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Hanford Environmental Dose Reconstruction Project

Monthly Report

March 1991

Prepared for the Technical Steering Panel

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HANFORD ENVIRONMENTAL DOSE
RECONSTRUCTION PROJECT

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March 1991

Prepared for the Technical Steering Panel

Pacific Northwest Laboratory
Richland, Washington 99352

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF THE HISTORY OF ARTS

1980-1981

1980-1981

EDWARD S. REDBURN

HANFORD ENVIRONMENTAL DOSE
RECONSTRUCTION PROJECT

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NOTICE TO THE PUBLIC

FOR THE YEAR 1998

1998-01-01

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NOTICE TO THE PUBLIC

FOR THE YEAR 1998

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Preface

This monthly report summarizes the technical progress and project status for the Hanford Environmental Dose Reconstruction (HEDR) Project being conducted at the Pacific Northwest Laboratory (PNL)^(a) under the direction of a Technical Steering Panel (TSP). The TSP is composed of experts in numerous technical fields related to this project and represents the interests

of the public. The U.S. Department of Energy (DOE) funds the project.

Figure 1 shows the PNL organizational structure of the HEDR Project. Table 1 shows the status of PNL work to comply with directives issued by the TSP.

FIGURE 1. Organizational Structure of the Hanford Environmental Dose Reconstruction Project

^(a)Battelle Memorial Institute operates the Pacific Northwest Laboratory.

TABLE 1. Status of Directives(a)

		<u>Complete</u>	<u>Ongoing</u>	<u>Phase I</u>	<u>Phase II</u>
88-1	(a) Proposals		x		
	(b) Source Terms			x	
88-2	Vegetation			x	x
88-3	Status Reports		x		
88-4	Ground Water			x	x
88-5	Maps	x			
88-6	Resumes	x			
89-1	Indian Tribes			x	
89-2	Bioassay Data			x	x
89-3	Document Handling		x		
89-4	Reactor Purging			x	x
89-5	Phased Approach		x		
89-6	Meeting Materials		x		
89-7	Tech Communication			x	x
89-8	Phase II Planning			x	
89-9	Project QA Plan		x	x	
89-10	Contracts with Tribes			x	
90-1	Project Direction		x		
90-2	Dose Cut-Off Limit		x		

(a) Note: For simplicity, TSP directives are identified here using only key words.
The complete directives are available from the TSP.

Executive Summary

The objective of the Hanford Environmental Dose Reconstruction Project is to estimate the radiation doses that populations could have received from nuclear operations at Hanford since 1944. The project is being managed and conducted by the Pacific Northwest Laboratory (PNL) under the direction of an independent Technical Steering Panel (TSP).

The TSP consists of experts in environmental pathways, epidemiology, surface-water transport, ground-water transport, statistics, demography, agriculture, meteorology, nuclear engineering, radiation dosimetry, and cultural anthropology. Included are appointed technical members representing the states of Oregon and Washington, cultural and technical experts nominated by the regional Native American tribes, and an individual representing the public.

The project is divided into the following technical tasks. These tasks correspond to the path radionuclides followed, from release to impact on humans (dose estimates):

- Source Terms
- Environmental Transport
- Environmental Monitoring Data
- Demographics, Agriculture, Food Habits
- Environmental Pathways and Dose Estimates.

The Source Terms Task develops estimates of radioactive emissions from Hanford facilities since 1944. These estimates are based on historical measurements and production information.

The Environmental Transport Task reconstructs the movement of radioactive materials from the areas of release to populations. Movement via the atmosphere, surface water (Columbia River), and ground water is studied.

The Environmental Monitoring Data Task assembles, evaluates, and reports historical environmental monitoring data. A major effort of this task is to separate Hanford as a source of radionuclide concentrations in the environment from concentrations caused by natural sources and nuclear testing fallout.

The Demographics, Agriculture, Food Habits Task develops the data needed to identify the populations that could have been affected by the releases. Population and demographic information are developed for the general population within the study area. This information will also be developed for several special population groups, including Native American tribes in the study area, Army personnel who were stationed at Hanford, Hanford construction workers, and migrant farm workers.

In addition to population and demographic data, the food and water sources and consumption patterns for populations are estimated because they provide a primary pathway for the intake of radionuclides. Historical dairy farming practices and milk distribution systems are studied because milk is a significant pathway for iodine-131 to enter the human body. Cows could have eaten vegetation contaminated with this radionuclide.

The Environmental Pathways and Dose Estimates Task uses the information produced by the other tasks to estimate the radiation doses populations could have received from Hanford radiation.

Project reports and references used in the reports are made available to the public in a public reading room. Project progress is documented in this monthly report, which is available to the public.

 

Project Summary

Progress

Figure 2 shows the status of project milestone activities. The following is a summary of activities conducted by HEDR staff in February 1991:

- revised task plans for FY 1991 work to reflect results of the February TSP planning/budget workshop and to address data quality objectives. Task plans will be provided for approval at the April TSP meeting.
- prepared a project completion plan for discussion by Centers for Disease Control (CDC) staff and TSP members at the April TSP meeting. The plan will provide the basis for a contract between Battelle and the CDC for continuation of the project.
- provided to TSP member B. Shleien, at his request, a listing and description of Battelle overhead costs and an example of how they are applied for a typical Battelle senior staff member
- participated in the VAMP Coordinated Research Meeting in Vienna, Austria to evaluate the performance of the HEDR dose estimation model and to compare it with the performance of similar models from other countries
- participated in the Native American Working Group to discuss work scopes for the eight involved tribes
- received TSP approval on, and published as final version, the following Phase I reports:
 - "Radionuclide Sources and Radioactive Decay Figures Pertinent to the Hanford Environmental Dose Reconstruction Project"
 - "Initial Communication Survey Results for the Hanford Environmental Dose Reconstruction Project"
 - "Uncertainties in Source Term Calculations Generated by the ORIGEN2 Computer Code for Hanford Production Reactors"
 - "A History of Major Hanford Facilities and Processes Involving Radioactive Material"
 - "Iodine-131 in Irradiated Fuel at Time of Processing From December 1944 Through December 1947"
 - "MESOILT2, A Lagrangian Trajectory Climatological Dispersion Model"
- calculated discharge concentrations of iodine-131 in all fuel discharged in 1944 - 1947, as part of Task 0302, Closure of Phase I Iodine-131 Releases
- held a working group meeting with atmospheric modeling experts to select equations for implementation and the method for incorporating uncertainty in the atmospheric model. The conceptual development of the model was completed at this meeting.
- completed work on analysis of well impacts on dose; this work will be documented as part of an overall report on groundwater impacts in FY 1992
- reviewed 80 references on Columbia River data, 1944 - 1989
- began documenting Battelle's existing document search strategies
- presented a seminar at the University of Washington on statistical aspect of the HEDR Project
- declassified 63 Hanford-Site-originated documents of potential interest/use to the project, most of which came from the TSP-prioritized listing, and provided the DOE-RL Public Reading Room with 83 documents of potential interest/use in the project. Six people requested 23 HEDR-related materials from the Reading Room in March.
- added a part-time Authorized Derivative Declassifier to the staff
- met with N.J. Germond, TSP, to provide her with information for an upcoming TSP fact sheet on declassification

FIGURE 2. Project Summary Report - Pacific Northwest Laboratory

FIGURE 2. Project Summary Report - Pacific Northwest Laboratory (Contd)

FIGURE 2. Project Summary Report - Pacific Northwest Laboratory (Contd)

- submitted the following communications items to the TSP Communications Subcommittee:
 - bidding package for commercial video production
 - revised video work plan
 - revised candidate survey questions
 - documentation of Subcommittee comments on draft poster graphics
- met with D. Manders, Washington Department of Health, regarding the Hanford health effects registry plan
- responded to media inquiries from Lewiston Morning Tribune reporters.

Problems or Changes and Action Taken

None.

Planned Work for the Next Three Months

- continue to finalize Phase I reports
- publish FY 1991 task plans as final version
- prepare expanded project completion plan for use by CDC in contracting efforts
- submit the following milestones to the TSP for review and approval:
 - code design specifications for revised dose model (Milestone 0202A)
 - documentation of Phase I iodine-131 releases (Milestone 0302A)
 - wind field modeling white paper (Milestone 0402A)

- report on air model variability (Milestone 0402E)
- revised QA plan (Milestone 10A)
- letter report on communications assessment research (Milestone 1203A)
- begin work on source term release model
- restructure atmospheric code to be consistent with dose assessment code
- review and summarize groundwater monitoring documents for the Hanford Site
- initiate expanded milk model work to support the Hanford Thyroid Disease Study
- select an integration method for the air pathway model based on the results of integration speed and accuracy tests (Milestone 0702A)
- begin documenting radionuclide transfer factors and concentration ratios (Milestone 0703A)
- continue to declassify documents from the TSP-prioritized listing.

Budget Status

Figures 2 and 3 show the budget status of the HEDR Project and TSP activities, respectively. Table 2 outlines FY 1991 costs and budget by task and subtask, showing labor and non-labor dollars expended and FY 1991 labor hours budgeted.

Capital Status

FY 1991 capital allocations have not yet been made.

