

UNUSUAL:

Snow was scraped off the eaves of all Precuts; about two feet back from the edge to prevent "ice dams" from forming and forcing water to run down inside the houses and damage paint and personal property. So far this year it has been necessary to do this three times. Samples of flashing have been installed on various Precut houses with good results in eliminating a major portion of this type of leak. Also, a study and report is being prepared for consideration of installing flashing on roofs which have asbestos shingle roofs and no flashing or drip sheet under the roofing.

D. CARPENTER SHOP:

The following is a summary of work performed in the Carpenter shop during the past month:

Filed & Sharpened saws and tools in 700-1100 Area.

Steel Desks refinished:	20	Dormitory doors fabricated:	20
Davenos refinished:	15	Screen doors repaired:	4
Cabinet drawers repaired:	20	Screen doors replaced:	4
New cabinet doors:	15	Dorm. screens replaced:	36

(Carpenter Shop, Cont'd)

Screen doors fabricated: 120

	Hours Used on work	Completed this month	Completed last month
K. V. Chairs, reupholstered:	72	9	0
K. C. Chairs, reupholstered:	60	15	12
K. I. X. Chairs, reupholstered:	12	4	18
Cushions, reupholstered:	8	6	80

152 hours used, covering a 19 day period.

E. PLUMBING, GENERAL:

The Plumbing General Group did the following work in the past month:

Replaced bathtubs:	33	Replaced Water Heaters:	28
Replaced Laundry tubs:	59	Replaced shower stalls:	12
		Comp. bath faucet repairs:	11

Cleaned thirty (30) sewer lines that were clogged with tree roots.
Completed 49 plumbing work orders consisting of repairing broken sewers, water lines; replacing broken fixtures, valves, etc.
Completed 17 linoleum repair work orders consisting of removing and replacing toilet bowls for linoleum men.
Used 65 hours on Freeze-ups; thawing frozen water lines.
Completed 37 steam work orders consisting of replacing rusted-out pipe, replacing and repairing steam valves, traps and radiators.
Steam inspections were made on Dorms., Geo. Wash. Way Apts., Gilmore Apts. and commercial buildings once a week.
Tore out old heating boiler at Pennywise Drug Store and replaced with new one; insulated boiler and piping.
Removed and tested pop valves on P.R.V. stations and hot water tanks on all steam-heated equipment.

F. MILLWRIGHTS: 4 men.

1. Three men of this group have been on routine furnace orders.

2. One man has been on furnace orders part time (40%) and the rest of his time has been spent in installing stoker and boiler at "Pennywise Drug Store"; changing thermostat location at Clinic; installing and checking experimental oil burner at 805 Winslow and repairing shop equipment.

3. All commercial facilities and government owned equipment have been covered for lubrication in past month.

G. SHEETMETAL: 3 men.

1. This group, in past month, has gone through all of the Geo. Wash. Way Apts., except No. 6, and have cut inspection holes, cleaned off heating coils, and lubricated all fans and motors.

2. About twenty shower stalls were installed.

3. Numerous small jobs were completed; such as fabrication and installation of gutters, flashings, house and street signs and smoke pipes.

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H. RENOVATION:

The Renovation Group processed twenty-one houses during the month. Of these, one received complete interior paint and thorough cleaning. Five houses were partially painted and received complete cleaning. The remaining houses received complete cleaning only. Minor carpentry repairs were made to all houses.

The Renovation Group has a back-log of two (2) units.

I. SERVICE ORDERS:

The following is a status report of Service Orders:

A.	On hand at the beginning of the month:	128
B.	Received during the month:	2492
C.	Completed during the month:	2569
D.	On hand at the end of the month:	51

NOTE: In addition to an increased completion of Service Orders over the month of December, 550.1 hours were applied to work orders.

It has been necessary to give overtime to the Locksmith and the Electricians as their work continues on the increase, whereas Plumbing, Carpentry, and Glazing has been on the decrease.

The increased production resulting in the Service Order function was primarily reflected in the Electrical craft and due to a straight day shift arrangement. This reflects approximately 20% increase in jobs completed over December, 1951.

