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HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION PROJECT

Quarterly Report

September-November 1993

**Prepared for the Technical Steering Panel
and the Centers for Disease Control and Prevention
under Contract 200-92-0503(CDC)/18620(BNW)**

**Battelle
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Richland, Washington 99352**

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Preface

This quarterly report summarizes the technical progress and project status for the Hanford Environmental Dose Reconstruction (HEDR) Project being conducted by Battelle, Pacific Northwest Laboratories (BNW) under contract with the Centers for Disease Control and Prevention (CDC). The Technical Steering Panel (TSP), which is composed

of experts in numerous technical fields related to the project, provides technical direction of the project.

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

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Figure 1. Organizational Structure of the HEDR Project

Table 1. Status of Directives^(a)

		<u>Complete</u>	<u>Ongoing</u>
88-1-a	Classified Documents	x	
88-1-b	Proposals	x	
88-2	Vegetation	x	
88-3	Status Reports	x	
88-4	Ground Water	x	
88-5	Maps	x	
88-6	Resumes	x	
88-7	TSP Comments on Proposals	x	
89-1	Indian Tribes	x (work now directed by TSP)	
89-2	Bioassay Data	x	
89-3	Document Handling	x	
89-4	Reactor Purging	x	
89-5	Modeling Approach	x	
89-6	Meeting Materials	x	
89-7	Technical Communication	x	
89-8	Phase II Planning	x	
89-9	Project QA Plan		x
89-10	Contracts with Tribes		x
90-1	Project Direction (Task Plans)	x	
90-2	Dose Cut-Off Limit	x	
92-1	Demography, Food, and Agriculture Tasks		x
92-2	Dose Code Development		x
93-1	Sensitivity and Uncertainty Analyses		x
93-2	Milk Production and Distribution		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 (HEDR) Project is to estimate the radiation doses that individuals and populations could have received from nuclear operations at Hanford since 1944. The project is being managed and conducted by Battelle, Pacific Northwest Laboratories (BNW) under contract with the Centers for

Disease Control and Prevention (CDC). The independent Technical Steering Panel (TSP) provides technical direction.

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 members representing the states of Oregon, Washington, and Idaho, a representative of 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

- Demography, Food Consumption, and Agriculture
- 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.

The Demography, Food Consumption, and Agriculture 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 is also expected to be developed for several special population groups, including Native American tribes in the study area.

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.

Lifestyle and food habit information will be developed by the Fred Hutchinson Cancer Research Center (FHCRC) for use in the Hanford Thyroid Disease Study (HTDS).

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

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

Project Summary

Progress

Figure A.1 in Appendix A shows the status of HEDR Project milestone activities. The following is a summary of activities conducted by HEDR staff from September through November 1993:

- completed development of the river environmental accumulation and dose code and data files
- completed testing of the HEDR environmental accumulation and dose codes
- completed validation studies of the air and river source term models, the air and river transport models, and the air and river dose code models
- completed all major dose calculations for representative individuals
- published the final report, *Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, June 1992 through May 1994*, PNWD-2187 HEDR (Milestone 0101G)
- published the *Final Report on the Meteorological Database, December 1944 through December 1949*, PNWD-2200 HEDR (Milestone 0405B)
- published the final report, *Iodine-131 in Vegetation Collected Near the Hanford Site: Concentration and Count Data for 1948-1951*, PNWD-2177 (Milestone 0502B)
- published the final report, *Conversion and Correction Factors for Historical Measurements of Iodine-131 in Hanford-Area Vegetation, 1948-1951*, PNWD-2176 (Milestone 0502B)
- worked with D. W. Price (TSP) to collect additional information from three experts on which feeding regimes pertain to which HEDR domain grid cells and when pasture feeding would start and stop (Subtask 0603)
- met with representatives of the Kalispel and Colville tribes to discuss preliminary air pathway dose estimates (Subtask 0605)
- prepared preliminary air pathway dose estimates for the Coeur D'Alene, Nez Perce, and Warm Springs tribes (Subtask 0605)
- completed statistical analysis of human diet survey information (Subtask 0802)
- completed analysis of bioaccumulation factors for biota in the Columbia River (Subtask 0802)

- completed uncertainty and sensitivity analysis on the river (Subtask 0803)
- completed verification benchmarking exercises between the PILOT code and the DESCARTES and CIDER codes (Subtask 0803)
- declassified 82 Hanford Site-originated documents, 10 of which are reflected in the FY 1993 statistics. Three of the 82 documents are of potential interest/use to the HEDR Project. Two of those three documents are reflected in the FY 1993 statistics (Subtask 1102).
- submitted letter to TSP reporting status of the document search and data quality objective efforts for FY 1993 (Milestone 1103B)

Major Problem Areas or Changes and Action Taken

The weekly review of HEDR Project work to maintain progress and contain costs has been effective. In an effort to successfully complete all technical work and CDC contract deliverables, it was necessary to adjust task budgets from those identified in the *Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, June 1992 through May 1994* (PNWD-2187 HEDR). Budgets have been adjusted to accommodate key technical work, and some administrative and support work has been limited to remain within contract funding limits. The final FY 1993 budget is provided in Table A.1a. The revised FY 1994 budget is provided in Table A.1b. Significant changes are outlined below.

- Task 01: Increased budget to allow funding for project office staffing, report production, and project close out activities, all of which were underestimated when the initial proposal to CDC was submitted.
- Task 02: Reduced budget as a result of accelerated testing and validation activities that were completed in FY 1993.
- Task 0404: Increased budget to provide carryover funding to complete activities scheduled for FY 1993 but delayed into FY 1994.
- Task 06: Reduced budget to provide an "on-call" level of effort for E. B. Liebow (BNW) and T. A. Ikenberry (BNW) for Native American Research support activities for CDC contracts with the tribes.

- **Task 07:** Increased budget to provide sufficient funding to complete and revise the dose calculations, as necessary. We want to ensure that funds will be available to meet any uncertainties in finalizing dose calculations.
- **Task 09:** Increased budget to provide funding to process the HEDR Project records. The total volumes of records is about 50 percent greater than originally anticipated.
- **Task 1102:** Reduced budget as all information needed to complete dose calculations has been declassified. However, funding does remain for document declassification of the 1960-1972 listing when BNW receives directions from the DOE, in accord with the new procedure.

HEDR Project management is working with CDC management to clarify the contractual requirements for the project final report (Milestone 0101I). Depending on the outcome of negotiations, the final report could affect the final contract scope and costs.

Planned Work for the Next Three Months

- begin work on the HEDR Project final report (Milestone 0101I)
- publish the validation of HEDR models report (Milestone 0204C)
- publish the radionuclide releases to air document (Milestone 0303D)
- publish the radionuclide releases to the Columbia River document (Milestone 0304B)
- publish the final RATCHET report (Milestone 0402Brev)

- publish the Columbia River modeling report (Milestone 0404C)
- publish the environmental monitoring data summary report (Milestone 0502C)
- publish milk production/distribution report (Milestone 0603D)
- evaluate the family cow input to the milk model resulting from the TSP report on feeding regimes (Subtask 0603)
- provide preliminary dose calculations to the Coeur D'Alene, Nez Perce, Umatilla, Warm Springs, and Yakima tribes (Subtask 0605)
- complete Columbia River dosimetry report (Milestone 0705B)
- complete atmospheric dosimetry report (Milestone 0705C + 0705A)
- complete uncertainty and sensitivity analyses for the air model (Subtask 0803)

Budget Status

Figure 2a shows the final budget of the HEDR Project for FY 1993. Figure 2b shows the present HEDR Project budget status for FY 1994. Table A.1a in Appendix A shows the final FY 1993 costs and budget by task and subtasks. Table A.1b shows FY 1994 costs and budget. Figure A.2 shows the final TSP budget for FY 1993. That budget was carryover prior to October 1992 when Washington State Department of Ecology (WDOE) began managing the TSP budget. Figure A.3a shows the final Native American research budget for FY 1993. Figure A.3b shows the Native American research budget status for FY 1994.

Figure 2a. HEDR Project Budget Status, FY 1993 - Battelle, Pacific Northwest Laboratories

Figure 2b. HEDR Project Budget Status, FY 1994 - Battelle, Pacific Northwest Laboratories

Acronyms and Abbreviations

AGGREGATE	component of DESCARTES	NFCS	National Food Consumption Survey
AP	Associated Press	NPT	Nez Perce Tribe
BNW	Battelle, Pacific Northwest Laboratories	NTIS	National Technical Information Service
CAT	Coeur d'Alene Tribe	OMB	Office of Management and Budget
CDC	Centers for Disease Control and Prevention	PILOT	please iterate lots of times (computer code)
CHARIMA	river transport model (computer code)	PNL	Pacific Northwest Laboratory (operated for DOE by Battelle Memorial Institute)
CIDER	calculation of individual doses from environmental radionuclides (computer code)	QA	quality assurance
CRD	Columbia River Dosimetry (computer code)	RATCHET	regional atmospheric transport code for Hanford emissions tracking (computer code)
CT	Colville Tribe	RECIPE	component of DESCARTES
CTUIR	Confederated Tribes of the Umatilla Indian Reservation	REDOX	reduction and oxidation (separations process)
DESCARTES	dynamic estimates of concentrations and accumulated radionuclides in terrestrial environments (computer code)	RFP	request for proposal
DOE	U.S. Department of Energy	RIDS	records inventory and disposition schedule
DOE-HQ	U.S. Department of Energy Headquarters	RL	U.S. Department of Energy Richland Operations
DOI	"do" iodine (computer code)	RM	reactor model (computer code)
DQO	Data Quality Objective	SESRC	Social and Economic Sciences Research Center (Washington State University)
FHCRC	Fred Hutchinson Cancer Research Center	SHUFFL	component of DESCARTES
FY	fiscal year	SOW	statement of work
GENII-S	generation II-SUNS (computer code)	ST	Spokane Tribe
HEDR	Hanford Environmental Dose Reconstruction	STRM	source term release model (computer code)
HEDRIC	Hanford Environmental Dose Reconstruction Integrated Codes	STRRM	source term river release model (computer code)
HHIN	Hanford Health Information Network	SUNS	sensitivity/uncertainty system
HNIS	Health and Nutrition Information Service	TSP	Technical Steering Panel
HTDS	Hanford Thyroid Disease Study	USDA	U.S. Department of Agriculture
IAEA	International Atomic Energy Agency	UT	Umatilla Tribe
IHS	Indian Health Service	VAMP	validation of model predictions program
KT	Kallspel Tribe	WDOE	Washington State Department of Ecology
NAS	National Academy of Sciences	WST	Warm Springs Tribe
NAWG	TSP Native American Working Group	WSU	Washington State University
		YIN	Yakima Indian Nation

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Task 01 Battelle Project Management

Objective

The objective of the Battelle Project Management Task is to provide project planning, control, and management of Battelle dose reconstruction work in accordance with the Centers for Disease Control and Prevention (CDC) contract and Technical Steering Panel (TSP) technical direction.