FIGURE 3. Project Summary Report - Technical Steering Panel

TABLE 2. Cost Summary (Dollars in Thousands) (a)

March 1991				FY 1991 to Date (October 1990 - September 1991)							TSP	Budgeted	
				Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (b)	Total \$	Cum Budget	Cum Variance	Approved FY Budget	FY Labor Hours
HEDR Project Tasks													
Task 01 - Project Management (c)													
0101	Project Control	51	10	61	233	83	316	307	-9	662	5,883		
0102	Final Phase I Reports	15	1	16	48	1	49	82	33	114	991		
0103	Records Control	9	0	9	36	1	37	35	-2	70	1,418		
0104	Peer Review	1	0	1	7	0	7	7	0	14	130		
0105	Subcontract Administration	4	0	4	11	1	12	13	1	25	411		
0106	Project Communication Sup	9	1	10	48	52	52	49	-3	99	1,489		
Subtotal Task 01		89	12	101	335	138	473	493	20	984	10,322		
Task 02 - Technical Integration													
0201	Task Mgmt/Proj Integration	4	0	4	60	19	79	46	-33	90	920		
0202	Code Design Specification	12	0	12	69	3	72	76	4	119	1,186		
0203	IAEA Model Intercompar.	8	4	12	26	6	32	30	-2	51	370		
Subtotal Task 02		24	4	28	155	28	183	152	-31	260	2,476		
Task 03 - Source Terms													
0301	Task Management	2	0	2	12	1	13	12	-1	20	165		
0302	Closure of Phase I Iodine Rel	9	0	9	16	0	16	22	6	29	253		
0303	Airborne Isotopes not I-131	6	0	6	6	0	6	13	7	22	128		
0304	Waterborne Isotopes (44-57)	5	0	5	6	0	6	8	2	22	128		
0305	Source Term Release Model	0	0	0	0	0	0		0	40	419		
Subtotal Task 03		22	0	22	40	1	41	55	14	133	1,093		

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TABLE 2. Cost Summary (Dollars in Thousands) (a)

March 1991				FY 1991 to Date (October 1990 - September 1991)						
	Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (b)	Total \$	Cum Budget	Cum Variance	TSP Approved FY Budget	Budgeted FY Labor Hours
Task 04 - Environmental Transport										
0401 Task Management	3	0	3	27	1	28	23	-5	43	400
0402 Atmospheric Transport	14	16	30	92	5	97	142	45	322	3,544
0403 Groundwater Transport	7	0	7	23	0	23	34	11	59	654
0404 Surface Water Transport	4	1	5	22	1	23	48	25	142	1,771
Subtotal Task 04	28	17	45	164	7	171	247	76	566	6,369
Task 05 - Environmental Monitoring Data										
0501 Task Management	0	0	0	0	0	0	0	0	0	0
0502 Vegetation Data	1	0	1	1	0	1	0	-1	62	405
0503 Monitoring Doc Search/Inver	0	0	0	0	0	0	0	0	10	139
Subtotal Task 05	1	0	1	1	0	1	0	-1	72	544
Task 06 - Demographics, Food Consumption, & Agriculture										
0601 Task Management	2	0	2	21	1	22	18	-4	30	365
0602 Prelim Native American Data	7	3	10	42	-6	36	138	102	232	851
0603 Milk Model Refinements	0	0	0	0	0	0	0	0	62	688
Subtotal Task 06	9	3	12	63	-5	58	156	98	324	1,904

TABLE 2. Cost Summary (Dollars in Thousands) (a)

March 1991				FY 1991 to Date (October 1990 - September 1991)						
	Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (b)	Total \$	Cum Budget	Cum Variance	TSP Approved FY Budget	Budgeted FY Labor Hours
Task 07 - Environmental Pathways & Dose Estimates										
0701 Task Management	1	0	1	14	1	15	16	1	26	306
0702 Code Restructure	13	1	14	38	9	47	49	2	158	1,321
HTDS Doses (d)	0	0	0	0	0	0	0	0	0	0
0703 Model Parameters	0	0	0	2	1	3	2	-1	25	337
Subtotal Task 07	14	1	15	54	11	65	67	2	209	1,964
Task 08 - Statistics										
0801 Task Management	4	-2	2	24	-2	22	13	-9	25	213
0802 Task Assistance	3	0	3	8	0	8	17	9	32	303
Subtotal Task 08	7	-2	5	32	-2	30	30	0	57	516
Task 09 - Records Management	6	0	6	14	2	16	37	21	75	1,971
Task 10 - Quality Assurance	3	0	3	19	0	19	33	14	59	941
Task 11 - Information Resources										
1101 Task Management	1	0	1	7	0	7	8	1	16	208
1102 Declassification	4	0	4	23	0	23	34	11	87	1,584
1103 Resource Identification/Avail	7	0	7	28	1	29	31	2	61	1,462
Subtotal Task 11	12	0	12	58	1	59	73	14	164	3,254

TABLE 2. Cost Summary (Dollars in Thousands) (a)

	March 1991			FY 1991 to Date (October 1990 - September 1991)						
	Labor \$	Non-Labor \$ (b)	Total \$	Labor \$	Non-Labor \$ (a)	Total \$	Cum Budget	Cum Variance	TSP Approved FY Budget	Budgeted FY Labor Hours
Task 12 - TSP Communications Support										
1201 Task Management	1	0	1	11	2	13	19	6	39	591
1202 Video	0	1	1	2	0	2	29	27	29	230
1203 Com Assessment Research	1	0	1	5	0	5	29	24	44	190
1204 TSP Com Subcom Support	1	0	1	3	2	5	9	4	19	324
1205 TSP Database/AV Support	0	3	3	0	4	4	9	5	17	10
Subtotal - Task 12	3	4	7	21	8	29	95	66	148	1,345
Subtotal, HEDR Project Tasks	218	39	257	956	189	1,145	1,438	293	3,051	32,699
Contingency (c)									33	0
Subtotal, Project Tasks Plus Contingency	218	39	257	956	189	1,145	1,438	293	3,084	32,699
Technical Steering Panel (f)	0	80	80	0	197	197	398	201	800	0
TOTAL	218	119	337	956	386	1,342	1,836	494	3,884	32,699

(a) This table reflects changes approved at the April TSP meeting.

(b) Non-labor dollars include expenses such as travel, publication production, procurements, and subcontracts.

(c) Project management includes activities such as project control and administration, project communications, subcontract administration, records control, and peer review.

(d) Funding reallocated by the TSP at the April TSP meeting.

(e) Budget not yet allocated.

(f) TSP costs are administered through subcontracts which are reflected as non-labor costs. Actual TSP expenses include both labor and non-labor.

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Task 01 PNL Project Management

Objective

The objective of the PNL Project Management Task is to provide project planning, control, and management of PNL dose reconstruction work in accordance with TSP direction.

Progress

Milestone 0101A - Near-Term Project Plan, due November 1990 and completed; Mid-Year Review and Planned Add-on Work, due April 1991

- revised task plans for FY 1991 work to reflect results of the Seattle TSP planning/budget workshop and to address data quality objectives.

Milestone 0101B - Integrated Project Plan, due July 1991

- prepared a project completion plan for discussion by Centers for Disease Control (CDC) staff and TSP members at the April STP meeting. The plan, which includes a schedule, end products, key milestones, scopes of major activities, assumptions and constraints, will provide the basis for a contract between Battelle

Milestone 0102A - Final Phase I Reports (Summary, Air, River) - Due May 1991

- continued to receive and process responses to TSP comments received from HEDR staff.

Other Activities

- prepared and rehearsed, with review by internal peer reviewers, HEDR staff presentations on status of technical work and finalization of Phase I reports for the April TSP meeting

- met with Battelle legal and contracts staff and with CDC staff to discuss the transfer of funding from DOE to the CDC in FY 1992
- received word that the Corps of Engineers work suspension and debarment on TSP member V. Nguyen is still in effect; therefore, as requested by the TSP, Battelle will not modify Nguyen's contract for FY 1991
- provided to TSP member B. Shleien, at his request, a listing and description of Battelle overhead costs and an example of how they are applied for a typical Battelle senior staff member

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- finalize Phase I reports
- publish FY 1991 task plans final after receiving TSP approval at April meeting

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Task 02 Technical Integration

Objective

The objective of the Technical Integration Task is to provide technical overview of the project to ensure that appropriate technical activities are planned, that appropriate information is generated, and that technical task work is integrated effectively for performing the final dose calculations.

Progress

Milestone 0202A - Draft Code Design Specifications, due April 1991

- expanded the planned contents of this report as described in the February monthly report. Continued scoping several algorithm and hardware options and data storage procedures.

Milestone 0202C - Model Correlations Analysis Report, due February 1991, completed

- continued to write a prototype preliminary environmental radionuclide transport code to test the feasibility of the new dose code structure.

Milestone 0203A - Submit VAMP #1 Results, due February 1991 and complete

- participated in the VAMP Coordinated Research Meeting, March 4-8, 1991, in Vienna, Austria. The HEDR model performed as well as any of the 14 models participating in the Multiple Pathways Working Group inter-comparison. All model results were within a factor of three of each other and of the "real" dose measured in the scenario location (the city of Prague, Czechoslovakia, and surrounding areas after the Chernobyl accident). However, for any given time and exposure pathway, the individual models could vary by factors of up to 10,000 from each other and

from the actual measurements. Most models tended to overpredict concentrations in environmental media (milk, meat) during the first few months after the accident, and some underpredicted at later times. The HEDR model followed this pattern. The main reason for the initial overprediction in the HEDR model was a conceptual model error made in adapting the chronic HEDR model to the acute Chernobyl release. With this factor corrected, the HEDR model should be among the best performers. The discussions were very fruitful, and a number of positive improvements for the model were identified. Of all the models represented in this exercise, the HEDR model was the only stochastic one, making it truly state-of-the-art in this area.

Other Activities

- represented Battelle in a meeting of the HEDR Native American Working Group in Pasco, March 25 - 26. The meeting was directed toward establishing work scopes for each of the eight tribes involved with HEDR. Several of the tribes are expected to have contracts ready for approval in April. Presented the preliminary process for calculating doses to the Coeur d'Alene tribe as information for the other tribes involved. The TSP and the tribes continue to work out a policy for release of Native American dose estimates.
- worked with the HEDR Project Manager and HEDR staff to integrate, develop, and

advise on task plans, data quality objectives, and a preliminary project completion schedule.

Major Problem Areas or Changes and Action Taken

The continued efforts on Milestone 0202A, Draft code design specifications, were originally anticipated to be expended on code development. The efforts are necessary and, in general, were anticipated, but the current source of funding, the design specifications activity, was not. It was decided to issue a design specification that is specific and includes the results of current investigations (including machine-dependencies and database structure questions).

Variance

The cumulative overrun was caused by planning efforts between October 1990 and January 1991 that were larger than originally anticipated when spending plans were formulated. Model development planning costs have been accelerated to procure a computer system this fiscal year. Native American Working Group support was charged inadvertently to Task 02 rather than Task 06. Adjustments will be made next month. Additionally, procurement and subcontract expenses

for Geographic Information System support that were thought to be billed during FY 1990 were billed during 1991, as described last month.