J. LABOR: 5 men.

1. This group has, in past month, cleaned all old insulation from under Dorms. W-2, W-5, W-8 and W-12.

2. Septic tanks at 1525 Kadlec Road, K-777 and 2003 Davison have been pumped out weekly.

3. About eight oil tanks have been uncovered so that repairs could be made.

4. Waste oil, from all Service Stations, has been pumped out and spread on 700 Area parking lot twice this month.

5. Ashes from 784 Power House have also been spread on parking lot.

6. Several water lines and sewer lines have been dug up for repairs.

COMMERCIAL PROPERTY - REAL ESTATE SECTION

JANUARY, 1952

PERSONNEL - COMMERCIAL PROPERTY:

	January
Beginning of month	13
End of month	13
Net difference	0

PERSONNEL - COMMERCIAL AND NONCOMMERCIAL FACILITIES:

	Commercial	Noncommercial	Total
December	1,327	118	1,445
January	1,329	116	1,445
Net difference	2	2	0

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	63	6	69
Back Charges	4	1	5

CONTRACTS AND NEGOTIATIONS:

A. Commercial

1. Assignments of Lease:

Gus Carlston, A. Eldon Rex, Ted R. Eldridge and L. W. Hanson - to C & H Foods, Inc., for the continued operation of the facility.

2. Letter of Award:

R. H. Gillette - to construct a privately-owned building for the operation and maintenance of an automotive repair garage, and agency.

3. Letters of Authorization:

(a) Chalmer D. Joseph Company - to sublet space in Building No. 1, Uptown Business District, to Montgomery Ward and Company.

(b) Chalmer D. Joseph Company - to sublet space in Building No. 1, Uptown Business District, to Iva M. Gilson and Effie Hastriter for the operation of a piece-goods store.

(c) Vance Properties, Inc. - to sublet space in the Desert Inn to Columbia Service Company for the operation of a Kaymax Travel Service Agency.

(d) Depot Cafe - to permit F. H. Moller to continue operation of the Bus Depot pending execution and approval of a new operating agreement.

(e) Virgil O. McVicker - to grant a request for extension of time for the construction of a commercial building at Lee Boulevard and Goethals Drive.

B. Noncommercial:

1. Letters of Authorization:

(a) Bldg. 89-X - to enter into lease negotiations with the Hanford Atomic Metal Trades Council.

(b) Bldg. 137-X - to permit the Triple-Teen Club to use the building for a three-week period for the purpose of rehearsing a miniature circus.

UMMARY OF OCCUPANCY AND EXPANSION STATUS:

A. Commercial

	December	January
1. Number of Government-owned buildings	37	37
(a) Number of businesses operated by prime lessees	41	41
(b) Number of businesses operated by sub-lessees	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	38
(b) Number of businesses operated by sub-lessees.	32	34

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	December	January
(c) Total businesses operating in privately-owned buildings	70	72
4. Privately-owned buildings under construction	4	4
5. Total number of businesses in operation	127	129
B. Noncommercial		
1. Government-owned buildings		
(a) Churches	4	4
(b) Clubs and organizations	9	9
(c) Government agencies	3	3
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	2	2
Total	14	14
4. Pasture Land Permits	37	45

GENERAL:

A. Commercial:

1. Sears, Roebuck & Co. - commenced operation of an order office under a sublease with Virgil O. McVicker in McVicker Bldg. No. 4, Uptown Business District.

2. Gamble's Western Auto Store - commenced operation of an auto supply store under a sublease with Virgil O. McVicker in McVicker Building No. 4, Uptown Business District.

3. Otto Allred - withdrew his proposal to construct and operate a Dairy Queen Ice Cream Store.

4. Invitations to submit proposals for the construction of a business building, or buildings, on all or any portion of two plots in the

Downtown Business District and on all or any portion of the available area in Block 5 in the Uptown District were mailed to prospective applicants, with bids to be opened on February 8, 1952.

5. Invitations to submit proposals for the construction of a business building, or buildings, on all or any portion of five plots in the Light Industrial Area were mailed to prospective applicants, with bids to be opened February 11, 1952.

B. Noncommercial:

1. Two pasture permits were cancelled and ten new permits were issued.

2. Bldg. 89-X. Permission was granted to Plant Security and Services to use the building on a temporary basis until February 1, 1952.

COMMERCIAL PROSPECTS:

Inquiries were received during the month concerning the establishment of the following types of commercial enterprises:

Drive-In Theatre	General Information
Food Store	Medical Dental Clinic
General Contractor (office space)	Pharmacy

NONCOMMERCIAL PROSPECTS:

The United Pentecostal Church, of Pasco, Washington, expressed an interest in leasing Building 137-X, located on Goethals Drive, near Gillespie Street.