Progress

Milestone 0101G - Revised Integrated Task Plans, due April 1993, rescheduled to September 1993 and completed (PNWD-2187 HEDR)

- published the report, *Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, June 1992 through May 1994*

Milestone 0101I - Project Final Report, due April 1994

- met with CDC in Atlanta, Georgia to discuss the format and content of the HEDR Project final report

Other Activities

- completed all major dose calculations
- participated in the TSP public meeting held October 7-9, 1993 in Richland, Washington. Milk cow feeding regimes and salmon issues were discussed and resolved for currently approved dose calculations.
- gave HEDR overview and status presentations to the Idaho and Oregon HHIN advisory boards

Major Problem Areas or Changes and Action Taken

The weekly review of HEDR Project work to maintain progress and contain costs has been effective.

Budgets have been adjusted to accommodate key technical work, and some administrative and support work has been limited to remain within contract funding limits. The work and budgeted amounts for FY 1994 are shown in Table A.1b.

HEDR Project management is working with CDC management to clarify the contractual requirements for the project final report (Milestone 0101I). Depending on the outcome of negotiations, the final report could affect the final contract scope and costs.

Effective October 4, 1993, M. Allen replaced S. D. Cannon as the HEDR Project Communications Specialist. As published in the last quarterly report, S. D. Cannon is now the HEDR Publications Manager.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- prepare to participate in the TSP public meeting January 20-21, 1994 in Pasco, Washington
- continue to review and publish the 17 documents presently in process
- begin work on the HEDR Project final report (Milestone 0101I) □

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 0204C - Letter Report: HEDR Model Validation Results, due December 1993

- completed a draft of the model validation report, which is now being peer reviewed

Other Activities

- completed development of the river environmental accumulation and dose code and data files. Actual dose calculations began the second week of November, and final production runs of all HEDR dose computations are complete.
- completed testing of the HEDR environmental accumulation and dose codes
- participated in a meeting with milk production experts and presented information on the sensitivity of dose results to cow feeding regime definition
- prepared input files on frost date and animal pasturing seasons based on input from D. W. Price (TSP). This information was shared with staff of the Fred Hutchinson Cancer Research Center's Hanford Thyroid Disease Study (FHCRC/HTDS) by conference call October 28, 1993, because this recent TSP input also impacted the preparation of the HTDS survey input to HEDR.
- participated in conference telephone calls between CDC, FHCRC/HTDS, and BNW. Satisfactory resolution was reached on a series of questions between the groups involved. Test

exchange of computer disks with input and output was accomplished. The first set of HTDS data is being processed.

- participated in a workshop of the National Research Council Committee on an Assessment of CDC Radiation Studies in Washington, D.C., October 24-26, 1993, as an invited keynote presenter and group leader. The objective of the workshop was to draft a report establishing criteria for an ideal dose reconstruction project, identifying the minimum requirements and identifying the information needed.

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost overrun was caused by the acceleration of the validation activities. The budget deficit for this task will balance out in the next quarter.

Planned Work for the Next Three Months

- publish the validation of HEDR models report (Milestone 0204C)
- coordinate activities with the FHCRC (Subtask 0204)
- contribute to the dose reports (Subtask 0705) □

Task 03 Source Terms

Objective

Source terms are the amount and type of radioactive materials released to the environment. The objective of the Source Terms Task is to 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.

Progress

Milestone 0303D + 0303B + 0305A + 0307A - Report on Key Radionuclides Released to Air, 1944-1991 + Iodine-131 Source Term Report, 1948-1991 + Letter Report: Radionuclide Release Model + Letter Report: Hanford Operations, 1944-1991, due December 1993

- completed draft of document on radioactive releases to air. Draft is now undergoing internal reviews. Narrative covers hourly iodine-131 release estimates 1944-1949 from B and T plants. Iodine-131 results for 1944-1947 (previously reported in PNWD-2033 HEDR) are restated and new results for the two additional years, 1948 and 1949, are reported for the first time. The bases for the source term file transmitted to the HEDR atmospheric transport code (RATCHET) are described. Monthly releases for all reprocessing plants are estimated for the period 1944-1972. The last operations plants emitting radionuclides to the air were shut down in 1972. Radionuclides covered are: iodine-131, ruthenium-103, ruthenium-106, cerium-144, strontium-90, and plutonium-239. Reactor atmospheric releases of tritium, carbon-14 and argon-41 are also discussed.

Milestone 0304B + 0305A + 0307A - Report on Key Reactor Releases to the Columbia River, 1944-1991 + Letter Report: Radionuclide Release Model + Letter Report: Hanford Operations, 1944-1991, due December 1993

- completed draft of document on radioactive releases to the Columbia River. The complete operating period of all eight Hanford single-pass reactors (1944 through 1971) is covered on a

monthly time scale for: sodium-24, phosphorus-32, zinc-65, arsenic-76, neptunium-239, chromium-51, scandium-46, manganese-56, gallium-72, yttrium-90, iodine-131, and gross beta activity. The bases for the source term provided to the river transport model CHARIMA are discussed.

Milestone 0306A - Letter Report: Hanford Historical Releases, 1944-1991, due March 1994

- began research on releases from the nine Hanford facilities specified in the HEDR task plan (PNWD-2187 HEDR). This report will provide information on releases from facilities other than the single-pass reactors and chemical-separations plants which have been covered by previous HEDR Source Term Task reports.

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost overrun was caused by more time than anticipated on the air and Columbia River documents. This should balance out in the next quarter.

Planned Work for the Next Three Months

- publish the radionuclide releases to air document (Milestone 0303D)
- publish the radionuclide releases to the Columbia River document (Milestone 0304B)

-
- complete research and draft document on Hanford historical releases (Milestone 0306A)

- present results of air and water releases to the TSP at the January 1994 meeting ☐

Task 04 Environmental Transport

Objective

The objective of the Environmental Transport Task is to 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 groundwater is studied.

Progress

Milestone 0402Brev. - Atmospheric Transport Model (RATCHET) Documentation Report (PNL-8003 HEDR)

- revised report in response to comments from peer reviewers and the TSP. The section of the report on the technical basis of RATCHET includes selected results from the krypton-85 model evaluation runs, and the user's guide portion of the report includes pertinent results from the model sensitivity studies.

Milestone 0404C + 0404B - Report on Columbia River Modeling Approach + Letter Report: Columbia River Conceptual Model, due June 1993 and rescheduled to December 1993

- completed the reconstruction of water concentrations at the 12 locations specified for the Columbia River. The data file of results was forwarded to the Environmental Pathways and Dose Estimates Task for use in the dose estimates
- completed draft of report, which is now being peer reviewed
- presented initial modeling results at the October TSP meeting in Richland, Washington

Milestone 0405B - Letter Report: Atmospheric Model Database Status, due September 1993, rescheduled to November 1993 and completed (PNWD-2200 HEDR)

- published *Final Report on the Meteorological Database, December 1944 through December 1949*

Other Activities

- completed four sets of RATCHET calculations for use in model validation
- completed RATCHET production runs for use in HTDS dose calculations
- revised RATCHET documentation to be consistent with final version of the code
- presented the results of RATCHET sensitivity studies, preliminary results of the krypton-85 validation studies, and a description of RATCHET's treatment of hot spots to the TSP Environmental Transport Subcommittee on October 7 and the full TSP on October 8, 1993.

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant variance.

Planned Work for the Next Three Months

- publish the final RATCHET report (Milestone 0402Brev.)
- complete documentation of the RATCHET tests (Subtask 0402)
- complete supporting documentation for RATCHET input data (Subtask 0402)

- complete analysis of model validation data (Subtask 0402)
- publish the Columbia River modeling report (Milestone 0404C)
- complete quality assurance work (Subtask 0404) □

Task 05 Environmental Monitoring Data

Objective

The objective of the Environmental Monitoring Data Task is to search, retrieve, 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 the Environmental Pathways and Dose Estimates Task to estimate radiation doses and by the Environmental Transport Task to calibrate and validate computer models.

Progress

Milestone 0502A - Conversion and Correction Factors for Iodine-131 in Vegetation, 1945-1947 (PNWD-2133 HEDR)

- received comments from the TSP. As soon as the comments are addressed, the report will be published final.

Milestone 0502B - Letter Report: Vegetation Monitoring Data and Conversion/Correction Factors for Iodine-131 in Vegetation, 1948-1951, due February 1992, rescheduled to September 1993 and completed (PNWD-2177 HEDR and PNWD-2176 HEDR)

- published final the report, *Iodine-131 in Vegetation Collected near the Hanford Site: Concentration and Count Data for 1948-1951*
- published final the report, *Conversion and Correction Factors for Historical Measurements of Iodine-131 in Hanford-Area Vegetation, 1948-1951*

Milestone 0502C - Summary Report: Environmental Monitoring Data Located to Date, due September 1993 and rescheduled to December 1993

- developed bioaccumulation factors for Columbia River fish by type, location, and season

- submitted the environmental monitoring data summary report to the Project Office for review

Terrestrial Monitoring Data (Subtask 0502)

- prepared annotated bibliographies of the vegetation documents for 1952-1983 and the air documents for 1945-1957 for publication

Surface Water Monitoring Data (Subtask 0504)

- supplied environmental data for use in the verification and validation of the CHARIMA and Columbia River dose models

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- publish the environmental monitoring data summary report (Milestone 0502C) □

Task 06 Demography, Food Consumption, and Agriculture

Objective

The objective of the task is to develop the population and agricultural data needed to estimate for real and representative individuals the doses that may have resulted from historical releases of radioactive materials from operations at the Hanford Site.

Progress

Milestone 0603D - Milk Production/Distribution Report, 1944-1991, due March 1993 and rescheduled to December 1993

- submitted draft report for peer review
- attended meeting arranged by the TSP Demography Subcommittee to collect information from three experts about feeding regimes for the 22-county HEDR study area. Four commercial and eight family cow regimes were defined.
- worked with D. W. Price (TSP) to collect additional information from three experts on which feeding regimes pertain to which HEDR domain grid cells and when pasture feeding would start and stop. These same experts were also asked to estimate the shifts in on-and-off-pasture dates caused by weather patterns.
- prepared a condensed version of the feeding regimes to use in the HEDR milk model. This was necessary because the model will only accept four family cow feeding regimes and four seasonal changes each year.
- verified computer data representing the milk distribution and production for all years and all cells

Native American Data (Subtask 0605)

- met with representatives of the Kalispel and Colville tribes to discuss preliminary air pathway dose estimates
- prepared preliminary air pathway dose estimates for the Coeur D'Alene, Nez Perce, and Warm Springs tribes

- provided work planning guidance to the Nez Perce, Warm Springs, and Yakima tribes, who are in the process of completing their Work Order requirements
- initiated closure on four more Native American contracts, bringing the total to six
- attended a meeting of the Native American Working Group (NAWG) in Richland, Washington
- provided two presentations at a training session conducted by the Indian Health Service (IHS) for tribal HEDR Project Coordinators

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost underrun was caused by a delay in receiving invoices for BNW services.