Planned Work for the Next Three Months

- finalize Phase I reports
- respond to TSP comments, once received, on the model correlations analysis report (Milestone 0202C)
- attend Native American Working Group meetings
- continue to evaluate computer hardware and data storage procedures for the new dose code structure to ensure statistical computational needs are met
- prepare code design specifications for restructured computational model
- continue coordinating efforts with Hanford Thyroid Disease Study personnel.

Task 03 Source Terms

Objective

Source terms are the amount and type of radioactive materials released to the environment. Members of the Source Terms Task develop estimates of radioactive emissions since 1944 from Hanford facilities based on historical measurements and production information. Source term estimates are used by Environmental Transport Task members to reconstruct the concentrations of radionuclides in the environment.

Uncertainty in calculated and measured data can result from many factors. Uncertainties in measured emissions may result from early measurement techniques. For calculated emissions, uncertainties may result from the differences in published variables that are used to perform calculations. By comparing the uncertainty in the available data, Source Term Task staff determine the most accurate method for developing source terms. For time periods where measured values do not exist, source terms are calculated from available information. The proposed methods and results of this task are reviewed, evaluated, and approved by the TSP.

Progress

Milestones 0301A, B, C, D, and E - Phase I Final Reports, due March and April 1991 and partially completed

- published four source term HEDR documents as final, TSP-approved versions. The remaining Phase I report, "Fission Product Iodine During Early Hanford-Site Operations..." (Milestone 0301E) is undergoing internal review after incorporation of TSP comments.

Milestone 0302A - Documented Phase I Iodine-131 Releases, due May 1991

- made substantial progress on Task 0302, Closure of Phase I Iodine-131 Releases. Discharge concentrations of iodine-131 in all fuel discharged in the 1944-1947 time frame were calculated. Reconstruction of dissolver operations is under way. Several new references were identified which will provide

corroborative information for the primary references being used.

Milestone 0303A - Documented Significant Airborne Radionuclides, 1944-1957, due July 1991 and **Milestone 0304A** - Documented Significant Waterborne Radionuclides, 1944-1957, due July 1991

- began work on Task 0303 (Significant Airborne Releases 1944-1957) and Task 0304 (Significant Waterborne Releases 1944-1957). Timelines of reference sources were developed for airborne and waterborne releases. Informational gaps were identified.

Other Activities

- received notification of acceptance of an invited paper for presentation at the June American Nuclear Society meeting. The subject is the estimation of iodine-131 releases in the 1944-1947 time period.

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost underrun resulted from greater-than-expected efforts in planning and scoping activities and document revisions, which are budgeted in Task 01. The cumulative variance was substantially reduced this month, however, and all milestones appear to be achievable.

Planned Work for the Next Three Months

- finalize iodine behavior report (Milestone 0301E)
- complete work on Task 0302 (Iodine Closure) in May
- begin work on Task 0305 (Release Model).

Task 04 Environmental Transport

Objective

Members of the Environmental Transport Task reconstruct the movement of radioactive materials (the source term information) from the areas of release to the environment. Radionuclide movement via the atmosphere, Columbia River, and ground water are studied.

To track releases to the atmosphere from Hanford Site operations, meteorological data are needed, including wind speed, wind direction, and other data that affect the dispersion of the releases. Mathematical models are applied to these meteorological data and the source term data to calculate concentrations of radionuclides in the air and on the ground. The TSP reviews, evaluates, and provides direction concerning the proposed models.

Reconstruction of the transport of radionuclides in the Columbia River is based primarily on historical studies of the Columbia River and its tributaries. Computer models are used to reconstruct radionuclide concentrations in the river for time periods when previously published data are limited or unavailable.

The movement of radionuclides in the ground water is reconstructed initially by using ground-water monitoring data to estimate the contribution to the Columbia River exposure pathway. Modeling will be used where previously published data are lacking.

Progress

Milestone 0401A - MESOILT2 Final Report, due March 1991 and completed

- published this TSP-approved report in its final version.

Milestone 0401B - River Concentrations Final Report, due April 1991

- The HEDR Project Office continued to process this report for finalization after TSP comments were addressed.

Milestone 0402A - Wind Field Modeling White Paper, due April 1991

- completed draft portions of white paper related to wind field modeling options. Continued to

work on implementing the code received from the University of Kentucky. Obtained and began installing a second mass-consistent wind field code.

Milestone 0402B - MESOILT2 Version 2.0 Report, due FY 1992

- continued revision of the MESOILT2 code. Held a working group meeting with atmospheric modeling experts to select equations for implementation and the method for incorporating uncertainty in the atmospheric model. The conceptual development of the model was completed at this meeting. A report documenting the meeting will be prepared for the TSP.

Milestone 0402E - Report on Air Model Variability, due April 1991

- completed a revised draft of this report, which will be submitted to internal review.

Milestone 0403A - Groundwater Report, due FY 1992

- completed work on well analysis
- completed calculations of concentrations possibly arriving at a typical spring in a small watershed. The remaining work consists of estimating doses resulting from exposure to these concentrations. Continued drafting the report on impacts of wells, watershed runoff and offsite groundwater migration.

Milestone 0404A - Columbia River Data, 1944-1989, due FY 1992

- continued reviewing available literature. To date, 80 references have been reviewed with the following subject breakdown: Columbia River water concentrations and plume dispersion (19), concentrations in sediment (40), and concentrations in biota (21). A separate working reference list is maintained for each subject.

Major Problem Areas or Changes and Action Taken

An accelerated schedule for revision of the atmospheric model will be considered by the TSP at its April meeting.

Difficulties in getting recently received wind field models to run correctly is causing the wind field model evaluation to fall behind schedule. At the present time, the wind field model is not a critical path item.

Milestone 0404A, Columbia River Data, as described in the February monthly report, will require supplemental funding to incorporate changes suggested by the TSP. This funding was approved at the April meeting.

Variance

The cumulative cost underrun was caused by diversion of effort to plan for the remainder of FY 1991 and the remainder of the project. This activity is budgeted in Task 01.

Planned Work for the Next Three Months

- submit Milestone 0402A, wind field modeling white paper, to the TSP for review
- submit Milestone 0402E, report on air model variability, to the TSP for review
- finalize Phase I reports
- continue evaluation of wind field interpolation methods
- restructure atmospheric code to be consistent with the overall dose assessment code
- incorporate dose estimates into groundwater report
- continue work on groundwater offsite migration. Efforts during April will consist of reviewing and summarizing groundwater monitoring documents for the Hanford Site.
- continue literature and data review for Columbia River data. Begin adding annotations to reference lists.

Task 05 Environmental Monitoring Data

Objective

Members of the Environmental Monitoring Data Task assemble, evaluate, and summarize key historical measurements of the concentrations of radionuclides in the environment around the Hanford Site. Radionuclide concentrations have been measured at various times in air, drinking water, foods, fish, the Columbia River, soil, and in other materials. These measurements are evaluated to estimate their accuracies and then used by Environmental Pathways and Dose Estimates Task staff to estimate radiation doses and by Environmental Transport Task staff to calibrate computer models. Methods to attain this objective are proposed to the TSP for review, evaluation, and approval.

Progress

Milestone 0501A - Environmental Monitoring Data Final Report, due April 1991

- began resolution and incorporation of internal review comments on revised report. Because the initial draft did not contain the original text, much of the revised material had not been previously reviewed. Final revisions will be completed as soon as possible.

Vegetation Data (Task 0502)

- continued efforts to establish subcontracts with key staff. As originally planned, efforts on this subtask will be increased during April.

Surface Water Data (Task 0404)

- technical activities are conducted in support of Subtask 0404, Task 04, Environmental Transport, and are reported under that section.

Major Problem Areas or Changes and Action Taken

Completion of the Phase I Environmental Monitoring Data Report was delayed as a result of other HEDR activities and an underestimation of the effort needed to address review comments. Task plan revisions and additions, along with related planning activities, have consumed more time than expected. In addition, since the draft report did not contain the text originally associated with the various data tables, the rewrite was extensive.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- finalize Phase I report on environmental monitoring data
- collect and inventory additional Columbia River monitoring data
- collect and inventory additional vegetation data and initiated evaluation of assumptions used in determining uncertainty factors.

Task 06 Demography, Food Consumption and Agriculture

Objective

Task members develop the demographic, food consumption, and food production information needed to estimate doses. Demographic information for populations that may have been exposed to radionuclides during the time period of interest is developed for the general population and for several special population groups that are not adequately represented by the U.S. Census. These groups include Native American tribes, Army personnel stationed at Hanford, some Hanford construction workers, and migrant workers.

Sources and quantities of food and water consumed by these populations must be estimated, because food and water provide pathways for the intake of radionuclides. In particular, milk produced from cows represents a significant food pathway for iodine-131 if the cows ate vegetation contaminated with radionuclides. Dairy farming practices and milk distribution systems are studied to identify the populations that may have consumed potentially contaminated milk.

Methods to collect data and to estimate population densities and food consumption have been proposed to the TSP for review, evaluation, and approval.

Progress

Milestone 0602A - Dose Estimates, 2 Tribes, due December 1990 and completed

- gave the Coeur d'Alene tribal presentation to J. Stohr and M. Power, TSP staff. Both are working with the Native American Working Group to finalize Native American work plans.
- met with TSP representatives to discuss contracting options for Native American tribes.

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost overrun resulted from a delay in tribal work pending development by the Native American Working Group of a process for completing the data collection. The Milk Model Refinements subtask (0603) has been rescheduled to begin in April.

Planned Work for the Next Three Months

- finalize Phase I reports
- initiate work on revisions to Phase I milk model
- initiate milk model work to support the Hanford Thyroid Disease Study.

UNITED STATES
DEPARTMENT OF AGRICULTURE

Report of the
Commissioner of the
General Land Office
for the year ending
June 30, 1901
with a statement of the
condition of the public
lands of the United States
at that date
and a statement of the
proceedings of the
Department during the
year.

WASHINGTON:
GOVERNMENT PRINTING OFFICE:
1902.