700-1100-3000 AREA SERVICES SECTION
MONTHLY REPORT
JANUARY 1952

700-1100 MAINTENANCE & STEAM UNIT

General Maintenance:

Crating, banding, shoring and preparation of materials for excessing involved approximately 520 manhours of carpenter labor.

Emergency storage batteries at Kadlec Hospital were moved to the boiler room and appropriate barricade installed.

South half of 722-D Hutment was renovated to accommodate a portion of Instrument personnel, who vacated 717-A and moved to this location and to 300 Area.

Building 717-A is being renovated for occupancy by General Accounting personnel, who are to vacate a portion of 722-A.

Minor repairs were made to 722-C, to temporarily accommodate IBM personnel, who will shortly move to that portion of 722-A which is to be vacated by General Accounting.

Drinking fountains and stoves were relocated in the former North Richland Plumbing and Heating building and minor renovation work was performed to prepare it for occupancy by Electrical Distribution personnel, who are moving from the 1400 buildings.

Interior painting at Kadlec Hospital consisted of refinishing one operating room, doctors' lounge and two other rooms.

Miscellaneous repair jobs were touched up, shelves and cabinets painted. Sign work was performed for 700 and 300 Areas.

Considerable maintenance time was spent on repair of various reproduction and printing equipment in 700 Area.

Dampers have been installed in desert cooler air ducts to prevent loss of hot air from buildings on which cooling ducts would serve as exhaust vents in winter months when coolers are shut down.

A new lead-lined acid tank was fabricated for replacement of eroded tank at 784-A Water Softener Plant. Replacement tank was built more substantially and with thicker lead lining than the original.

Forty-three tight fitting, globe type light fixtures were replaced with open bulb type fixtures in 760 hallways to correct deterioration of wiring insulation resulting from confined heat.

Four 25 H.P. motors and one 60 H.P. motor from water and sewer equipment were repaired for Community Public Works Unit.

Installed 22 electrical convenience outlets, 26 fluorescent fixtures and 12 buzzer systems in 700 Area.

Special effort was made to get all electrical cords and portable electrical tools and equipment in for safety inspection, resulting in the most complete inspection during the past two years. Several items have not yet been surrendered for inspection.

Radiator valves and traps were checked and repaired in the 713 and 770 buildings. A three-inch service tap and valve was provided on the steam main for service to the new wing of 703 Building. Four-inch water meter on soft water line to Kadlec Hospital was replaced with a two-inch meter to record low usage during winter months.

Repaired 45 safety and relief valves for Community Services and Real Estate Maintenance Units.

Number 1 boiler in 1131 Area was cleaned and tubes turbined.

Servicemen assisted in snow and ice removal and trimmed trees at the cemetery.

Steam Operation:

The fourth boiler was placed in operation on January 2 in order to safely carry the increased heating load. Starting January 9 load conditions permitted a three-boiler operation for the remainder of the month.

The quantity of steam generated at 784 Heating Plant for the month was 6% more than for the same period last year.

Main line steam tap for the new west wing of 703 Building was made on January 30. By energizing the 3" by-pass line and the 6" line west of the Lee-Cullum valve pit, only the 703 Building and Hutments 712-A, 712-B, 722-D, E, F, G, H and J were affected by the shutdown, although the steam pressure at the test point (Building 89-X) dropped from 105 lbs. to 73 lbs.

A car of sulphuric acid was unloaded at the 784-A Water Softening Plant on January 29.

Coal receipts by rail were resumed on January 29 and no unloading difficulties were experienced.

The new lead-lined dilute acid mixing tank was installed on January 29. This new tank incorporates a number of improvements gained from experience with the old tank and it is believed that the service life will be greatly extended and that repairs, if required, can be more easily performed. The oil tank was removed and retired.

One boiler of the Heating Plant at 1131 Bus Terminal was able to carry the load during the entire month.

Steam Statistics:

Steam Generated	35,159.6 M. Lbs.
Steam Leaving Plant	29,885.7 M. Lbs.
Steam Delivered	27,653.7 M. Lbs.
Coal Consumed	2,704.60 Net Tons
Total Water Softened	4,148,200 Gallons
Soft Water Sent to Kadlec Hospital	0 Gallons
Soft Water used at 784 Heating Plant	4,148,200 Gallons
Service to Kadlec Soft Water Line	0 Hours

Because of failure of acid mixing tank, no soft water was supplied to the hospital in January.