Planned Work for the Next Three Months

- publish milk production/distribution report (Milestone 0603D)
- evaluated new family cow feeding regime information resulting from the TSP report on feeding regimes (Subtask 0603)
- review and evaluate preliminary data submitted by the Yakima Indian Nation (Subtask 0605)
- provide preliminary dose calculations to the Coeur D'Alene, Nez Perce, Umatilla, Warm Springs, and Yakima tribes (Subtask 0605)

- plan and participate in training sessions for the NAWG regarding implementation of data collection protocol (Subtask 0605)
- provide guidance to Native American tribal representatives who plan to come to Seattle, Washington to review unpublished materials stored at the Sand Point Federal Archives facility (Subtask 0605) □

Task 07 Environmental Pathways and Dose Estimates

Objective

The objective of the task is to 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 representative individuals, and specific individuals. These calculations include doses via direct transfer of radionuclides from concentrations in air and water to people (such as 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.

Progress

Milestone 0703C - Letter Report: Revision of Milestone 0703B Key Radionuclide Parameters (PNWD-2023 HEDR)

- continued work on this milestone during the reporting period. The collection of references and Hanford-specific data for the river environmental accumulation and dose models has been completed. TSP comments have been incorporated. This final parameter document will incorporate the most current parameter values used in the air and river pathway dose reports.

Milestone 0705B - Doses from Key Radionuclides in Columbia River Water, 1944-1992, due September 1993 and rescheduled to March 1994

- completed draft of this document. All initial dose calculations for the period 1944-1992 have been completed. The document includes summary information on the methods used to estimate doses, the doses calculated for representative individuals, and the results of sensitivity and uncertainty analyses.

Milestone 0705C + 0705A - Doses from Key Radionuclides Released to Air (excluding Iodine-131), 1944-1992 + Report on Iodine-131 Doses, 1944-1992, due September 1993 and rescheduled to March 1994

- continued work on the draft of this document. All initial dose calculations for the period 1944-1992 have been completed. Work on the graphical presentation of dose results is underway. Work on the uncertainty and sensitivity analyses is ongoing. Initial dose calculations for all key radionuclides have been completed for selected locations for the period 1944 through 1972. Doses for 1973-1992 published in the Hanford annual reports have been reviewed and summarized.

Milestone 0705D - Native American Phase I Doses, no due date

- received the data set for tribal dose calculations from another Native American tribe, bringing the total to seven. Air pathway dose calculations have been completed for six tribes. Formal presentations of the dose results have been given to three tribes. River pathway doses are being initiated for all tribes that have provided data for that pathway. Two tribes have allowed the TSP to release their dose results to the public.

Pathways and Dose Code Development and Documentation (Subtask 0702)

- completed implementation and testing of the environmental accumulation (DESCARTES) and dose estimation (CIDER) computer codes. All formal tests were completed under the Technical Integration Task (Task 02). The Columbia River

Dosimetry (CRD) code has been written and tested. All air and river pathway codes are operating in a production mode.

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost underrun was caused by a slight delay in dose calculation work in September because of the validation work that took precedence per TSP direction. The delay in the dose calculation work delayed writing of the document. Document production is now well underway, and those costs will be reflected in the next quarterly report.

Planned Work for the Next Three Months

- continue testing of codes and input data files for the environmental accumulation and dose codes as needed for HTDS calculations (Subtask 0702)

- complete work on the parameters and dose factors report (Milestone 0703C)
- complete final graphics for dose calculations (Subtask 0705)
- continue dose calculations for HTDS individuals (Subtask 0705)
- continue Native American interactions needed for dose calculations (Subtask 0705)
- complete Columbia River dosimetry report (Milestone 0705B)
- complete atmospheric dosimetry report (Milestone 0705C + 0705A) □

Task 08 Statistics

Objective

The objective of the task is to provide statistical support to other 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. Sensitivity analyses results will be used to focus resources where the benefit in terms of accurate dose estimates is greatest. Uncertainty analyses enable the project 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

General Statistics Support (Subtask 0802)

- completed statistical analysis of human diet survey information
- completed analysis of bioaccumulation factors for biota in the Columbia River
- analyzed historical data and provided estimates of uncertainty that were used in the source term river release model (STRRM)
- provided input to the draft report Environmental Monitoring Data Summary for Hanford Environs
- provided statistical review of the following reports: two source term reports (Milestones 0303D and 0304B), the RATCHET model (Milestone 0402B), river pathway report (Milestone 0404C), validation (Milestone 0204C), and milk model (Milestone 0603D)

Analysis of Model Reliability (Subtask 0803)

- completed uncertainty and sensitivity analysis on the river
- completed planned work on validation studies for the air model
- performed verification benchmarking exercises between the PILOT code and the DESCARTES and CIDER codes
- initiated uncertainty and sensitivity analyses of the air model

Major Problems

None.

Variance

The cumulative cost overrun was caused by an error in charges to Task 08. This will be corrected in December.

Planned Work for the Next Three Months

- respond to TSP comments on *Uncertainty and Sensitivity Analysis of Historical Measurements of Iodine-131 for Vegetation in 1945-1947*, PNWD 1978 HEDR (Milestone 0802A)
- assist in addressing comments on validation studies (Subtask 0803)
- complete uncertainty and sensitivity analyses for the air model (Subtask 0803)
- assist in writing the air model dose report (Subtask 0803)
- assist in finalizing the river model dose report (Subtask 0803)
- assist in finalizing the validation report (Subtask 0803)
- continue documentation efforts on the air model codes (Subtask 0803) □

Task 09 Records Management

Objective

The objective of the Records Management Task is to 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

- collected 18 boxes of records to be included in the HEDR Project files. This completes the commitment on records control identified in the *Quality Assurance Audit Report of the Hanford Environmental Dose Reconstruction Project*, OHE-3, Audit, A-92-20 (PNWD-2049 HEDR). All Phase I records and all completed post-Phase I records have been retrieved from task files and transferred to the HEDR Project Office.
- received project records from the HEDR Project Office - 1,092 records totalling 28,264 pages
- verified, processed, and stored project records - 569 records totalling 3,929 pages
- transferred five packages of records to the RL Public Reading Room - 33 records totalling 1,079 pages
- sent a copy of the project records inventory and disposition schedule (RIDS), revision 6 and a copy of RMP-001, HEDR Records System, revision 2 to M. R. Donnelly (CDC) for review
- reviewed the database and identified file classifications requiring changes as identified in the *Quality Assurance Audit Report of the Hanford Environmental Dose Reconstruction Project*, OHE-3, Audit, A-92-20 (PNWD-2049 HEDR) and

prepared file folders for each report and milestone. Completed reviews on individual records to identify correct file classifications. Staff are currently working on updating the database and transferring the files to the new file locations.

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- continue to process incoming project records
- continue to transfer processed HEDR Project records to the RL Public Reading Room
- complete changes to file classifications as identified in the *Quality Assurance Audit Report of the Hanford Environmental Dose Reconstruction Project*, OHE-3, Audit A-92-20 (PNWD-2049 HEDR) □

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

- reviewed and provided comments on the following reports:
 - Milestone 0101G, *Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, June 1993 through May 1994* (PNWD-2187 HEDR)
 - Milestone 0204C, Validation of HEDR Models
 - Milestone 0303D, Radionuclide Releases to the Atmosphere from Hanford Operations, 1944-1972
 - Milestone 0304B, Radionuclide Releases to the Columbia River from Hanford Operations, 1944-1972
 - Milestone 0402B, Regional Atmospheric Transport Code for Hanford Emission Tracking (RATCHET)
 - Milestone 0404C + 0404B, Reconstruction of Radionuclide Concentrations in the Columbia River From Hanford, Washington to Portland, Oregon for January 1950-January 1971
 - Milestone 0405B, *Final Report on the Meteorological Database, December 1944-1949* (PNWD-2200 HEDR)
 - Milestone 0502B, *Iodine-131 in Vegetation Collected near the Hanford Site: Concentration and Count Data for 1948-1951* (PNWD-2177 HEDR) and *Conversion and Correction Factors for Historical Measurements of Iodine-131 in Hanford Area Vegetation, 1948-1951* (PNWD-2176 HEDR)
 - Milestone 0502C, Environmental Monitoring Data Summary
 - Milestone 0603D, Commercial Milk Distribution Profiles and Production Locations
- performed a data traceability assessment on the report, Commercial Milk Distribution Profiles and Production Locations

- completed additional revisions to the HEDR QA Plan, OHE-3, Revision 7, and reissued it
- prepared HEDR Quarterly Assessment Plan for the first quarter FY 1994 and submitted the results of the assessments planned for the fourth quarter FY 1993
- reformatted HEDR-TP-5, Revision 1, HEDR Technical Peer Review and Clearance Process, into HEDR Technical Procedure format and prepared it for concurrence signatures
- completed the corrective action from the FY 1992 audit finding on Records Control issues

Other Activities

- continued support in the area of verification of compliance to HEDR-TP-9, Revision 1, HEDR Software Configuration Management Plan
- performed data traceability assessment on databases

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- continue performing oversight activities to check for compliance of project technical, QA, and data quality objectives requirements □

Task 11 Information Resources

Objective

The objective of the Information Resources Task is to work with other tasks to meet information needs, including ensuring that all data referenced in the reports are publicly available and establishing a micro-computer-based tracking system for ready retrieval of historical information.

Progress

- submitted letter to TSP reporting status of the document search and data quality objective efforts for fiscal year 1993 (Milestone 1103B)
- assisted TSP staff in locating a document referenced in a BNW report
- arranged review of classified documents by TSP members
- duplicated and provided B. Shleien (TSP) with more than 60 HEDR Project-related documents for review. Also, provided M. A. Robkin (TSP) with more than 30 documents and assisted in searching and locating other materials
- declassified 82 Hanford Site-originated documents, 3 of which are of potential interest/use to the HEDR Project. Table 11.1 shows the status of declassification efforts to date. Ten of the 82 Hanford Site-originated documents were declassified in FY 1993 and so are reflected in Table 11.1 in the FY 1993 statistics. Two of the 3 documents of potential interest/use to the HEDR Project were declassified in FY 1993. They too are reflected in Table 11.1 in the FY 1993 statistics.
- verified bibliographic references in HEDR reports
- sent 15 documents containing information of potential interest/use to the HEDR Project to the RL Public Reading Room

RL Public Reading Room Activity

During September, October, and November 1993, the RL Public Reading Room had 13 HEDR patrons and distributed 24 HEDR reports.