The following is a list of the
public lands of the United States
at the close of the year ending
June 30, 1901, as reported by
the Commissioner of the General
Land Office to the Secretary of
the Interior.

Page 140

UNITED STATES
DEPARTMENT OF AGRICULTURE
WASHINGTON
1902

Task 07 Environmental Pathways and Dose Estimates

Objective

Task members use calculated and measured concentrations of radionuclides provided by members of the Environmental Transport Task and the Environmental Monitoring Data Task to calculate doses to populations, typical individuals, and specific individuals. These calculations include doses via direct transfer of radionuclides from concentrations in air and water to people (such as via breathing, drinking, and immersion). The calculations also include doses from radionuclide concentrations in air and water transferred through environmental pathways, such as soil, plants, animals, and fish, to people. All significant decisions on exposure models and input parameters are presented to the TSP for review, evaluation, and approval.

Progress

Milestone 0701A - Thyroid Worker Data Final Report, due April 1991

- completed TSP comment resolution and text changes; the report is being reviewed and processed in the HEDR Project Office. In resolving the comments, discussions were held with current and retired Hanford workers. Comment resolution was discussed with TSP members G. Roessler, B. Shleien, and M. Robkin.

Milestone 0702A - Air Pathway Dose Code Documentation, due FY 1992

- completed and partially documented the basic structure and components of a preliminary design for the air pathway dose model and code. Details will be added and documented as the design and prototyping progresses.
- continued to compare, for speed and accuracy, two numerical integration algorithms for solving the dose model differential equations. This is being done on a prototype (benchmark) scale. Test results will be used to select the integration method for the restructured code.

- revised the design of the intermediate results (environmental concentrations) database to better match the anticipated structure of the restructured code and to increase the retrieval efficiency. Wrote a bench-scale test program for estimating run times for the dose calculation portion of the restructured model, including retrievals from the concentrations database. Preliminary results indicate that the database design is viable and that retrievals are sufficiently fast that the calculation of dose to an individual is estimated to take less than 5 minutes to run.

Milestone 0703A - Model Parameters Report, due FY 1992

- this work is scheduled to start in April 1991.

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- continue design and coding efforts for the restructured air pathway model and code. Document additional code design details. Select an integration method based on the results of the integration speed and accuracy tests (Milestone 0702A).
- support Task 02 in developing design specification for the restructured code (Milestone 0202A)
- begin work on documenting radionuclide transfer factors and concentration ratios (Milestone 0703A).

Task 08 Statistics

Objective

Task members provide statistical support to members of technical tasks and develop and apply sensitivity and uncertainty analyses. Sensitivity analyses will be used to identify parameters with the greatest influence on dose estimates. Using sensitivity analyses results, project staff can focus resources where the benefit in terms of accurate dose estimates is greatest. Uncertainty analyses enable task leaders to determine the extent to which the accuracy and precision of the dose estimates are influenced by accuracy and precision in the input parameters.

Progress

Task Assistance (0802)

- met with task leaders to assist in developing data quality objectives
- reviewed revised work plans and data quality objectives for all project technical tasks
- conducted and documented phone conversations with four project scientists regarding their document search strategies for the project.

Other Activities

- conducted activities in support of Task 02 (Technical Integration) and Milestones 0402C and 0402D of Task 04 (Environmental Transport) as reported under Tasks 02 and 04
- presented a seminar at the Center for Quantitative Sciences, University of Washington, Seattle, Washington, on February 27 on statistical aspects of the HEDR Project (seminar was originally scheduled for March).

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost variance was caused by more time necessary on Task Management (0801) than originally anticipated. Upcoming efforts will be more focused on Task Assistance (0802), which received an additional \$9K at mid-year.

Planned Work for the Next Three Months

- continue to provide guidance and review for development of data quality objectives
- assist Task 05 (Environmental Monitoring Data) by revising the draft Phase I report on the uncertainty in the factor that converts historical cpm 131-iodine gross beta measurements to dpm, pending TSP approval
- continue to perform and document statistical analyses for technical tasks.

Task 09 Records Management

Objective

Members of the Records Management Task provide storage and control of completed project records, maintain an automated inventory of all project documentation, and provide a reference service to project staff and the TSP.

Progress

- drafted RMP-1 Revision 1, which incorporates RMP-1 Revision 0 and RMP-2 Revision 0 and includes records management procedure changes. Distributed the draft for internal review.
- received project records from the HEDR Project Office (127 records/1,324 pages)
- verified, processed, and stored project records (210 records/2,401 pages)
- transferred two packages of records to the DOE-RL Public Reading Room (21 records/554 pages).

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost under-run is left over from work delayed pending new staff training. The under-run is expected to be gradually absorbed as accumulated records are processed.

Planned Work for the Next Three Months

- continue processing incoming project records
- continue transferring processed project records to the DOE-RL Public Reading Room.

THE
FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE
WASHINGTON, D. C. 20535

TO : DIRECTOR, FBI (100-374301)
FROM : SAC, NEW YORK (100-100000)
SUBJECT: [REDACTED]

RE: [REDACTED]

DATE: [REDACTED]

TO : DIRECTOR, FBI (100-374301)
FROM : SAC, NEW YORK (100-100000)
SUBJECT: [REDACTED]

RE: [REDACTED]

DATE: [REDACTED]

TO : DIRECTOR, FBI (100-374301)
FROM : SAC, NEW YORK (100-100000)
SUBJECT: [REDACTED]

Task 10 Quality Assurance

Objective

The objective of this task is to ensure continuous quality assurance (QA) support and coordination with all project tasks. This objective is met through the identification and documentation of QA requirements in the form of a QA Plan and periodic monitoring of project activities during the life of the project to ensure compliance with these requirements.

Progress

Milestone 10A - Revised QA Plan, due April 1991

- incorporated initial review comments of the draft revised HEDR QA plan (OHE-3, Revision 4)
- continued reviewing revised FY 1991 task plans to verify inclusion of task-specific data quality objectives.

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost underrun was caused primarily by minimal quality engineering assistance

and surveillance because most of the work performed to date has been related to planning activities. This variance will be corrected within the next few months as the QA planning documents are finalized and the technical work increases.

Planned Work for the Next Three Months

- issue remaining HEDR procedure: HEDR-TP-3, "HEDR Documentation of Critical Decisions"
- issue revised QA plan
- perform initial oversight activities to check for compliance to project technical, QA and data quality objective requirements.

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Task 11 Information Resources

Objective

Members of the Information Resources Task work with the other task members to meet information needs, including ensuring that all data referenced in the reports are publicly available and establishing a microcomputer-based tracking system for ready retrieval of historical information.

Progress

Declassification (Subtask 1102)

- declassified 63 Hanford-Site-originated documents of potential interest/use to the project. The majority of these documents came from the TSP-prioritized listing. Appendix A and its addendum identify the specific documents.
- worked with M. Robkin, TSP, to review classified documents of potential use to the project
- met with N. J. Germond, TSP, to provide her with information and statistics to assist in preparation of a TSP fact sheet on declassification.

Resource Identification and Availability (Subtask 1103)

- added new citations to the tracking system that now contains more than 4200 publications
- provided the DOE-RL Public Reading Room with 83 documents of potential interest/use in the HEDR Project. A title listing of these reports is given in Appendix A.
- filled information requests from M. Robkin, TSP member, and several HEDR task members
- met with TSP member M. L. Blazek to assist her in identifying HEDR-related documents for her review that fall within

her area of expertise. Considerable time was devoted to the two-volume collection, "Design and Procurement History by duPont in December 1945."

DOE-RL Public Reading Room Activity

- T. Traub reported that six people requested 23 HEDR-related materials in March.

Major Problem Areas or Changes and Action Taken

Added a part-time Authorized Derivative Declassifier to the staff; he will work approximately 290 hours in 1991.

Received request from M. Robkin for declassification of approximately 67% of the 367 multiple-request documents. Fifty-one documents need to be declassified, either with or without deletions, to complete the multiple-request portion. These will be addressed on a high-priority basis.

Variance

The cumulative cost overrun will be used for double staffing necessary to train a new information specialist. Additional staff costs for declassification will be reflected during the ensuing months.

Planned Work for the Next Three Months

- declassify, with or without deletions, from the prioritized list of Hanford-Site-originated classified documents, those documents reviewed by M. Robkin and identified as being of use to the project
- continue to develop "packing lists" for boxes of retired Hanford records of potential interest/use to the project
- continue to add input to the information resources tracking database and provide documents to the DOE-RL Public Reading Room in an orderly, timely fashion
- watch for information that may explain in detail, and support data in, "green run" document HW-17381 DEL
- identify significant documents that address fuel element failures that occurred in now decommissioned Hanford production reactors
- continue to identify and collect documents and/or data that address radioactive materials released to the environment during the years from reactor startup through 1957
- identify and collect documents that address reactor purges, 1944-1957.

Task 12 TSP Communications Support

Objective

The objective of this task is to assist the TSP in developing and implementing communications strategies to further establish an effective, informative dialogue with interested audiences, provide public and media relations support, and manage activities that foster a better understanding of the HEDR process and its progress.

Progress

Milestone 1202B - Videotape, due July 1991

- completed draft Request for Proposal, Statement of Work, and evaluation criteria for video production. Submitted bidding package to Communications Subcommittee members for review. These materials will enable commercial firms to bid on video production.
- incorporated Subcommittee member comments into videotape workplan. Submitted revised workplan to Subcommittee Chair.

Milestone 1203A - Letter Report on Communications Assessment Research, due June 1991

- received comments on candidate questions and summary of the communications assessment survey from Subcommittee members. Met with D. Shankle, survey expert at PNL, to review survey questions and Subcommittee comments and suggested changes. Submitted revised document to Subcommittee Chair. Survey activities will begin soon.

Milestone 1205A - Purchase Computer, due April 1991

- received the computer printer, but the monitor and central processing unit have been delayed.

When delivered, the computer equipment will be provided to the Washington Department of Ecology for use on HEDR Project communications activities.