375

NORTH RICHLAND FIRE UNIT

Alarm No.	Response to Alarm	Cause for Alarm	How Received
1	Barracks 214-B.	False alarm.	Box
2	Barracks 3104.	False alarm.	Box
3	Trailer at 617 G.	Overheated oil stove.	Box
4	Rod and Gun Club.	Unnecessary alarm.	Box
5	Trailer at 920 F.	Overfilling of oil stove.	Box
6	Barracks 2314.	False alarm.	Box
7	Army Ordnance Shop, Bldg. 1240.	Hose on acetylene bottle.	Phone
8	Bath House #44.	Furnace explosion.	Box
9	Bks. at 4th & "Q".	Accidental alarm.	Box
10	Barracks 2355.	Accidental alarm.	Box
11	Barracks 2341.	False alarm.	Box
12	Sprout & Burlen Road.	Undetermined at time of report.	Phone
13	Barracks 210.	Accidental alarm.	Box
14	W Ave. & Narrow Lane.	Overheated stove.	Phone
15	Barracks 179.	Accidental alarm.	Box
16	Barracks 179.	Accidental alarm.	Box
17	Barracks 3109-D.	Accidental alarm.	Box
18	Barracks 165.	Accidental alarm.	Box
19	Skating Rink at 8th & K.	Park bench & table.	Verbal
20	Barracks 172.	False alarm.	Box
21	North Star Theater.	Protecto wire activated box.	Box
22	Barracks 179.	Accidental alarm.	Box
23	Bks. at 4th & W.	Unnecessary alarm.	Box
24	Bks. at 1st & Q.	Accidental alarm.	Box
25	519th Motor Pool.	Careless firing of stove.	Phone
26	Skating Rink at 8th & K.	Unnecessary alarm.	Verbal
27	Barracks 234-B, Rm. 3.	Smoker's carelessness.	Box
28	Trailer at 1114 "L".	Short in wiring.	Box
29	John Ball School.	Smoke scare.	Phone
30	Signal Service Station.	Careless handling of gasoline.	Verbal
31	Bremerton Houst at 922 B.	Improperly operated furnace.	Phone

Investigations:

1-1-52 Army Infirmary at 6th & M. Smoke odor.
1-11-52 Barracks 216-C, Rm. 7. Smoker's carelessness.
1-15-52 Trailer at 1122 I. Butane-filled toy baloon burst and ignited.
1-17-52 Barracks 3108-C. Defective thermostat on fan control.

Alarm No.	Personal Loss	H. W. Loss	U. S. Army Loss	Total Loss
5	$ 20.00	$	$	$ 20.00
7			125.00	125.00
12	35.00			35.00
14			1,265.00	1,265.00
19		20.00		20.00
27	14.95			14.95
Investigations				
1-11-52	5.21			5.21
1-15-52	125.00			125.00
TOTALS	$200.16	$ 20.00	$1,390.00	$1,610.16

376

Miscellaneous Activities:

Three safety and security meetings and 12 inside drills and schools were held during the month.

Seventy-four fire alarm boxes were tested and 4 extinguishers charged.

An area at 8th and K Avenue was flooded for a skating rink.

Various inspections of Army B.O.Q.'s were made.

On 1-16-52 Barracks 228-D was checked for overheating.

Glass in auxiliary box in Building No. 87 was replaced.

Chief Olson attended four PMS classes in Richland.

NORTH RICHLAND PATROL UNIT

One hundred seventy-four traffic warning tickets were issued. These tickets were mainly for Illegal Parking.

Sixty-four traffic citation tickets were issued: 14 for Invalid Plates, 13 for Illegal Parking, 11 for Running Stop Signs, 7 for Speeding, 2 for Reckless Driving, 4 for No Operator's License, 2 for Leaving Motor Running Unattended, 4 for Negligent Driving, 2 for Drunken Driving, 2 for Illegal Passing, 1 for Defective Equipment, 1 for No License Sticker, and 1 for Failure to Flare Stalled Vehicle.

Nine persons were incarcerated in the Richland jail: 1 for Negligent Driving and Resisting Arrest, 2 for Public Nuisance, 1 for Vagrancy, 1 for Drunken Driving, and 4 for Public Intoxication.