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- support visiting TSP members during document search and review efforts
- assist in making unclassified documents publically accessible so they can be referenced in a report by M. A. Robkin (TSP) □

Table 11.1. Declassification of Hanford-Site-Originated Documents

<u>Documents Declassified</u>	<u>Hanford Historical</u>	<u>HEDR- Related^(a)</u>
March 1987 - September 1987 (FY 1987)	35	27
October 1987 - September 1988 (FY 1988)	52	37
October 1988 - September 1989 (FY 1989)	186	177
October 1989 - September 1990 (FY 1990)	455	236
October 1990 - September 1991 (FY 1991)	1323	599
October 1991 - September 1992 (FY 1992)	2862	554
October 1992 - September 1993 (FY 1993)	870	88
October 1993 - November 1993 (FY 1994)	<u>72</u>	<u>1</u>
TOTAL (March 1987 - November 1993)	5855	1719

(a) Reported in HEDR quarterly reports and included in a HEDR master listing in the RL Public Reading Room. Some of these are from the list requested by the TSP and the public.

Task 12

TSP Communications Support

Objective

The objective of this task is to support the TSP in its efforts to involve the public in HEDR Project activities and communicate project plans and progress.

Progress

- provided TSP staff with materials to assist them in drafting a Request for Proposal for production of a new TSP videotape
- assisted in arranging for TSP badging for the next calendar year
- met with M. S. Power (TSP staff), G. Combs (TSP staff), K. Niles (TSP staff) and S. D. Cannon (BNW) to discuss resources and proposed schedule for the development of future TSP handout materials
- met with M. S. Power (TSP staff) and W. T. Farris (BNW) to discuss the resources needed to develop handout materials in preparation for the issuance of final HEDR Project reports next year
- provided technical review of materials being produced by TSP staff to accommodate release of final Project information in CY 1994
- assisted in meeting with the Oregon Hanford Health Information Network Advisory Council and Hanford staff
- provided D. Johnson (Idaho, HHIN) with a photograph of environmental monitoring activities and information on the HEDR Project for use at the HHIN Service Center. Also, provided G. Linville (HHIN) with a copy of the HEDR Atmospheric Model Domain map for use in the development of a publication
- discussed HEDR Project activities and historical and current environmental monitoring activities with G. Hope (Lewiston, Idaho) for an article she was writing for the Nez Perce tribal newsletter
- assisted in providing L. Spino (CTUIR) with technical reports of interest
- provided operations information regarding REDOX Plant and its silver reactors to assist TSP in responding to a public request
- provided photographs of two TSP members to staff for inclusion into the next TSP newsletter
- discussed HEDR Project activities with K. Southam (Richland, Washington) and provided toll-free numbers for inclusion onto the mailing list

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost overrun was caused by an unanticipated level of support for general task activities.

Planned Work for the Next Three Months

- assist the TSP Communications Subcommittee staff in reviewing materials being developed for public distribution
- attend the TSP Communications Subcommittee meetings in December and January as scheduled
- complete arrangements and deliver new badges for FY 1994 to TSP members □

Appendix A

Milestones, Schedule, and Costs

Figure A.1. HEDR Project Milestones

Figure A.1. HEDR Project Milestones (contd)

Figure A.1. HEDR Project Milestones (contd)

Figure A.1. HEDR Project Milestones (contd)

Figure A.1. HEDR Project Milestones (contd)

Table A.1a. Cost Summary for FY 1993 (Dollars in Thousands)

September 1993				FY 1993 to Date (October 1992 - September 1993)										
				Non-		Cum		CDC/TSP		Budgeted				
				Labor \$	Labor \$ (a)	Total \$	Labor \$	Labor \$ (a)	Total \$	Planned (b)	Variance	Cum Approved FY Budget (c)	Funds FY Labor	Hours
				 
				Labor \$	Labor \$ (a)	Total \$	Labor \$	Labor \$ (a)	Total \$	Planned				

Table A.1a. Cost Summary for FY 1993 (Dollars in Thousands) (contd)

September 1993				FY 1993 to Date (October 1992 - September 1993)									
										CDC/TSP		Budgeted	

Table A.1a. Cost Summary for FY 1993 (Dollars in Thousands) (contd)

September 1993				FY 1993 to Date (October 1992 - September 1993)										
				Non-		Non-		Cum	Cum	CDC/TSP	Funds	Budgeted		
				Labor \$	Labor \$ (a)	Total \$	Labor \$	Labor \$ (a)	Total \$	Planned (b)	Variance	Approved FY Budget (c)	Remaining	FY Labor Hours
Task 07 - Environmental Pathways & Dose Estimates														
0701	Tech Planning/Control/Rep	-1	1	0	48	4	52	54	2	54	2	443		
0702	Path & Dose Code Dev/Doc	7	16	23	373	110	483	459	-24	459	-24	3516		
0703	Path & Dose Model Paramet	5	0	5	51	1	52	58	6	58	6	636		
0705	Dose Calculations	1	0	1	13	2	15	118	103	118	103	1158		
Subtotal Task 07		<u>12</u>	<u>17</u>	<u>29</u>	<u>485</u>	<u>117</u>	<u>602</u>	<u>689</u>	<u>87</u>	<u>689</u>	<u>87</u>	<u>5,753</u>		
Task 08 - Statistics														
0801	Tech Planning/Control/Rep	5	-1	4	32	1	33	37	4	37	4	295		
0802	Stats Support for Tech Work	7	1	8	90	2	92	109	17	109	17	973		
0803	Analysis of Model Reliabilit	0	21	21	186	35	221	203	-18	203	-18	1381		
Subtotal Task 08		<u>12</u>	<u>21</u>	<u>33</u>	<u>308</u>	<u>38</u>	<u>346</u>	<u>349</u>	<u>3</u>	<u>349</u>	<u>3</u>	<u>2,649</u>		
Task 09 - Records Management														
0901	Tech Planning/Control/Rep	-1	0	-1	5	0	5	5	0	5	0	86		
0902	Project Records Managemen	8	1	9	61	4	65	69	4	69	4	1170		
Subtotal for Task 09		<u>7</u>	<u>1</u>	<u>8</u>	<u>66</u>	<u>4</u>	<u>70</u>	<u>74</u>	<u>4</u>	<u>74</u>	<u>4</u>	<u>1,256</u>		
Task 10 - Quality Assurance														
1001	Tech Planning/Control/Rep	0	0	0	15	1	16	13	-3	13	-3	86		
1002	QA Program Development	2	0	2	6	0	6	14	8	14	8	147		
1003	QA Verification	1	0	1	45	0	45	42	-3	42	-3	461		
Subtotal Task 10		<u>3</u>	<u>0</u>	<u>3</u>	<u>66</u>	<u>1</u>	<u>67</u>	<u>69</u>	<u>2</u>	<u>69</u>	<u>2</u>	<u>694</u>		

Table A.1a. Cost Summary for FY 1993 (Dollars in Thousands) (contd)

September 1993					FY 1993 to Date (October 1992 - September 1993)										
					CDC/TSP					Budgeted					
					Non-		Cum	Cum	Approved FY	Funds	FY Labor				
					Labor \$	Labor \$ (a)	Total \$	Labor \$	Labor \$ (a)	Total \$	Planned (b)	Variance	Budget (c)	Remaining	Hours
Task 11 - Information Resources															
1101	Tech Planning/Control/Rep	0	0	0	17	1	18	17	-1	17	-1	232			
1102	Hanford Document Declass	1	1	2	26	2	28	28	0	28	0	691			
1103	Hanford Info Resources Iden	1	0	1	42	0	42	38	-4	38	-4	366			
1104	Document Listing	0	0	0	17	2	19	20	1	20	1	54			
Subtotal Task 11		2	1	3	102	5	107	103	-4	103	-4	1,343			
Task 12 - TSP Communications Support															
1201	Tech Planning/Control/Rep	0	1	1	8	6	14	13	-1	13	-1	93			
1203	Comm Assessment Research	3	-1	2	11	-1	10	10	0	11	1	163			
1204	TSP Meeting/Material Sup	4	0	4	10	2	12	18	6	17	5	246			
Subtotal - Task 12		7	0	7	29	7	36	41	5	41	5	502			
Subtotal, HEDR Project Tasks		201	-1	200	3,557	488	4,045	4,278	233	4,278	233	34,058			

Table A.1a. Cost Summary for FY 1993 (Dollars in Thousands) (contd)

	September 1993			FY 1993 to Date (October 1992 - September 1993)							
	<u>Labor \$</u>	<u>Non-Labor \$ (a)</u>	<u>Total \$</u>	<u>Labor \$</u>	<u>Non-Labor \$ (a)</u>	<u>Total \$</u>	<u>Cum Planned (b)</u>	<u>Cum Variance</u>	<u>CDC/TSP Approved FY Budget (c)</u>	<u>Funds Remaining</u>	<u>Budgeted FY Labor Hours</u>
<u>Technical Steering Panel (e)</u>	0	0	0	0	-2	-2	0	2	0	2	0
<u>Native American Research (f)</u>	0	73	73	0	145	145	176	31	176	31	0
TOTAL	201	72	273	3,557	631	4,188	4,454	266	4,454	266	34,058

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

(b) The monthly planned amounts are given in the cost section of Figures 2, A.2, and A.3.

(c) "CDC/TSP Approved FY Budget" is the FY 1993 realigned budget agreed to in a meeting with the TSP and CDC (Letters from TSP and CDC dated April 22, 1993 and May 27, 1993, respectively).

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

(e) The FY 1993 Technical Steering Panel budget was reallocated for the dose code effort.

(f) The FY 1993 Native American Research budget is carryover from FY 1992 and will be used to complete the FY 1992 scopes of work. The FY 1993 contracts for Native American Research will be administered by the CDC and that budget is not reflected here.