Other Activities

- received comments on draft poster graphics from Subcommittee members; documented and forwarded all to the Chair. This poster will outline the project, provide the toll-free information number, and invite people to upcoming meetings.
- met with HEDR Project Manager D. Shieler and D. Manders, Washington Department of Health, regarding the Hanford health effects registry plan she is drafting and how it interfaces with the HEDR Project
- responded to media inquiries from L. Nelson and B. Loftus, Lewiston Morning Tribune, regarding environmental monitoring done by Hanford in the Lewiston and Dayton area in the 1940s - 1960s. Newspaper staff are writing articles in preparation for the April TSP meeting in Lewiston.
- provided the Washington Department of Ecology with two complete sets of Project viewgraphs to be used for presentations by TSP and staff

- responded to information requests from J. Hidy, Chatteroy, Washington, and V. Williams, Oakdale, California. Forwarded documents and referred them to the Washington Department of Ecology for additional assistance.

Major Problem Areas or Changes and Action Taken

The communications assessment survey (Milestone 1203A) is delayed awaiting TSP Subcommittee approval to proceed.

Variance

The cumulative cost underrun resulted from delays in the video and communications assessment research as explained above.

Planned Work for the Next Three Months

- finalize Phase I reports
- provide audiovisual support for the April TSP public meeting.

Appendix A

**Hanford Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the DOE-RL Public Reading Room
During March 1991**

Appendix A

Hanford Site-Originated Documents of Potential Interest/Use to the HEDR Project - Placed in the DOE-RL Public Reading Room During March 1991

* HW-7-189-DEL	Hanford Engineer Works Monthly Report May 1944. 47 p.	06/09/44
* HW-7-273-DEL	Hanford Engineer Works Monthly Report June 1944. 52 p.	07/07/44
* HW-7-612-DEL	Hanford Engineer Works Monthly Report August 1944. 80 p.	09/09/44
* HW-7-750-DEL	Hanford Engineer Works Monthly Report September 1944. 80 p.	10/10/44
• HW-7-3566-DEL	Hanford Engineer Works Monthly Report February 1946. 94 p.	03/08/46
• HW-7-5630-DEL	Hanford Engineer Works Monthly Report December 1946. 165 p.	01/17/47
• HW-7-5802-DEL	Hanford Engineer Works Monthly Report January 1947. 162 p.	02/20/47
* HW-10642	Aquatic Biology Lab Report for June 1948. 2 p.	07/01/48
* HW-21199	Bibliography on Slug Failures Occurring in the Hanford Production Reactors. 64 p.	05/24/51
* HW-21740	200 Areas Waste Storage Analysis. 10 p.	07/25/51
HW-24664	Separations Section Radiation Monitoring Monthly Report May 1952. 8 p.	06/03/52
HW-25531	Separations Sec. Radiation Monitoring Mnthly Rpt August 1952. 8 p.	09/04/52
HW-25817	Separations Sec. Radiation Monitoring Mnthly Rpt September 1952. 8 p.	10/02/52
HW-26740	Separations Section Radiation Monitoring Monthly Report December 1952. 7 p.	01/05/53

**Hanford Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the DOE-RL Public Reading Room
During March 1991**

HW-27604	Separations Sec. Radiation Monitoring Mnthly Rpt March 1953. 8 p.	04/02/53
HW-27938	Separations Sec. Radiation Monitoring Mnthly Rpt April 1953. 8 p.	05/04/53
HW-28249	Separations Sec. Radiation Monitoring Mnthly Rpt May 1953. 8 p.	06/01/53
HW-28592	Separations Sec. Radiation Monitoring Mnthly Rpt June 1953. 9 p.	07/01/53
HW-28931	Separations Sec. Radiation Monitoring Mnthly Rpt July 1953. 8 p.	08/04/53
HW-29858	Separations Sec. Radiation Monitoring Mnthly Rpt October 1953. 10 p.	11/04/53
HW-30161	Separations Sec. Radiation Monitoring Mnthly Rpt November 1953. 8 p.	12/07/53
HW-30746	Separations Sec. Radiation Monitoring Mnthly Rpt January 1954. 9 p.	02/01/54
HW-31014	Separations Sec. Radiation Monitoring Mnthly Rpt February 1954. 9 p.	03/01/54
HW-31353	Separations Sec. Radiation Monitoring Mnthly Rpt March 1954. 9 p.	04/01/54
HW-31742	Separations Sec. Radiation Monitoring Mnthly Rpt April 1954. 9 p.	05/01/54
HW-32044	Separations Sec. Radiation Monitoring Mnthly Rpt May 1954. 10 p.	06/01/54
HW-32299	Separations Sec. Radiation Monitoring Mnthly Rpt June 1954. 11 p.	07/01/54
HW-32601	Separations Sec. Radiation Monitoring Mnthly Rpt July 1954. 11 p.	08/02/54
HW-32916	Separations Section Radiation Monitoring Monthly Report August 1954. 10 p.	09/01/54
HW-33246	Separations Sec. Radiation Monitoring Mnthly Rpt September 1954. 11 p	10/01/54

**Hanford Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the DOE-RL Public Reading Room
During March 1991**

• HW-33268	Recalculation of Krypton Releases. 4 p.	10/01/54
HW-33604	Separations Sec. Radiation Monitoring Mnthly Rpt October 1954. 12 p.	11/01/54
HW-34295	Separations Sec. Radiation Monitoring Mnthly Rpt December 1954. 11 p.	01/04/55
HW-34864	Separations Sec. Radiation Monitoring Mnthly Rpt January 1955. 11 p.	02/02/55
HW-35653	Separations Sec. Radiation Monitoring Mnthly Rpt February 1955. 11 p.	03/08/55
HW-36043	Separations Sec. Radiation Monitoring Mnthly Rpt March 1955. 12 p.	04/01/55
HW-36516	Separations Sec. Radiation Monitoring Mnthly Rpt April 1955. 9 p.	05/02/55
HW-37222	Separations Sec. Radiation Monitoring Mnthly Rpt May 1955. 10 p.	06/06/55
HW-38471	Separations Sec. Radiation Monitoring Mnthly Rpt July 1955. 9 p.	08/12/55
HW-38901	Separations Sec. Radiation Monitoring Mnthly Rpt August 1955. 9 p.	09/12/55
HW-39321	Separations Sec. Radiation Monitoring Mnthly Rpt September 1955. 9 p.	10/12/55
HW-39802	Separations Sec. Radiation Monitoring Mnthly Rpt October 1955. 9 p.	11/10/55
HW-40248	Separations Sec. Radiation Monitoring Mnthly Rpt November 1955. 9 p.	12/12/55
* HW-41702-E	Radiological Sciences Dept Rpt for Month of February 1956. 9 p.	03/05/56
* HW-41703	Radiological Sciences Dept Monthly Section Reports February 1956. 27 p.	03/05/56
• HW-43071	Hanford Release Calculations for April 1956. 1 p.	05/15/56

**Hanford Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the DOE-RL Public Reading Room
During March 1991**

• HW-43899	Hanford Release Calculations for May 1956. 1 p.	06/22/56
• HW-44352	Hanford Release Calculations for June 1956. 1 p.	07/17/56
• HW-45512	Hanford Release Calculations for July 1956. 1 p.	09/11/56
• HW-46395	Hanford Release Calculations for August & September 1956; and Corrections of Pu Figures for June & July 1956. 1 p.	10/31/56
• HW-47122	Hanford Release Calculations for October 1956; and Corrections for June through September. 2 p.	12/06/56
• HW-47253	Hanford Release Calculations for November 1956. 1 p.	12/14/56
• HW-47880	Hanford Release Calculations for December 1956. 1 p.	01/18/57
• HW-48525	Hanford Release Calculations for January 1957. 1 p.	02/14/57
• HW-49782	Hanford Release Calculations for February & March 1957. 1 p.	04/23/57
• HW-50686	Hanford Release Calculations for April 1957. 1 p.	06/10/57
• HW-50726	Comments on the Two Methods Used to Report Krypton Releases at the HAPO. 2 p.	06/12/57
• HW-51179-DEL	Changes in Reporting HAPO Releases. 1 p.	06/28/57
• HW-51413	Hanford Release Calculations for July 1956 through June 1957. 2 p.	07/17/57
• HW-52264	Hanford Release Calculations for July 1957. 1 p.	08/26/57

**Hanford Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the DOE-RL Public Reading Room
During March 1991**

• HW-54359	Hanford Release Calculations for August 1957 through November 1957. 1 p.	01/03/58
• HW-54730	Hanford Release Calculations for December 1957. 1 p.	01/27/58
• HW-55098	Hanford Release Calculations for January 1958. 1 p.	02/25/58
• HW-55505	Hanford Release Calculations for February 1958. 1 p.	03/26/58
• HW-55712	Hanford Release Calculations for March 1958. 1 p.	04/14/48
• HW-56231	Hanford Release Calculations for April 1958. 1 p.	06/03/58
• HW-56916	Hanford Release Calculations for July 1957 through June 1958. 2 p.	07/25/58
• HW-57183	Hanford Release Calculations for July 1958. 1 p.	08/15/58
• HW-57436	Corrections of HAPO Releases for Fiscal Year 1958. 2 p.	09/12/58
• HW-57936	Hanford Release Calculations for August & September 1958. 1 p.	10/28/58
• HW-58471	Hanford Release Calculations for October 1958. 1 p.	12/09/58
• HW-58741	Hanford Release Calculations for November 1958. 1 p.	12/31/58
• HW-59367	Hanford Release Calculations for December 1958 & January 1959. 1 p.	02/24/59
• HW-59933	Hanford Release Calculations for February 1959. 1 p.	04/09/59
• HW-60270	Hanford Release Calculations for March 1959. 1 p.	05/05/59
• HW-61479	Precision & Accuracy of Releases. 2 p.	08/10/59

**Hanford Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the DOE-RL Public Reading Room
During March 1991**

• HW-63809	Hanford Release Calculations for July 1959 through December 1959. 1 p.	02/05/60
• HW-64492	Hanford Release Calculations for January 1960. 1 p.	03/28/60
• HW-64887	Hanford Release Calculations for March 1960. 1 p.	04/22/60
• HW-65914	Hanford Release Calculations for April & May 1960. 1 p.	06/29/60
* HW-67283	Monitoring Noble Gases to Determine Radiological Significance of Fission Products in Reactor Effluent. 13 p.	02/06/61
• HW-68413	Hanford Release Calculations for July through December 1960. 1 p.	02/06/61
• IN-6263	Design & Procurement History of Hanford Engineer Works & Clinton Semi-Works (in 2 volumes). 486 p.	12/31/45

-
- Declassified by Secretary of Energy Watkins' directive
 - * Declassified 1990-1991 by earlier guidance

ADDENDUM

These documents on krypton-85 releases at Hanford were declassified in 1991 under the guidelines of Secretary of Energy Watkins' directive. They are not yet in the DOE-RL Public Reading Room. However, the data from these reports have been incorporated into HAN-62263, which is at the DOE-RL Public Reading Room in Richland, Washington.