Twenty-eight inquiries regarding formerly employed construction and General Electric personnel were answered by this office. These inquiries came from Civil Service Commission, U. S. Navy, U. S. Army and du Pont Company.

All fire, safety and traffic hazards observed by North Richland Patrol were reported to proper authorities.

All facilities, warehouses, buildings and John Ball School were checked on No. 1 and 3 shifts daily and on all shifts on Sundays and holidays.

Seventeen courtesy cards were placed on automobiles that did not warrant a warning or citation ticket. These cards request the cooperation of the driver in aiding North Richland Patrol to uphold traffic laws of the State of Washington.

Eight monthly hours and 24 weekly hours were spent on bank escort service from Pasco.

There were eight automobile accidents in the North Richland Area.

An Appearance Officer was assigned to Judge E. W. Brown's court in Richland to appear against persons cited to court by North Richland Patrol.

Eleven firearms were checked into the Contraband Room at North Richland and 3 were checked out. The owners of those checked out had terminated and were leaving the Project. Eight firearms belonging to persons living in North Richland were registered with the Arsenal Officer in Richland.

On January 10, Chief Overdahl addressed the Parent-Teachers' Association of the John Ball School. The topic of his address was "The School Boy Patrol and The Protection They Give Our Children".

A staff meeting was held at 8:00 a.m. on January 16.

North Richland population is as follows:

Bremerton Houses	680	Total Lots Occupied in Trailer Camp	1,452
Trailer Camp	4,126	Total Bremerton Houses Occupied	197
Barracks (Men's)	1,402	TOTAL OCCUPANTS	6,288
Barracks (Women's)	80		

Unusual Incident Reports:

Public Intoxication	4
Public Nuisance	2
Investigation of Fire	1
Vagrancy (Suspected 2nd Degree Arsonist)	1
Reckless Driving	1
Negligent Driving - No Operator's License	1
Accident (1 Private & 1 Govt. Vehicle)	3
Accident (2 Private Vehicles)	1
Accident (1 Private Vehicle)	2
Accident (Govt. Vehicle & Dog)	1
Accident (2 Govt. Vehicles)	1
Invalid License	1
Traffic Violation (School Boy Patrol)	1
Petit Larceny	1
Peeping Tom	1
Report of Cohabitation	1
Juveniles (Drinking Beer)	1
Disturbance	1
Attempted Suicide	1
Broken Windshield Wiper	1
Operating Motor Vehicle While Under the Influence	1

Special Services Performed:

Emergency Messages Delivered	118
Emergency Long Distance Telephone Calls	63
Western Union Telegrams	3
Pacific Telegraph Telegrams	4
Fires (Signal 12)	14
False Fire Alarms	16
Unusual Conditions Reported to Maintenance	11
Escorts to First Aid	6
Complaints on Dogs (Trailer Camp)	2
Dogs Impounded	2
Children Bitten by Dog	2
Escort for Public Health Nurse	3
Billfolds Reported Lost or Stolen	1
Billfolds Turned In To Patrol	6
Billfolds Returned to Owners	3
Disturbances Investigated	4
Suspicious Persons Investigated	7
Personnel Locked Out of Rooms	11

Bicycles Reported Lost or Stolen	3
Bicycles Returned to Owners	3
Soldiers Turned Over to M.P. Detachment for Disposition	4
Patrol Assistance to Ambulance	7
Cars Impounded at North Richland Headquarters	3
Children Lost	3
Children Returned to Parents	3
Stolen Car	1
Recovered Car	1
Petit Larceny Complaints	6
Grand Larceny Complaints	2

ORGANIZATION AND PERSONNEL

	Beginning of Month			End of Month		
No. of Employees on Roll	Exempt	Non-Exempt	Total	Exempt	Non-Exempt	Total
Maintenance & Steam Operation	8	53	61	8	53	61
North Richland Patrol	5	16	21	5	16	21
North Richland Fire	33	—	33	33	—	33
TOTAL	46	69	115	46	69	115

Personnel Changes During Month:

Maintenance & Steam Operation	Non-Exempt
Transfer to Real Estate	1
Transfer from Reactor Section	1