Table A.1b. Cost Summary for FY 1994 (Dollars in Thousands)

October-November 1993			FY 1994 to Date (October 1993 - November 1993)							Budgeted	
	Labor \$	Non-Labor \$	Total \$	Labor \$	Non-Labor \$	Total \$	Cum Planned (a)	Cum Variance	FY 94 Budget	Balance	FY Labor Hours
HEDR Project Tasks											
Task 01 - Project Management (b)											
0101 Project Planning & Control	103	10	113	103	10	113	128	15	492	379	6058
0103 Project Administration	46	1	47	46	1	47	49	2	174	127	2688
0104 Project Peer Review	12	0	12	12	0	12	0	-12	27	15	204
Subtotal Task 01	<u>161</u>	<u>11</u>	<u>172</u>	<u>161</u>	<u>11</u>	<u>172</u>	<u>177</u>	<u>5</u>	<u>693</u>	<u>521</u>	<u>8,950</u>
Task 02 - Technical Integration											
0201 Tech Planning/Control/Rep	3	3	6	3	3	6	3	-3	18	12	152
0204 Proj Tech Cord /Analysis	40	0	40	40	0	40	16	-24	35	-5	302
0205 Path & Dose Model Require	7	2	9	7	2	9	0	-9	5	-4	60
Subtotal Task 02	<u>50</u>	<u>5</u>	<u>55</u>	<u>50</u>	<u>5</u>	<u>55</u>	<u>19</u>	<u>-36</u>	<u>58</u>	<u>3</u>	<u>514</u>
Task 03 - Source Terms											
0301 Tech Planning/Control/Rep	4	0	4	4	0	4	4	0	19	15	168
0303 Rad Releases to Air	0	0	0	0	0	0	2	2	24	24	214
0304 Rad Releases to Water	8	0	8	8	0	8	0	-8	8	0	74
0306 Hanford Historical Releases	19	2	21	19	2	21	13	-8	25	4	232
Subtotal Task 03	<u>31</u>	<u>2</u>	<u>33</u>	<u>31</u>	<u>2</u>	<u>33</u>	<u>19</u>	<u>-14</u>	<u>76</u>	<u>43</u>	<u>688</u>
Task 04 - Environmental Transport											
0404 Surface-Water Transport	22	-15	7	22	-15	7	12	5	39	32	328
0406 Atmospheric Model Calculat	21	1	22	21	1	22	16	-6	46	24	426
Subtotal Task 04	<u>43</u>	<u>-14</u>	<u>29</u>	<u>43</u>	<u>-14</u>	<u>29</u>	<u>28</u>	<u>-1</u>	<u>85</u>	<u>56</u>	<u>754</u>

Table A.1b. Cost Summary for FY 1994 (Dollars in Thousands) (contd)

October-November 1993			FY 1994 to Date (October 1993 - November 1993)								Budgeted	
		<u>Labor \$</u>	<u>Non-Labor \$</u>	<u>Total \$</u>	<u>Labor \$</u>	<u>Non-Labor \$</u>	<u>Total \$</u>	<u>Cum Planned (a)</u>	<u>Cum Variance</u>	<u>FY 94 Budget</u>	<u>Balance</u>	<u>Budgeted FY Labor Hours</u>
Task 05 - Environmental Monitoring Data												
0501	Tech Planning/Control/Rep	1	0	1	1	0	1	2	1	2	1	25
0502	Terrestrial Monitoring Data	6	0	6	6	0	6	6	0	10	4	117
	Subtotal Task 05	<u>7</u>	<u>0</u>	<u>7</u>	<u>7</u>	<u>0</u>	<u>7</u>	<u>8</u>	<u>1</u>	<u>12</u>	<u>5</u>	<u>142</u>
Task 06 - Demography, Food Consumption & Agriculture												
0601	Tech Planning/Control/Rep	3	-1	2	3	-1	2	4	2	14	12	104
0602	Food Consumption	0	0	0	0	0	0	0	0	2	2	24
0603	Milk/Other Food Model Dev	11	0	11	11	0	11	10	-1	12	1	100
0605	Native American Data	2	7	9	2	7	9	13	4	81	72	318
	Subtotal Task 06	<u>16</u>	<u>6</u>	<u>22</u>	<u>16</u>	<u>6</u>	<u>22</u>	<u>27</u>	<u>5</u>	<u>109</u>	<u>87</u>	<u>546</u>
Task 07 - Environmental Pathways & Dose Estimates												
0701	Tech Planning/Control/Rep	2	1	3	2	1	3	4	1	11	8	116
0702	Path & Dose Code Dev/Doc	14	5	19	14	5	19	58	39	85	66	702
0703	Path & Dose Model Paramet	8	0	8	8	0	8	6	-2	6	-2	71
0705	Dose Calculations	44	0	44	44	0	44	70	26	229	185	1086
	Subtotal Task 07	<u>68</u>	<u>6</u>	<u>74</u>	<u>68</u>	<u>6</u>	<u>74</u>	<u>138</u>	<u>64</u>	<u>331</u>	<u>257</u>	<u>1,975</u>
Task 08 - Statistics												
0801	Tech Planning/Control/Rep	2	0	2	2	0	2	3	1	20	18	166
0802	Stats Support for Tech Work	9	0	9	9	0	9	8	-1	30	21	257
0803	Analysis of Model Reliabilit	10	1	11	10	1	11	4	-7	77	66	228
	Subtotal Task 08	<u>21</u>	<u>1</u>	<u>22</u>	<u>21</u>	<u>1</u>	<u>22</u>	<u>15</u>	<u>-7</u>	<u>127</u>	<u>105</u>	<u>651</u>

Table A.1b. Cost Summary for FY 1994 (Dollars in Thousands) (contd)

October-November 1993				FY 1994 to Date (October 1993 - November 1993)								Budgeted
		Labor \$	Non-Labor \$	Total \$	Labor \$	Non-Labor \$	Total \$	Cum Planned (a)	Cum Variance	FY 94 Budget	Balance	FY Labor Hours
Task 09 - Records Management												
0901	Tech Planning/Control/Rep	0	0	0	0	0	0	0	0	5	5	90
0902	Project Records Managemen	8	0	8	8	0	8	10	2	60	52	1385
0903	Records Turnover Package	0	0	0	0	0	0	0	0	67	67	1435
Subtotal for Task 09		<u>8</u>	<u>0</u>	<u>8</u>	<u>8</u>	<u>0</u>	<u>8</u>	<u>10</u>	<u>2</u>	<u>132</u>	<u>124</u>	<u>2,910</u>
Task 10 - Quality Assurance												
1001	Tech Planning/Control/Rep	2	0	2	2	0	2	2	0	10	8	117
1002	QA Program Development	1	0	1	1	0	1	1	0	5	4	58
1003	QA Verification	8	0	8	8	0	8	7	-1	35	27	391
Subtotal Task 10		<u>11</u>	<u>0</u>	<u>11</u>	<u>11</u>	<u>0</u>	<u>11</u>	<u>10</u>	<u>-1</u>	<u>50</u>	<u>39</u>	<u>566</u>
Task 11 - Information Resources												
1101	Tech Planning/Control/Rep	3	3	6	3	3	6	2	-4	14	8	240
1102	Hanford Document Declass	1	0	1	1	0	1	1	0	43	42	725
1103	Hanford Info Resources Iden	4	0	4	4	0	4	6	2	30	26	540
Subtotal Task 11		<u>8</u>	<u>3</u>	<u>11</u>	<u>8</u>	<u>3</u>	<u>11</u>	<u>9</u>	<u>-2</u>	<u>87</u>	<u>76</u>	<u>1,505</u>
Task 12 - TSP Communications Support												
1201	Tech Planning/Control/Rep	0	0	0	0	0	0	0	0	6	6	90
1203	Comm Assessment Research	2	0	2	2	0	2	1	-1	5	3	76
1204	TSP Meeting/Material Sup	1	0	1	1	0	1	1	0	12	11	180
Subtotal - Task 12		<u>3</u>	<u>0</u>	<u>3</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>2</u>	<u>-1</u>	<u>23</u>	<u>20</u>	<u>346</u>
Subtotal, HEDR Project Tasks		427	20	447	427	20	447	462	15	1,783	1,336	19,547

Table A.1b. Cost Summary for FY 1994 (Dollars in Thousands) (contd)

	October-November 1993			FY 1994 to Date (October 1993 - November 1993)							Budgeted FY Labor Hours
	<u>Labor \$</u>	<u>Non- Labor \$</u>	<u>Total \$</u>	<u>Labor \$</u>	<u>Non- Labor \$</u>	<u>Total \$</u>	<u>Cum Planned (a)</u>	<u>Cum Variance</u>	<u>FY 94 Budget</u>	<u>Balance</u>	
<u>Native American Research (c)</u>	0	-10	-10	0	-10	-10	0	10	32	42	0
TOTAL	<u>427</u>	<u>10</u>	<u>437</u>	<u>427</u>	<u>10</u>	<u>437</u>	<u>462</u>	<u>25</u>	<u>1,815</u>	<u>1,378</u>	<u>19,547</u>

(a) The monthly planned amounts are given in the cost section of Figures 2 and A.2.

(b) Project management includes activities such as project control and administration, report publication, project communications, subcontract administration, records control, computer system support, and peer review.

(c) The FY 1994 Native American Research budget is carryover from FY 1992 and will be used to pay invoices upon receipt of the deliverables. The FY 1994 contracts for Native American Research are administered by the CDC. That budget is not reflected here.

1. ID (Contract) Number: DE-AC06-76RLO 1630		2. Program/Project Title: HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - TSP										3. Reporting Period: September 1993		
4a. Participant Name and Address Pacific Northwest Laboratory P.O. Box 999 Richland, WA 99352		4b. Client Name and Address RL Richland, Washington 99352										5. Start Date October 1992		
												6. Completion Date September 1993		
7. FY 93	8. Months	O	N	D	J	F	M	A	M	J	J	A	S	FY94
9. Cost Status														
a. \$ Expressed in: Thousands														
b. B&R No / Subaccount No. 12578 HR0120														
c. FIN No.														
d. Actual Costs Prior Years 3052														
e. FY Budget 0 (a)														
f. Total Budget														
g. FY Funds Auth. 0														
h. Total Funds Auth. 3052 (b)														
Costs	i. Planned	0	0	0	0	0	0	0	0	0	0	0	0	
	j. Actual (c)	0	0	0	0	4	8	-13	0	0	-1	0	0	
	k. Variance	0	0	0	0	-4	-8	13	0	0	1	0	0	
	l. Cum Planned	0	0	0	0	0	0	0	0	0	0	0	0	
	m. Cum Actual (c)	0	0	0	0	4	12	-1	-1	-1	-2	-2	-2	
	n. Cum Variance	0	0	0	0	-4	-12	1	1	1	2	2	2	
10. Legend: Planned - - - - - Actual - - - - - Funds Auth. - - - - - 90% Funds Spent Time Now														
(a) "FY Budget" reallocated to dose code effort. (b) FY 1988-1993. (c) Actual costs are recorded after invoices are received and processed. Therefore, current month costs may not reflect actual work performed.														
11. Name of Project Manager D. B. SHIPLER														