These calculations were a part of the Atomic Energy Commission Department of Research and Development effort to estimate the amounts of radioactive noble gases released by Hanford operations. Noble gases such as krypton and xenon do not react with other materials; therefore, they remain in the atmosphere until they decay. Also, if the release rate exceeds the decay rate, there will be a net increase in the atmospheric content of the gas. In terms of quantity and longevity, krypton-85 (10-year half-life) is, by far, the most significant radioactive noble gas released during reprocessing operations.

HAN-57166	Hanford Release Calculations	11/23/54
HAN-57305	"	12/07/54
HAN-58010	"	02/11/55
HAN-58257	"	03/08/55
HAN-58689	"	04/04/55
HAN-59086	"	05/16/55
HAN-59474	"	06/23/55
HAN-60376	"	09/29/55
HAN-60625	"	10/21/55
HAN-61529	"	02/10/56
HAN-61652	"	02/27/56
HAN-62429	"	05/15/56

Appendix B
HEDR Publications - To Date

Appendix B

HEDR Publications - To Date

	Title	Author	Date Issued	Publication No.	Additional Information	Status
	Hanford Environmental Dose Reconstruction Project Monthly Report	HEDR Project Office	Ongoing	PNL-6450 HEDR	Monthly report; cleared one time for documentation	Periodic report; TSP approval not necessary
	FY 1991 Task Plans for the Hanford Environmental Dose Reconstruction Project	HEDR staff	4/91	PNL-7563 HEDR REV. 1	Supersedes PNL-7563 HEDR	Approved by TSP 4/91; being published final
	Project Summary Schedule	Shipler, DB	4/91	PNL-7685 HEDR	Available from TSP	To TSP 4/91
B.1	Effects of the Loss of Correlation Structure on Phase I Dose Estimates	Simpson, JC	2/91	PNL-SA-191085 HEDR	Milestone 0202C	To TSP for review 2/91
	Assessment of FY 1991 Scope Limitations on Out-Year Activities	Shipler, DB	12/90	PNL-7588 HEDR		To TSP 12/90
	FY 1991 Project Plan for the HEDR Project, Phase II	HEDR Staff	11/90	PNL-7563 HEDR	Supersedes PNL-7515 HEDR (HEDR Project Plan, Pre-Decisional Draft)	PNL addressing TSP comments
	HEDR Project Plan - Pre-Decisional Draft	Shipler, DB	10/90	PNL-7515 HEDR	Distributed at TSP public meeting	
	Draft Summary Report	HEDR Staff	7/90	PNL-7410 HEDR	Available from TSP	PNL addressing TSP comments
	Draft Air Pathway Report	HEDR Staff	7/90	PNL-7412 HEDR	Available from TSP	PNL addressing TSP comments
	Draft Water Pathway Report	HEDR Staff	7/90	PNL-7411 HEDR	Available from TSP	PNL addressing TSP comments
	Initial Communication Survey Results for the HEDR Project	Beck, DM	3/91	PNL-7423 HEDR	WSU omnibus survey of WA State residents; HEDR questions	Published final 3/91

Title	Author	Date Issued	Publication No.	Additional Information	Status
QA Audit Report of the HEDR Project-Data Traceability, A-90-15	Pratt, RC	7/90	PNL-7428 HEDR		No TSP comments
A Preliminary Examination of Audience-Related Communications Issues: Hanford Environmental Dose Reconstruction Project	Holmes, CW	4/90	PNL-7231 HEDR		To TSP for final approval 4/91
MESOILT2, A Lagrangian Trajectory Climatological Dispersion Model	Ramsdell, JV	3/91	PNL-7340 HEDR	TSP comments addressed	Published final 3/91
Population Estimates for Phase I	Beck, DM	2/90	PNL-7263 HEDR		PNL addressing TSP comments
Estimates of Food Consumption	Callaway	2/90	PNL-7260 HEDR		PNL addressing TSP comments
Soil Ingestion by Dairy Cattle	Darwin, RF	2/90	PNL-SA-17918 HEDR		For possible use later in project; TSP approval not required
Computational Model Design Specification for Phase I of the Hanford Environmental Dose Reconstruction Project	Napier, BA	2/90	PNL-7274 HEDR		PNL addressing TSP comments
Estimates of Columbia River Radionuclide Concentrations: Data for Phase I Dose Calculations	Richmond, MC; Walters, WH	1/90	PNL-7248 HEDR		PNL addressing TSP comments
Evaluation of Thyroid Radioactivity Measurement Data From Hanford Workers, 1944-1946	Ikenberry, R	1/90	PNL-7254 HEDR		To TSP for final approval 4/91
I-131 in Irradiated Fuel at Time of Processing from December 1944 Through December 1947	Heeb, CM and Morgan, LG	3/91	PNL-7253 HEDR	TSP comments addressed	Published final 3/91
Work Plan for the Hanford Environmental Dose Reconstruction Project	Haerer, HA	12/89	PNL-6696 HEDR REV 1		TSP approved; published 12/89

Title	Author	Date Issued	Publication No.	Additional Information	Status
Uncertainties in Source Term Calculations Generated by the ORIGEN2 Computer Code for Hanford Production Reactors	Heeb, CM	3/91	PNL-7223 HEDR	TSP comments addressed	Published final 3/91
Selection of Dominant Radionuclides for Phase I of the HEDR Project	Napier, BA	12/89	PNL-7231 HEDR		PNL addressing TSP comments
Atmospheric Transport and Dispersion Modeling for the Hanford Environmental Dose Reconstruction Project	Ramsdell, JV	12/89	PNL-7198 HEDR		PNL addressing TSP comments
Atmospheric Transport Modeling and Input Data for Phase I of the Hanford Environmental Dose Reconstruction Project	Ramsdell, JV; Burk, KW	12/89	PNL-7199 HEDR		PNL addressing TSP comments
Fission-Product Iodine During Early Hanford-Site Operations: Its Production and Behavior During Fuel Processing, Off-Gas Treatment, and Release to the Atmosphere	Burger, LL	12/89	PNL-7210 HEDR		PNL addressing TSP comments
The Hanford Environmental Dose Reconstruction Project: Background Information	Byram, SJ	12/89	PNL-SA-17658 HEDR	For use with focus groups	TSP approval not required
Summary of Literature Review of Risk Communication	Byram, SJ	12/89	PNL-7226 HEDR		To TSP for final approval 4/91
Milk Cow Feed Intake and Milk Production and Distribution Estimates for Phase I	Beck, DM	12/89	PNL-7227 HEDR		PNL addressing TSP comments
Preliminary Summaries for Vegetation, River and Drinking Water and Fish Radionuclide Concentration Data (DRAFT)	Woodruff, RK	11/89	PNL-SA-17641 HEDR		To TSP for review 12/89

Title	Author	Date Issued	Publication No.	Additional Information	Status
Radionuclide Sources and Radioactive Decay Figures Pertinent to the HEDR Project	Heeb, CM	3/91	PNL-7177 HEDR	TSP comments addressed	To TSP for final approval 4/91
Estimations of Traditional Native American Diets in the Columbia Plateau	Hunn, ES; Bruneau, CL	8/89	PNL-SA-17296		Reviewed by tribes
Summary of Workshop on Milk Production and Distribution, November 30, 1988-HEDR Project	Beck, DM, et al.	7/89	PNL-6975 HEDR		To TSP 8/89
A History of Major Hanford Facilities and Processes Involving Radioactive Material	Ballinger, MY; Hall, RA	3/91	PNL-6964 HEDR	TSP comments addressed	To TSP for final approval 4/91
Feasibility of Using ¹²⁹ I Concentrations in Human Tissue to Estimate Radiation Dose from ¹³¹ I	McCormack, WD	4/89	PNL-6889 HEDR		TSP approved 9/89; published 1989
Summary Report of HEDR Workshop on Sensitivity and Uncertainty Analysis	Sagar, B; Liebetrau, AM	3/89	PNL-SA-16804 HEDR	Summary of workshop held January 16-18, 1989	Sent to Till 3/89-no written response provided to PNL
Response to TSP Directive 88-4, Ground-Water Contamination Data	Freshley, MD	3/89	PNL-6847 HEDR		TSP received 3/89; no written response provided to PNL
Demographic, Agricultural, Food Consumption, and Lifestyle Research for the Hanford Environmental Dose Reconstruction Project	Beck, DM, et al.	2/89	PNL-6834 HEDR	Incorporates earlier TSP comments	TSP received 3/89; no written response provided to PNL
Proposed Approach for Developing Information on Population Food Consumption and Lifestyles of Native Americans in the HEDR Study Area	Rhoads, RE; Bruneau, CL	1/89	PNL-6803 HEDR	Working document	TSP comments were incorporated into PNL-6834 HEDR