COURT CASES
NORTH RICHLAND PATROL
JANUARY 1952

VIOLATIONS	NO. OF CASES	NO. OF CONV.	NO. OF FORF.	CASES DISM.	CASES CONT'D.	SENT. JAIL	LIC. RVKD.	TOTAL FINES	TOTAL SUSP.	TOTAL BAIL FORFEITED
Invalid Plates	14	11	2		1			$ 57.50	$	$ 15.00
Illegal Parking	13	3	7	3				14.00		24.50
Running Stop Sign	11	5	5		1			23.50		20.50
Speeding	7	2	4		1			22.50		45.50
Reckless Driving	2	1			1			27.50		
No Operator's Lic.	4	3	1					18.50	7.50	3.50
Motor Running Unattended	2		2							15.00
Negligent Driving	4	3			1			40.00	12.50	
Drunken Driving	2	2					2	155.00		
Illegal Passing	2	1	1					5.00		3.50
Defective Equipment	1	1						3.50		
No Lic. Sticker	1		1							15.00
Failure to Flare Stalled Vehicle,	1	1						5.00		
Public Intoxication	6	1	5			*1				62.50
Vagrancy	1	1						27.50		
Public Nuisance	2		2							35.00
Neg. Driving and Resisting Arrest	1		1							52.50
TOTALS	74	35	31	3	5	1	2	$399.50	$ 20.00	$292.50

*Sent to County jail for 5 days.

PROJECT & RELATED PERSONNEL JANUARY 1952

	12-29-51		1-31-52	
GOVERNMENT EMPLOYEES				
Civilian Personnel-Atomic Energy Comm.	358		365	
Civilian Personnel G. A. O.	7		6	
Total		365		371
RICHLAND VILLAGE PERSONNEL				
Comm. Facilities (Inc. North Richland)	1327		1329	
Govn. Agencies, Churches, Clubs, Etc.	118		116	
Schools	435		435	
Organizations	11		11	
Total		1891		1891
CONSTRUCTION SUB CONTRACTORS				
Atkinson & Jones	5391		5252	
Newberry Neon	433		406	
Urban Smyth Warren Co.	1032		1125	
Vitro Corp. of America (Kellex Corp)	166		140	
Erwin Constr. Co.	12		18	
J. P. Head	11		0	
Fred J. Early Jr.	50		3	
V. S. Jenkins	44		53	
Empire Electric Co.	4		0	
Montgomery Electric Co.	3		3	
Sound Constr. & Engr. Co.	22		15	
J. G. Shotwell	3		8	
West Coast Heating & Plumbing Co.	24		19	
Electric Smith Inc.	10		12	
L. H. Hoffman	76		79	
Stier, Shelton & Schick	1		2	
Charles T. Main	205		205	
The Bay Co.	30		49	
Valley Roofing	2		0	
Holliday & Edworthy	4		6	
Industrial Electric Co.	2		2	
Steel Constr. Co. of Oregon	6		0	
Puget Sound Naval Shipyard	800		794	
A. H. Barbour & Sons	2		0	
Anderson Decorating Co.	7		2	
Soule Steel Co.	2		10	
Leland S. Rosener	1		1	
Allied Painter & Decorators	2		0	
Head Mech. Construction Co.	5		6	
Murphy Brothers	10		12	
Buchanan Co., Incorp.	3		4	
Art Craft Linoleum & Shade Co.	1		0	
S. S. Mullen Inc.	5		6	
Pittsburg Des Moine Steel Co.	0		1	
Chicago Bridge & Iron Co.	0		2	
Hoge-Warren-Zimmermann Co.	0		10	
Automatic Sprinkler Co. of America	0		4	
National Blower & Sheetmetal Co.	0		2	
Northwest Painting & Roofing Co., Inc.	0		5	
E. J. Bartells Co.	0		2	
Emory & Bohm Elect. Co.	0		2	

CONTINUED ON PAGE # 2

Hayrite Concrete Products	0	1
. D. Reeder Co.	0	1
Royal Co., Inc.	0	1
Associated Engrs.	0	6
Haughton Elevator Co.	0	1
TOTAL SUB CONTRACTOR	8369	8270
GENERAL ELECTRIC TOTAL	9104	9094
GRAND TOTAL	19,729	19,626

Hanford Operations Office
Richland, Wash.
FEB 28 1952

RECEIVED
FEB 27 1952
700 AREA
CLASSIFIED FILES

RECEIVED
OPERATIONS DIVISION
MAR 17 1952
A.M. P.M.