Figure A.2. Technical Steering Panel Budget Status, FY 1993

Figure A.3a. Native American Research Budget Status, FY 1993

1. ID (Contract) Number: DE-AC06-76RLO 1830		2. Program/Project Title: HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - TRIBES						3. Reporting Period: Oct.-Nov. 1993								
4a. Participant Name and Address Pacific Northwest Laboratory P.O. Box 999 Richland, WA 99352				4b. Client Name and Address RL Richland, Washington 99352						5. Start Date October 1993		6. Completion Date September 1994				
7. FY 94		8. Months		O	N	D	J	F	M	A	M	J	J	A	S	FY95
9. Cost Status																
a. \$ Expressed in: Thousands																
b. B&R No./ Subaccount No. 12578 HR0120																
c. FIN No.																
d. Actual Costs Prior Years 210 (a)																
e. FY Budget 32 (b)																
f. Total Budget																
g. FY Funds Auth. 32																
h. Total Funds Auth. 242 (c)																
Costs	j. Planned	0	0	16	16	0	0	0	0	0	0	0	0	0	0	
	j. Actual (d)	-10	0													
	k. Variance	10	0													
	l. Cum Planned	0	0	16	32	32	32	32	32	32	32	32	32	32	32	
	m. Cum Actual (d)	-10	-10													
	n. Cum Variance	10	10													
10. Legend: Planned - - - - - Actual — Funds Auth. — 90% Funds Spent — Time Now																
<p>(a) "Actual Costs" for FY 1991 and prior fiscal years are part of the costs shown in Figure 2, HEDR Project Budget Status. At the direction of the TSP, Battelle began tracking Native American research costs separately in FY 1992. (b) "FY Budget" equals Native American Research FY 1992 carryover. These funds will be used to complete scopes of work currently authorized. The FY 1994 budget and contracts will be administered through the Centers for Disease Control and is not reflected here. (c) FY 1991 carryover plus FY 1992 funds. (d) Actual costs are recorded after invoices are received and processed. Therefore, current month costs may not reflect actual work performed.</p>																
11. Name of Project Manager D. B. SHIPER																

Figure A.3b. Native American Research Budget Status, FY 1994

Appendix B

**Hanford-Site-Originated Documents of
Potential Interest/Use to the HEDR Project -
Placed in the RL Public Reading Room
During September-November 1993**

Appendix B

Hanford-Site-Originated Documents of Potential Interest/Use to the HEDR Project - Placed in the RL Public Reading Room During September-November 1993

BN-SA-0845	Importance of Insects and Zooplankton in the Diet of 0-age Chinook Salmon (<i>oncorhynchusshawytscha</i>) in the Central Columbia River. 10 p.	CIRCA 1978
BNWC-91	Radioactive Contamination in Liquid Waste Discharged to Ground at the Separations Facilities through December 1964. 33 p.	05/04/65
BNWL-2020	Methodology for Estimating Radiation Doses Due to Tritium and Radiocarbon Releases. 16 p.	09/01/76
BNWL-SA-0918	Tissue Sampling for Plutonium through an Autopsy Program. 14 p.	09/30/66
BNWL-SA-2511	Reactor Releases of Radionuclides. 14 p.	05/26/59
BNWL-SA-5588	Calculated Doses from Inhaled Transuranium Radionuclides and Potential Risk Equivalence to Whole-Body Radiation. 40 p.	CIRC 1975
HW-27781	Ground Level Concentrations in the Vicinity of a 185 ft Stack. 20 p.	04/20/53
HW-55593	Radioactive Contamination in Liquid Wastes Discharged to Ground at Separation Facilities through December 1957. 35 p.	04/30/58
HW-59359	Radioactive Contamination in Liquid Wastes Discharged to Ground at Separations Facilities through December 1958. 28 p.	03/31/59
HW-64375	Radioactive Contamination in Liquid Wastes Discharged to Ground at the Separations Facilities through December 1959. 28 p.	05/13/60
HW-69071	Radioactive Contamination Liquid Wastes Discharged to Ground at Separations Facilities through June 1960. 33 p.	04/07/61
HW-69072	Radioactive Contamination in Liquid Wastes Discharged to Ground at Separations Facilities through December 1960. 32 p.	04/14/61
HW-70706	Some Radioactive Materials Measured in Various Waters in the United States a Literature Search. 17 p.	08/16/51
HW-72956	Radioactive Contamination in Liquid Wastes Discharged to Ground at Separations Facilities through December 1961. 32 p.	CIRCA 1961
HW-76638	Radioactive Contamination in Liquid Wastes Discharged to Ground at the Separations Facilities through December 1962. 30 p.	03/12/63

HW-80405	Sources of Radioactivity. 8 p.	01/14/64
HW-81295 10	Radioactive Liquid Waste Disposal for October 1964. 2 p.	12/22/64
HW-81295 11	Radioactive Liquid Waste Disposal for November 1964. 2 p.	12/31/64
HW-81295 6	Radioactive Liquid Waste Disposal for June 1964. 2 p.	08/31/64
HW-81295 7	Radioactive Liquid Waste Disposal for July 1964. 2 p.	09/09/64
HW-81295 8	Radioactive Liquid Waste Disposal for August 1964. 2 p.	10/14/64
HW-81295 9	Radioactive Liquid Waste Disposal for September 1964. 2 p.	11/12/64
PNL-3038	Technical Summary Nuclear Waste Vitrification Project. 68 p.	05/01/79
PNL-5734	Cover Sheet for a Hanford Historical Document Released for Public Availability. 50 p.	09/01/85
PNL-SA-08268	Discrepancies in Estimates of Plutonium Levels in Soils by Different Analytical Methodologies. 6 p.	01/02/90
PNL-SA-09588	Updated Estimates of ²³⁹⁻²⁴⁰ Pu + ²⁴¹ Am Inventory, Spatial Pattern and Soil Tonnage for Removal at Nuclear Site-201, Nts. 15 p.	04/01/82
PNL-SA-11034	Comparison of Soil Sampling Techniques for Plutonium at Rocky Flats. 25 p.	01/02/83
RL-NRD-0827	Review of Effluent Disposal Practices in N Reactor Department. 18 p.	02/28/66
RL-NRD-0828	Chemical Disposal to the Columbia River by 100-N Area. 18 p.	03/04/66
BNWL-2164	Radioactive Fallout from Chines Nuclear Weapons Test September 26, 1976. 15 p.	CIRCA 1976
HW-14742-DEL	Extraneous Radioactive Particles. 3 p.	10/14/49
PNDW-2162 HEDR	Peer Review of HEDR Uncertainty and Sensitivity Analyses Plan. 96 p.	06/01/93
PNWD-2170 HEDR	Document Publication Plan. 35 p.	08/06/93
PNWD-2176 HEDR	Conversion and Correction Factors for Historical Measurements of Iodine-131 in Hanford-Area Vegetation 1948-1951. 56 p.	09/30/93
PNWD-2187 HEDR	Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, June 1992 through May 1994. 125 p.	09/01/93
PNWD-2200 HEDR	Final Report on the Meteorological Database, December 1944-1949. 60 p.	11/01/93

Appendix C

HEDR Documents to the TSP - Complete Compilation

Appendix C

HEDR Documents to the TSP - Complete Compilation

C.1	Title	Author	Date Issued	Publication No.	Additional Information	Status
	Hanford Environmental Dose Recon- struction Project Monthly Report	HEDR Project Office	Ongoing	PNL-6450-XX HEDR PNWD-1980-XX HEDR	PNWD number effective Jun. 1992. XX denotes issue number	Periodic report
	Hanford Environmental Dose Reconstruction Project Work Plan	HEDR Staff	09/88	PNL-6696 HEDR	Not a milestone	Published final
	Work Plan for the Hanford Environmental Dose Reconstruction Project	HA Haerer	12/89	PNL-6696 HEDR Rev. 1	Not a milestone	Published final
	Proposed Approach for Developing Information on Population Food Consumption and Lifestyles of Native Americans in the HEDR Study Area	RE Rhoads CL Bruneau	01/89	PNL-6803 HEDR	Not a milestone	Superseded by PNL-6834 HEDR
	Demographic, Agricultural, Food Con- sumption, and Lifestyle Research for the Hanford Environmental Dose Recon- struction Project	DM Beck et al.	02/89	PNL-6834 HEDR	Not a milestone	Supersedes PNL-6803 HEDR; superseded by PNWD-2022 HEDR, PNWD-2113 HEDR
	Response to TSP Directive 88-4, Ground- Water Contamination Data	MD Freshley	03/89	PNL-6847 HEDR	Not a milestone	Superseded by PNWD-1974 HEDR
	Feasibility of Using ¹²⁹ I Concentrations in Human Tissue to Estimate Radiation Dose from ¹³¹ I	WD McCormack	10/89	PNL-6889 HEDR	Not a milestone	Published final
	A History of Major Hanford Facilities and Processes Involving Radioactive Material	MY Ballinger RA Hall	03/91	PNL-6964 HEDR	Milestone 0301A	Published final
	Summary of Workshop on Milk Production and Distribution, November 30, 1988	DM Beck RF Darwin RM Eckert	07/89	PNL-6975 HEDR	Not a milestone	

Title	Author	Date Issued	Publication No.	Additional Information	Status
Radionuclide Sources and Radioactive Decay Figures Pertinent to the Hanford Environmental Dose Reconstruction Project	CM Heeb	03/91	PNL-7177 HEDR	Milestone 0301B	Published final
Atmospheric Transport and Dispersion Modeling for the Hanford Environmental Dose Reconstruction Project	JV Ramsdell	07/91	PNL-7198 HEDR	Milestone 0401C	Published final
Atmospheric Transport Modeling and Input Data for Phase I of the Hanford Environmental Dose Reconstruction Project	JV Ramsdell KW Burk	07/91	PNL-7199 HEDR	Milestone 0401D	Published final
Fission-Product Iodine During Early Hanford-Site Operations: Its Production and Behavior During Fuel Processing, Off-Gas Treatment, and Release to the Atmosphere	LL Burger	05/91	PNL-7210 HEDR	Milestone 0301E	Published final
Uncertainties in Source Term Calculations Generated by the ORIGEN2 Computer Code for Hanford Production Reactors	CM Heeb	03/91	PNL-7223 HEDR	Milestone 0301D	Published final
Summary of Literature Review of Risk Communication - Hanford Environmental Dose Reconstruction Project	SJ Byram	05/91	PNL-7226 HEDR	Milestone 1201B	Published final
Milk Cow Feed Intake and Milk Production and Distribution Estimates for Phase I	DM Beck et al.	04/92	PNL-7227 HEDR	Milestone 0601C	Published final
Selection of Dominant Radionuclides for Phase I of the Hanford Environmental Dose Reconstruction Project	BA Napier	07/91	PNL-7231 HEDR	Milestone 0201A	Published final
Estimates of Columbia River Radionuclide Concentrations: Data for Phase I Dose Calculations	MC Richmond WH Walters	05/91	PNL-7248 HEDR	Not a milestone	Published final
I-131 in Irradiated Fuel at Time of Processing from December 1944 Through December 1947	CM Heeb LG Morgan	03/91	PNL-7253 HEDR	Milestone 0301C	Published final
Evaluation of Thyroid Radioactivity Measurement Data from Hanford Workers, 1944-1946	TA Ikenberry	05/91	PNL-7254 HEDR	Milestone 0701A	Published final