Appendix C

HEDR Presentation Handouts to the TSP - To Date

Appendix C

HEDR Presentation Handouts to the TSP - To Date

C1

Title	Author	Date Issued	Publication No.	Additional Information
Status of Technical Work - Hanford Environmental Dose Reconstruction Project	Napier, BA	4/91	PNL-SA-19356 HEDR	Presented at the TSP mtg, April 5, 1991, Lewiston, ID
Process for Estimating Doses to the Coeur d'Alene Tribe	Ikenberry, TA	3/91	PNL-SA-19204 S HEDR	Presented to the Coeur d'Alene Tribal Council, February 28, 1991, Plummer, ID
Information for the HEDR Planning Workshop - 2/14-16/91	Shipler, DB	2/91	PNL-SA-19108 S HEDR	Presented at the TSP Workshop, February 14-16, 1991, Seattle, WA
Phase I Dose Estimates for the Kalispel Tribe	Ikenberry, TA	1/91	PNL-SA-19098 A HEDR	Presented to the Kalispel Tribal Council, February 5, 1991, Usk, WA
Long-Range Project Plan	Shipler, DB	1/91	PNL-SA-18949 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Preliminary Response to the FY 1991 Project Plan	Shipler, DB	1/91	PNL-SA-18981 HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Application of a Geographical Information System to the HEDR Project	Stephan, JG	1/91	PNL-SA-18958 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Dose Model and Parameter Restructuring	Ikenberry, TA	1/91	PNL-SA-18957 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Status of TSP Directive 89-9	Cuello, R.	1/91	PNL-SA-18962 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Atmospheric Model Restructuring	Ramsdell, JV	1/91	PNL-SA-18956 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Uncertainty Analysis	Simpson, JC	1/91	PNL-SA-18948 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA

Title	Author	Date Issued	Publication No.	Additional Information
Project Model Analysis and Restructuring	Napier, BA	1/91	PNL-SA-18955 S HEDR	Presented at the TSP mtg, Jan 11, 1991, Pasco, WA
Hanford Environmental Dose Reconstruction Project - Phase I Report	Haerer, HA	5/90	PNL-18304 S HEDR	Presented at the workshop, "Public Health Aspects of Hanford Health Studies, A Workshop for State, Local, and Tribal Health Officials," June 6, 1990
Detailed Example Calculations for HEDR, Phase I	Napier, BA	2/90	PNL-SA-17913 HEDR	Presented at the TSP mtg, Feb 15-17, 1990, Richland, WA
Communications Directive	Rhoads, RE	2/90	PNL-SA-17903 S HEDR	Presented at the TSP mtg, Feb 15-17, 1990, Richland, WA
HEDR Project Report to the TSP	Haerer, HA	2/90	PNL-SA-27904 S HEDR	Presented at the TSP mtg, Feb 15-17, 1990, Richland, WA
Hanford Environmental Dose Reconstruction Project	Haerer, HA	12/89	PNL-SA-17661S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Communications Directive	Rhoads, RE	12/89	PNL-SA-17653 S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Preliminary Evaluation of Thyroid Bioassay Data from Hanford Workers, 1944-1946	Ikenberry, T; Napier, BA	12/89	PNL-SA-17670 S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Overview of Project Model - Air Pathway	Napier, BA	12/89	PNL-SA-17673 HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Source Terms - Air Pathway Source Terms - Surface-Water Pathway	Morgan, LG	12/89	PNL-SA-17657 HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Atmospheric Transport Model	Freshley, MD	12/89	PNL-SA-17662 S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Environmental Monitoring Data: Vegetation, 1945-1947	Woodruff, RK	12/89	PNL-SA-17671 HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA

Title	Author	Date Issued	Publication No.	Additional Information
Preliminary Calculated and Measured Concentrations of Iodine-131 in Vegetation for Phase I	Napier, BA	12/89	PNL-SA-17674 HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Milk Production and Distribution	Beck, DM	12/89	PNL-SA-17649 S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Overview of Project Model - Surface-Water Pathway	Napier, BA	12/89	PNL-SA-17672 HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Surface-Water Pathway	Freshley, MD	12/89	PNL-SA-17660 S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Environmental Measurements - Columbia River	Poston, TM; Dirkes, R.	12/89	PNL-17669 HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Phase II Planning	Haerer, HA	12/89	PNL-17661 S HEDR	Presented at the TSP mtg, December 11-13, 1989, Richland, WA
Discussion with TSP Subcommittee on Communication Strategy	Rhoads, RE	10/89	PNL-SA-17475 HEDR	Presented at the TSP Subcommittee meeting on Communication Strategy, October 5, 1989, Portland, OR
Surface Water Exposure Pathways	Napier, BA; Poston, TM	10/89	PNL-SA-17502 S HEDR	Presented at the TSP meeting, October 12-14, 1989, Portland, OR
HEDR Project Report to the TSP	Haerer, HA	10/89	PNL-SA-17501 HEDR	Presented at the TSP mtg, Oct 12-14, 1989, Portland, OR
Methods for Presenting Results to the Public	Rhoads, RE	8/89	PNL-SA-17368 HEDR	Presented at the TSP mtg, September 6, 1989, Portland, OR
HEDR Project Report to the TSP July 21, 1989	Haerer, HA	7/89	PNL-SA-17218 HEDR	Presented at the TSP mtg, July 21, 1989, Richland, WA

Title	Author	Date Issued	Publication No.	Additional Information
Radionuclides Transported by the Columbia River	Freshley, MD	7/89	PNL-SA-17235 HEDR	Presented at the TSP mtg, July 21, 1989, Richland, WA
Defining Demographic Categories for Phase I	Napier, BA; Beck, DM	5/89	PNL-SA-17035 HEDR	Presentation handout for the TSP mtg, May 18-20, 1989, Toppenish, WA
HEDR Project Report to the TSP for May 1989 Public Meeting	Haerer, HA	5/89	PNL-SA-17032 HEDR	Presented at the TSP mtg, May 18-20, 1989, Toppenish, WA
Task 6 - Population, Food Consumption and Lifestyles	Rhoads, RE	3/89	PNL-SA-16785 HEDR	Presented at the Native American Workshop, March 14-15, 1989, Richland, WA
HEDR Native American Population, Food Consumption and Lifestyle Study - Data Requirements	Bruneau, CL	3/89	PNL-SA-16784 HEDR	Presented at the Native American Workshop, March 14-15, 1989, Richland, WA
Hanford Environmental Dose Reconstruction Project - Report to the Technical Steering Panel	Haerer, HA	3/89	PNL-SA-16794 HEDR	Presented at the TSP mtg, March 17, 1989, Spokane, WA
Availability of I-131 Vegetation Data	Price, KR	1/89	PNL-SA-16573 HEDR	Presented at HEDR workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
Atmospheric Pathway	Ramsdell, JV	1/89	PNL-SA-16565 HEDR	Presented at the HEDR workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
HEDR Demography, Agriculture, and Lifestyle Research	Beck, DM	1/89	PNL-SA-16568 HEDR	Presented at the HEDR workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
Aspects of Sensitivity/Uncertainty Analysis in the HEDR Project	Sagar, B.	1/89	PNL-SA-16571 HEDR	Presented at the HEDR Workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
HEDR Demography, Agriculture, and Lifestyle Research	Beck, DM	1/89	PNL-SA-16568 HEDR	Presented at the HEDR Workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA

Title	Author	Date Issued	Publication No.	Additional Information
Surface Water Transport Uncertainty	Walters, W.	1/89	PNL-SA-16572 HEDR	Presented at the HEDR Workshop on Sensitivity and Analysis, January 16-18, 1989, Pasco, WA
Source Terms	Morgan, LG	1/89	PNL-SA-16566 HEDR	Presented at the HEDR Workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
Experience with Gress and Swais	Piepho, MG	1/89	PNL-SA-16567 HEDR	Presented at the HEDR Workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
Purpose of Workshop	Gilbert, D.	1/89	PNL-SA-16569 HEDR	Presented at the HEDR Workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
Example of Sensitivity/Uncertainty Analysis	Streng, DL	1/89	PNL-SA-16570 HEDR	Presented at the HEDR Workshop on Sensitivity and Uncertainty Analysis, January 16-18, 1989, Pasco, WA
Estimated Quantity of ¹³¹ I Contained in Irradiated Fuel at Time of Fuel Processing, CY 1944-1945	Jackson, PO; Morgan, LG	11/88	PNL-SA-16398 HEDR	Presented at the TSP mtg, November 11-12, 1988, Olympia, WA

Appendix D
HEDR-Related Publications

Note: This appendix lists publications that present aspects of dose reconstruction in the open scientific literature; TSP approval is not required.

Appendix D

HEDR-Related Publications

D.1

Title	Author	Date Issued	Publication No.	Audience	Status
The Estimation of Early Hanford Releases of Iodine-131	Heeb, CM et al.	3/91	PNL-SA-19321 A HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Reconstruction of Radionuclide Movement in Ground Water at the Hanford Site	Freshley, MD and Thorne, PD	3/91	PNL-SA-19269 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Initial Findings of the Hanford Environmental Dose Reconstruction Project	Ikenberry, TA and Napier, BA	3/91	PNL-SA-19251 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Integration of Models for the Hanford Environmental Dose Reconstruction Project	Napier, BA	3/91	PNL-SA-19252 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Developing Milk Industry Estimates for Dose Reconstruction Projects	Beck, DM	2/91	PNL-SA-19172 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Native American Food Consumption Data Collection	Bruneau, CL	2/91	PNL-SA-19174 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Developing Population Estimates for Dose Reconstruction Projects	Beck, DM	2/91	PNL-SA-19173 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Effects of the Loss of Correlation Structure on Dose Estimates	Simpson, JC	2/91	PNL-SA-19115 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Recovery and Evaluation of Historic Environmental Monitoring Data at Hanford	Dirkes, RL	2/91	PNL-SA-19119 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Sensitivity of the MESOILT2 Dispersion Model to Input Uncertainty	Ramsdell, JV	2/91	PNL-SA-19117 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Developments in Atmospheric Modeling for Dose Reconstruction at Hanford	Ramsdell, JV	2/91	PNL-SA-19116 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91