Title	Author	Date Issued	Publication No.	Additional Information	Status
Estimation of Food Consumption	JM Callaway, Jr.	04/92	PNL-7260 HEDR	Milestone 0601B	Published final
Population Estimates for Phase I Hanford Environmental Dose Reconstruction Project	DM Beck AR Erickson SA Harkreader	03/92	PNL-7263 HEDR	Milestone 0601A	Published final
Computational Model Design Specification for Phase I of the Hanford Environmental Dose Reconstruction Project	BA Napier	07/91	PNL-7274 HEDR	Milestone 0201B	Superseded by PNL-7944 HEDR
A Preliminary Examination of Audience-Related Communications Issues for the Hanford Environmental Dose Reconstruction Project	CW Holmes	04/91	PNL-7321 HEDR	Milestone 0201A	Published final
MESOILT2, A Lagrangian Trajectory Climatological Dispersion Model	JV Ramsdell KW Burk	03/91	PNL-7340 HEDR	Milestone 0401A	Published final
Summary Report: Phase I of the Hanford Environmental Dose Reconstruction Project	HEDR Staff	08/91	PNL-7410 HEDR Rev. 1	Milestone 0102A	Published final
Columbia River Pathway Report: Phase I of the Hanford Environmental Dose Reconstruction Project	HEDR Staff	07/91	PNL-7411 HEDR Rev. 1	Milestone 0102A	Published final
Air Pathway Report: Phase I of the Hanford Environmental Dose Reconstruction Project	HEDR Staff	07/91	PNL-7412 HEDR Rev. 1	Milestone 0102A	Published final
Initial Communication Survey Results for the Hanford Environmental Dose Reconstruction Project	DM Beck	03/91	PNL-7423 HEDR	Milestone 1203A	Published final
QA Audit Report of the HEDR Project - Data Traceability, A-90-15	RC Pratt	07/90	PNL-7428 HEDR	Not a milestone	Published final
HEDR Project Plan - Pre-Decisional Draft	DB Shippler	10/90	PNL-7515 HEDR	Milestone 0101A	Superseded by PNL-7563 HEDR
FY 1991 Project Plan for the Hanford Environmental Dose Reconstruction Project, Phase II	HEDR Staff	11/90	PNL-7563 HEDR	Milestone 0101A	Superseded by PNL-7563 HEDR Rev. 1

Title	Author	Date Issued	Publication No.	Additional Information	Status
FY 1991 Task Plans for the Hanford Environmental Dose Reconstruction Project	HEDR Staff	04/91	PNL-7563 HEDR Rev. 1	Milestone 0101A	Published final; supersedes PNL-7563 HEDR
Assessment of FY 1991 Scope Limitations on Out-Year Activities	DB Shipler	12/90	PNL-7588 HEDR	Not a milestone	Published final
Effects of the Loss of Correlation	JC Simpson	11/91	PNL-7638 HEDR	Milestone 0202C	Published final
Project Summary Schedule	DB Shipler	04/91	PNL-7685 HEDR	Not a milestone	Superseded by PNWD-2020 HEDR
Document Search and Declassification for Phase I of the HEDR Project	DB Shipler et al.	05/91	PNL-7713 HEDR	Not a milestone	Published final
Information Resources Task Management Plan	DB Shipler SP Gydesen	06/91	PNL-7719 HEDR	Not a milestone	Published final
Dose Estimate Variability Caused by Air Model Uncertainties	JC Simpson	06/91	PNL-7737 HEDR	Milestone 0402C	Superseded by PNWD-2124 HEDR
FY 1992 Task Plans for the Hanford Environmental Dose Reconstruction Project	DB Shipler	10/91	PNL-7757 HEDR	Not a milestone	Superseded by PNL-7757 HEDR, Rev. 1
FY 1992 Revised Task Plans for the Hanford Environmental Dose Reconstruction Project	DB Shipler	04/92	PNL-7757 HEDR, Rev. 1	Milestone 0101D	Superseded by PNWD-2020 HEDR
FY 1994 Task Plans for the Hanford Environmental Dose Reconstruction Project	DB Shipler	07/91	PNL-7759 HEDR	Milestone 0101C	Published final
FY 1994 Task Plans for the Hanford Environmental Dose Reconstruction Project 10/1/93 - 2/28/94	DB Shipler	12/91	PNL-7759 HEDR Rev 1	Milestone 0101C	Superseded by PNWD-2020 HEDR
FY 1993 Task Plans for the Hanford Environmental Dose Reconstruction Project	DB Shipler	10/91	PNL-7760 HEDR	Not a milestone	Superseded by PNWD-2020 HEDR
FY 1995 Task Plans for the Hanford Environmental Dose Reconstruction Project	DB Shipler	07/91	PNL-7761 HEDR	Not a milestone	Published final

Title	Author	Date Issued	Publication No.	Additional Information	Status
Final Design Specification for the Environmental Pathways and Dose Model	BA Napier et al.	01/92	PNL-7844 HEDR	Milestone 0202A	Supersedes PNL-7274 HEDR, superseded by BN-SA-3676 HEDR
Letter Report: References for Radioactive Releases to the Atmosphere from Hanford Operations, 1944-1957	RB Hall	11/91	PNL-7868 HEDR	Not a milestone	Published final
Letter Report: References for Radioactive Releases to the Columbia River from Hanford Operations, 1944-1957	RB Hall	11/91	PNL-7869 HEDR	Not a milestone	Published final
Project Management Plan for the Hanford Environmental Dose Reconstruction Project	DB Shipler	03/92	PNL-7870 HEDR	Milestone 0101C	Published final
Letter Report: Population Estimates by Age, Sex and Race for 10-County Study Area	DB Pittenger	02/92	PNL-7931 HEDR	Not a milestone	Published final
Integrated Codes for Estimating Environmental Accumulation and Individual Dose from Past Hanford Atmospheric Releases	TA Ikenberry et al.	02/92	PNL-7993 HEDR	Milestone 0702A	
Letter Report: Title Listing of Daily Operating Data on Hanford Single-Pass Reactor, 1944-1971	SP Gydesen	02/92	PNL-7998 HEDR	Not a milestone	Published final
Regional Atmospheric Transport Code for Hanford Emission Tracking (RATCHET)	JV Ramsdell, Jr. KW Burk	02/92	PNL-8003 HEDR	Milestone 0402B	To TSP for review; awaiting TSP decision
Environmental Monitoring Document Database	LR Huestles	04/92	PNL-8063 HEDR Vols. 1-3	Not a milestone	Expanded by PNWD-2119 HEDR
Letter Report: Media Information Review, 1991	GL Harvey	04/92	PNL-8071 HEDR	Milestone 1203B	Published final
Literature and Data Review for the Surface-Water Pathway: Columbia River and Adjacent Coastal Areas	WH Walters RL Dirkes BA Napier	04/92	PNL-8083 HEDR	Milestone 0404A	Superseded by PNWD-2034 HEDR

Title	Author	Date Issued	Publication No.	Additional Information	Status
Parameters Used in the Environmental Pathways and Radiological Dose Modules of the Phase I Air Pathway Code	SF Shindle TA Ikenberry BA Napier	05/92	PNL-8093 HEDR	Milestone 0703A	Published final
Methodology for Reconstruction of Historical Food Consumption Estimates	DM Anderson	05/92	PNL-8123 HEDR	Milestone 0602B	Published final
Milk Production and Distribution in Low-Dose Counties for the Hanford Thyroid Disease Study	JG Schimmel DM Beck	06/92	PNL-8153 HEDR	Milestone 0603B	Published final
Ground-Water Contribution to Dose from Past Hanford Operations	MD Freshley PD Thorne	08/92	PNWD-1974 HEDR	Milestone 0403A	Published final; supersedes PNL-6847 HEDR
Summary of the March 25-26, 1991 Atmospheric Model Working Meeting	JV Ramsdell	07/92	PNWD-1975 HEDR	Not a milestone	Published final
Recommendations to the Technical Steering Panel Regarding Approach for Estimating Individual Radiation Doses Resulting from Releases of Radionuclides to the Columbia River, Vol. 1: Recommendation	BA Napier AJ Brothers	07/92	PNWD-1977 HEDR Vol. 1	Milestone 0204B	Published final
Recommendations to the Technical Steering Panel Regarding Approach for Estimating Individual Radiation Doses Resulting from Releases of Radionuclides to the Columbia River, Vol. 2: VOI Supporting Information	AJ Brothers BA Napier	08/92	PNWD-1977 HEDR Vol. 2	Milestone 0204B	Published final
Uncertainty and Sensitivity Analysis of Historical Measurements of Iodine-131 for Vegetation in 1945-1947	RO Gilbert et al.	07/92	PNWD-1978 HEDR	Milestone 0802A	To TSP and CDC for review
HEDR Modeling Approach	DB Shipler BA Napier	07/92	PNWD-1983 HEDR	Not a milestone	Published final
Radioactive Contamination of Fish, Shellfish, and Waterfowl Exposed to Hanford Effluents: Annual Summaries 1945-1972	RW Hanf RL Dirkes JP Duncan	07/92	PNWD-1986 HEDR	Not a milestone	Published final

Title	Author	Date Issued	Publication No.	Additional Information	Status
Media Information Review, January-June 1992	GL Harvey	07/92	PNWD-1992 HEDR	Milestone 1203C	Published final
Quality Assurance Plan, Hanford Environmental Dose Reconstruction Project, Plan OHE-3, Revision 5	DL Stewart	08/92	PNWD-2001 HEDR	Milestone 1002A	Published final
Selected Hanford Reactor and Separations Operating Data for 1960-1964	SP Gydesen	09/92	PNWD-2017 HEDR	Not a milestone	Published final
Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, FY 1992 Through May 1994	DB Shipler	03/93	PNWD-2020 HEDR	Milestone 0101E	Published final; supersedes PNL-7685 HEDR; PNL-7757 HEDR, Rev. 1; PNL-7759 HEDR, Rev. 1; PNL-7760 HEDR
Project Management Plan for the Hanford Environmental Dose Reconstruction Project	DB Shipler AH McMakin SM Finch	09/92	PNWD-2021 HEDR	Milestone 0101F	Published final
Commercial Production and Distribution of Fresh Fruits and Vegetables: A Scoping Study on the Importance of Produce Pathways to Dose	TL Marsh et al.	09/92	PNWD-2022 HEDR	Milestone 0603C	Published final; supersedes PNL-6834 HEDR
Parameters Used in the Environmental Pathways (DESCARTES) and Radiological Dose (CIDER) Modules of the Hanford Environmental Dose Reconstruction Integrated Codes (HEDRIC) for the Air Pathway	SF Snyder et al.	09/92	PNWD-2023 HEDR	Milestone 0703B	To TSP and CDC for review
Declassifications Requested by the Technical Steering Panel of Hanford Documents Produced 1944-1960	SP Gydesen	09/92	PNWD-2024 HEDR	Milestone 1102A	Published final
Documents Containing Operating Data for Hanford Separations Processes, 1944-1972	SP Gydesen	09/92	PNWD-2028 HEDR	Not a milestone	Published final