Title	Author	Date Issued	Publication No.	Audience	Status
Hanford Environmental Dose Reconstruction: A Public Communications Effort Toward Credibility, Understanding and Independence	Harvey, GL	2/91	PNL-SA-19118 S HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Providing Information Resources for the Hanford Environmental Dose Reconstruction Project	Gydesen, SP	1/91	PNL-SA-19079 A HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
Overview of Hanford Environmental Dose Reconstruction Project	Shipler, DB	1/91	PNL-SA-19078 A HEDR	American Nuclear Society 1991 Annual Meeting	To be presented 6/91
A Multi-Method Approach to Audience Analyses in Developing Comprehensive Public Communications Programs	Homes, CW; Byram, SJ; VonWinterfeldt, D.	10/90	PNL-SA-18676 HEDR	Society for Risk Analysis 1990 Annual Meeting, October 7-10, 1990, New Orleans, LA	Presented 10/90
GENII - Hanford Environmental Dosimetry Package	Napier, BA et al.	7/90	PNL-SA-18478	American Nuclear Society 1990 Winter Meeting	Presented 11/90
Atmospheric Modeling for Dose Reconstruction at Hanford	Ramsdell, V; Burk, K.	7/90	PNL-SA-18487A	American Nuclear Society 1990 Winter Meeting	Presented 11/90
Statistical Aspects of the Hanford Environmental Dose Reconstruction Project and the Hanford Thyroid Disease Study	Gilbert, RO et al.		PNL-SA-18396 HEDR	American Statistical Association Conference on Radiation and Health, July 8-12, 1990, Copper Mountain, CO	Presented 7/90
Statistical Aspects of Reconstructing the I-131 Dose to the Thyroid of Individuals Living Near the Hanford Site in the mid-1940s	Gilbert, RO et al.	3/90	PNL-SA-17384	Workshop: Statistics of Human Radiation Exposure to Ionizing Radiation, April 2-4, 1990, Oxford, UK	Presented 4/90
Reconstruction of Hanford Vegetation Monitoring Data for Dose Reconstruction for 1945-1947	Woodruff, RK; Mart, E; Hanf, RW	1/90	PNL-SA-17760 A HEDR	1990 Health Physics Society Meeting, June 24-28, 1990, Anaheim, CA	Presented 6/90
Uncertainty Analysis of the Conversion Factor for Historic Iodine-131 Gross Beta Vegetation Measurements	Streng, DL et al.	12/89	PNL-SA-17713 HEDR	1990 Health Physics Soc. Mtg, June 24-28, 1990, Anaheim, CA	Presented 6/90

Title	Author	Date Issued	Publication No.	Audience	Status
Sensitivity and Uncertainty Analyses for Environmental Dose Reconstruction	Sagar et al.	11/89	PNL-SA-17586 A HEDR	Workshop on Uncertainty Analyses in Accident Consequence Assessment, Nov 13-16, 1989, Santa FE, NMM	Presented 11/89
The Identification of Terrain-Induced Circulations Using Principal Components	Skyllingstad, ED and Schwartz, MN	10/89	PNL-SA-17164 HEDR	American Meteorological Society Conference on Probability and Statistics, October 1-5, 1989 Monterey, CA	Presented 10/89
Mathematical and Statistical Aspects of Reconstructing Doses to Individuals Living Near the Hanford Site Since the 1940s	Liebetrau, AM et al.	10/89	PNL-SA-17498 HEDR	SIAM Conference on Applied Probability in Science and Engineering, March 5-7, 1990, New Orleans, LA	Presented 3/90
Temporal Variations in Atmospheric Dispersion at Hanford	Ramsdell, JV	9/89	PNL-SA-17375 HEDR	Hanford Symposium on Health and the Environment, Oct 16-19, 1989, Richland, WA	Presented 10/89
The Hanford Environmental Dose Reconstruction Project: Overview	Haerer, HA et al.	9/89	PNL-SA-16859 HEDR	Hanford Symposium on Health and the Environment, Oct 16-19, 1989, Richland, WA	Presented 10/89
The Hanford Environmental Dose Reconstruction Project: Technical Approach	Napier, BA et al.	9/89	PNL-SA-16874 HEDR	Hanford Symposium on Health and the Environment, October 16-19, 1989 Richland, WA	Presented 10/89
The Hanford Environmental Dose Reconstruction Project: The Role of Applied Sociology	Beck, DM	4/89	PNL-SA-16880 HEDR	Pacific Sociological Association Meeting, April 13-16, 1989, Reno, NV	Presented 4/89
Potential Applications of Geographical Information Systems for Analyzing Hanford Environmental Dose Reconstruction Data	Stephan, JG et al.	3/89	PNL-SA-16767 HEDR	Regional Symposium of the HPS Computer Applications in Health Physics, March 16-17, 1989 Richland, WA	Presented 3/89
Estimating Atmospheric Dispersion for Reconstruction of Doses from Hanford Operations	Ramsdell, JV	4/88	PNL-SA-15818 HEDR	69th Annual Meeting of the Pacific Division of the American Association for the Advancement of Science, June 19-23, 1988, Corvallis, OR	Presented 6/88

Appendix E

Communications Log - March 1991

Appendix E

Communications Log - March 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
B Shleien/TSP	DB Shipler/PNL	Phone	Project planning letter, Washington State University/milk model
JE Till/TSP	DB Shipler/PNL	Phone	Air model report, TSP meeting
JE Till/TSP	DB Shipler/PNL	Phone	Air and milk model development, declassification, CDC info, FY 1991 work
DB Shipler/PNL	D Price/TSP	Phone	Milk and vegetable model
B Shleien/TSP	DB Shipler/PNL	Phone	Budget, accruals
DB Shipler/PNL	B Shleien, TSP	Phone	Budget
B Shleien/TSP	DB Shipler/PNL	Phone	Native American funds
JE Till/TSP	DB Shipler/PNL	Phone	Phase I reports, FY 1991 work
HA Haerer/NUS	DB Shipler/PNL	Phone	Decision model
DB Shipler/PNL	JE Till/TSP	Phone	Document search, declassification
DB Shipler/PNL	ML Blazek/TSP	Phone	CDC meeting
DB Shipler/PNL	M Sage/CDC	Phone	CDC meeting
JE Till/TSP	DB Shipler/PNL	Phone	Air and milk models, computer storage
JE Till/TSP	DB Shipler/PNL	Phone	Native American Working Group activities, General Electric documents, air workshop
SM Finch/PNL	A Fredin/Colville Tribe	Phone	Expense receipts for workshops
DE Walker/TSP	SM Finch/PNL	Phone	Invoice

Communications Log - March 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
B Shleien/TSP	SM Finch/PNL	Phone	Nguyen contract, Excell file
SM Finch/PNL	B Shleien/TSP	Phone	Invoice, clearance status
B Shleien/TSP	SM Finch/PNL	Phone	Reserve funding
B Shleien/TSP	SM Finch/PNL	Phone	TSP subcontract supplements
JS Stohr/TSP staff	SM Finch/PNL	Phone	TSP objectives
B Shleien/TSP	SM Finch/PNL	Phone	Correspondence, milk model work, computer disk
JM Daer/PNL	Golder Assoc.	Phone	Roberts address
B Shleien/TSP	JM Daer/PNL	Phone	Invoices, clearance status
M Sage/CDC	JM Daer/PNL	Phone	Blazek phone number, CDC meeting
ML Blazek/TSP	JM Daer/PNL	Phone	CDC meeting
JM Daer/PNL	D Barr/tribes	Phone	Native American Working Group meeting
JS Stohr/TSP staff	BA Napier/PNL	Phone	Native American Working Group meeting
B Shleien/TSP	BA Napier/PNL	Phone	Columbia River data
BA Napier/PNL	M Power/TSP staff	Phone	Native American Working Group meeting
M Power/TSP staff	BA Napier/PNL	Phone	Native American Working Group meeting
V Ramsdell/PNL	JE Till, A Murphy, P Klingeman/TSP	Fax	Atmospheric working group

Communications Log - March 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
V Ramsdell/PNL	A Murphy, P Klingeman/TSP	Phone	Atmospheric working group
V Ramsdell/PNL	W Dabbert, W Petersen/ NCAR/NOAA	Phone & fax	Atmospheric working group
V Ramsdell/PNL	A Murphy, JE Till, P Klingeman, D Barth/TSP	Fax	Atmospheric working group
J Thomas/HEAL	J Simpson/PNL	Phone	Report on loss of correlations
J Simpson/PNL	K Kopecky/TSP	Phone	April TSP meeting
RO Gilbert/PNL	K Kopecky/TSP	Phone	April TSP meeting
SP Gydesen/PNL	R Roberts/retired Hanford employee	Phone	Source of cooling time data
K CharLee/TSP staff	SP Gydesen/PNL	Phone	Reports to G Caldwell
SP Gydesen/PNL	J Anderson/Westinghouse Hanford Co.	Phone	Cooling time logs
N Germond/TSP	SP Gydesen/PNL	Phone	Declassification fact sheet
ML Blazek/TSP	SP Gydesen/PNL	Phone	Document review
PM Cleavenger/PNL	M Robkin/TSP	Phone	Westinghouse report
SP Gydesen/PNL	D McDonald/retired Hanford employee	Phone	Cooling times
SP Gydesen/PNL	M Robkin/TSP	Phone	PNL visit
K Niles/TSP staff	GL Harvey/PNL	Phone & fax	Video
K Niles/TSP staff	GL Harvey/PNL	Phone	Video

Communications Log - March 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
JS Stohr/TSP staff	GL Harvey/PNL	Phone	Computer purchase
K Niles/TSP staff	GL Harvey/PNL	Phone	Video, communications assessment survey
J Hidy/public	GL Harvey/PNL	Phone	Request for HEDR info
K Niles/TSP staff	GL Harvey/PNL	Phone	Photos
N Germond/TSP	GL Harvey/PNL	Phone	Video, survey
K Niles/TSP staff	GL Harvey/PNL	Phone	Video
A Beers/TSP staff	GL Harvey/PNL	Phone	Photos
G Roessler/TSP	T Ikenberry/PNL	Fax	Chalkriver workshop on fetal, infant dosimetry
T Ikenberry/PNL	J Corley/retired Hanford employee	Phone	Historical thyroid counting procedures
T Ikenberry/PNL	G Roessler/TSP	Phone	Phase I thyroid report, fetal dosimetry
T Ikenberry/PNL	B Shleien/TSP	Phone	Phase I thyroid report
T Ikenberry/PNL	W Bishop/TSP	Phone	Presentation material for tribes
R Dirkes/PNL	P Klingeman/TSP	Phone	Task 05 status; April TSP meeting

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