	Title	Author	Date Issued	Publication No.	Additional Information	Status
	Iodine-131 Releases from the Hanford Site, 1944 Through 1947, Vol. 1: Text Vol. 2: Data	CM Heeb	3/93	PNWD-2033 HEDR	Milestone 0302A	Published final
	Literature and Data Review for the Surface-Water Pathway: Columbia River and Adjacent Coastal Areas	WH Walters RL Dirkes BA Napier	11/92	PNWD-2034 HEDR	Milestone 0404A	Published final; supersedes PNL-8083 HEDR
	Status of Document Search and Data Quality Objective	SP Gydesen	10/92	PNWD-2047 HEDR	Milestone 1103A	Published final
	Quality Assurance Audit Report of the Hanford Environmental Dose Reconstruction Project, OHE-3, Audit A-92-20	MA Gibson SC Marschman	10/92	PNWD-2049 HEDR	Milestone 1003B	Published final
	A Working Bibliography on Native Food Consumption, Demography and Lifestyle	CE Murray WJ Lee	12/92	PNWD-2054 HEDR		Published final
C 8	Interim Report on the Meteorological Database for the Hanford Environmental Dose Reconstruction Project	SA Stage JV Ramsdell CA Simonen KW Burk	01/93	PNWD-2090 HEDR	Milestone 0405A	Published final
	Media Information Review, July-December 1992	GL Harvey	02/93	PNWD-2099 HEDR	Milestone 1203D	Published final
	Estimation of 1945 to 1957 Food Consumption	DM Anderson et al.	07/93	PNWD-2113 HEDR	Milestone 0602C	Published final; supersedes PNL-6834 HEDR
	Environmental Monitoring Document Database	LR Huesties	03/93	PNWD-2119 HEDR Vol. 1	Not a milestone	Updated edition; addendum to PNL- 8063 HEDR, Vols. 1-3
	Uncertainty and Sensitivity Analyses Plan	JC Simpson JV Ramsdell, Jr.	4/93	PNWD-2124 HEDR	Milestone 0803A	To TSP, CDC, and peer reviewers for review; supersedes PNL-7737 HEDR
	Approach for Calculating Population Doses Using the CIDER Computer Code	BA Napier WT Farris JC Simpson	4/93	PNWD-2127 HEDR	Milestone 0702B	Published final

Title	Author	Date Issued	Publication No.	Additional Information	Status
List of Currently Classified Documents Relative to Hanford Production Facilities Operations Originated on the Hanford Site Between 1961 and 1972	GL Harvey	4/93	PNWD-2129 HEDR	Not a milestone	Published final
Conversion and Correction Factors for Historical Measurements of Iodine-131 in Hanford-Area Vegetation, 1945-1947	EI Mart DH Denham ME Thiede	5/93	PNWD-2133 HEDR	Milestone 0502A	To TSP and CDC for review
Quality Assurance Plan	CD Taylor	5/93	PNWD-2139 HEDR	Milestone 1002B	Published final
Phase I Summaries of Radionuclide Concentration Data for Vegetation, River Water, Drinking Water, and Fish	DH Denham et al.	6/93	PNWD-2145 HEDR	Milestone 0501A	Published final
A Review of Wind Field Models for Atmospheric Transport	JV Ramsdell, Jr. ED Skyllingstad	6/93	PNWD-2148 HEDR	Milestone 0402A	Published final
HEDR Model Validation Plan	BA Napier et al.	6/93	PNWD-2156 HEDR	Milestone 0205E	Published final
Fuel-Element Failures in Hanford Single-Pass Reactors, 1944-1971	SP Gydesen	7/93	PNWD-2161 HEDR	Not a milestone	Published final
Letter Report: Conversion and Correction Factors for Historical Measurements of Iodine-131 in Hanford Area Vegetation, 1948-1951	DH Denham EI Mart	9/93	PNWD-2176 HEDR	Milestone 0502B	Published final
Letter Report: Iodine-131 in Vegetation Collected Near the Hanford Site: Concentration and Count Data for 1948-1951	RW Hanf et al.	9/93	PNWD-2177 HEDR	Milestone 0502B	Published final
Integrated Task Plans for the Hanford Environmental Dose Reconstruction Project, June 1993 through May 1994	DB Shipler	9/93	PNWD-2187 HEDR	Milestone 0101G	Published final
Quality Assurance Plan for the HEDR Project, OHE-3, Rev. 7	CD Taylor	10/93	PNWD-2191 HEDR	Not a milestone	Published final
Final Report on the Meteorological Database, December 1944 through December 1949	SA Stage	10/93	PNWD-2200 HEDR	Milestone 0405B	Published final

Appendix D

HEDR Presentation Handouts to the TSP - Complete Compilation

Appendix D

HEDR Presentation Handouts to the TSP - Complete Compilation

D.1	Title	Author	Date Issued	Publication No.	Additional Information
	Estimated Quantity of ¹³¹ I Contained in Irradiated Fuel at Time of Fuel Processing, CY 1944-1945	PO Jackson LG Morgan	11/88	PNL-SA-16398 HEDR	Presented at TSP meeting, Nov. 11-12, 1988, Olympia, WA
	Notes from Key Former Hanford Employees Workshop on Vegetation Data Biases and Uncertainties 1944 to 1968, September 19-21, 1988	DH Denham EI Mart RK Woodruff	11/88	PNL-SA-16497 HEDR	Not presented
	Atmospheric Pathway	JV Ramsdell	01/89	PNL-SA-16565 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Source Terms	LG Morgan	01/89	PNL-SA-16566 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Experience with Gress and Swats	MG Piepho	01/89	PNL-SA-16567 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	HEDR Demography, Agriculture, and Lifestyle Research	DM Beck	01/89	PNL-SA-16568 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Purpose of Workshop	D Gilbert	01/89	PNL-SA-16569 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Example of Sensitivity/uncertainty Analysis	DL Strange	01/89	PNL-SA-16570 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Aspects of Sensitivity/Uncertainty Analysis in the HEDR Project	B Sagar	01/89	PNL-SA-16571 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Surface Water Transport Uncertainty	WH Walters	01/89	PNL-SA-16572 HEDR	Presented at HEDR workshop on Sensitivity & Uncertainty Analysis
	Availability of I-131 Vegetation Data	KR Price	01/89	PNL-SA-16573 HEDR	Presented at HEDR workshop on Sensitivity and Uncertainty Analysis

Title	Author	Date Issued	Publication No.	Additional Information
HEDR Native American Population, Food Consumption and Lifestyle Study - Data Requirements	CL Bruneau	03/89	PNL-SA-16784 HEDR	Presented at Native American Workshop, Mar. 14-15, 1989, Richland, WA
Task 6 - Population, Food Consumption and Lifestyles	RE Rhoads	03/89	PNL-SA-16785 HEDR	Presented at Native American Workshop, Mar. 14-15, 1989
Hanford Environmental Reconstruction Project - Report to the TSP	HA Haerer	03/89	PNL-SA-16794 A HEDR	Presented at TSP meeting, Mar. 17, 1989, Spokane, WA
Summary Report of HEDR Workshop on Sensitivity and Uncertainty Analysis	B Sagar AM Liebetrau	03/89	PNL-SA-16804 HEDR	Presented at TSP workshop on Jan. 16-18, 1989, Pasco, WA
HEDR Project Report to the TSP for May 1989 Public Meeting	HA Haerer	05/89	PNL-S A- 17032 HEDR	Presented at TSP meeting, May 18-20, 1989, Toppenish, WA
Defining Demographic Categories for Phase I	BA Napier DM Beck	05/89	PNL-SA-17035 HEDR	Presentation handout for TSP meeting, May 18-20, 1989, Toppenish, WA
HEDR Project Report to the TSP	HA Haerer	07/89	PNL-SA-17218 HEDR	Presented at TSP meeting, Jul. 21, 1989, Richland, WA
Radionuclides Transported by the Columbia River	MD Freshley	07/89	PNL-SA-17235 HEDR	Presented at TSP meeting, Jul. 21, 1989, Richland, WA
Estimations of Traditional Native American Diets in the Columbia Plateau	ES Hunn CL Bruneau	08/89	PNL-SA-17296 HEDR	Proposed information for possible presentation to TSP
Methods for Presenting Results to the Public	RE Rhoads	08/89	PNL-SA-17368 A HEDR	Presented at TSP meeting, Sep. 6, 1989, Portland, OR
Discussion with TSP Subcommittee on Communication Strategy	RE Rhoads	10/89	PNL-SA-17475 HEDR	Presented at TSP Subcommittee meeting, Oct. 1989, Portland, OR
HEDR Project Report to the TSP	HA Haerer	10/89	PNL-SA-17501 HEDR	Presented to TSP meeting, Oct. 12-14, 1989, Portland, OR
Surface Water Exposure Pathways	BA Napier TM Poston	10/89	PNL-SA-17502 S HEDR	Presented at TSP meeting, Oct. 12-14, 1989, Portland, OR
Preliminary Summaries for Vegetation, River and Drinking Water and Fish Radionuclide Concentration Data (DRAFT)	RK Woodruff	11/89	PNL-SA-17641 HEDR	
Milk Production and Distribution	DM Beck	12/89	PNL-SA-17649 S HEDR	Presented at TSP meeting, Dec. 11 -13, 1989, Richland, WA

Title	Author	Date Issued	Publication No.	Additional Information
Communications Directive	RE Rhoads	12/89	PNL-SA-17653 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Source Terms - Air Pathway Source Terms - Surface-Water Pathway	LG Morgan	12/89	PNL-SA-17657 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
The Hanford Environmental Dose Recon- Reconstruction Project: Background Information	SJ Byram	12/89	PNL-SA-17658 S HEDR	Presented at Focus Group meeting, Dec. 11, 1989, Richland, WA
Surface-Water Pathway	MD Freshley	12/89	PNL-SA-17660 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Hanford Environmental Dose Reconstruc- tion Project - Phase II Planning	HA Haerer	12/89	PNL-SA-17661 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Atmospheric Transport Modeling	MD Freshley	12/89	PNL-SA-17662 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Environmental Measurements - Columbia River	TM Poston RL Dirkes	12/89	PNL-SA-17669 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Preliminary- Evaluation of Thyroid Bioassay Data from Hanford Workers, 1944-1946	TA Ikenberry BA Napier	12/89	PNL-SA-17670 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Environmental Monitoring Data: Vegetation, 1945-1947	RK Woodruff	12/89	PNL-SA-17671 HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Overview of Project Model - Surface-Water Pathway	BA Napier	12/89	PNL-SA-17672 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Overview of Project Model - Air Pathway	BA Napier	12/89	PNL-SA-17673 S HEDR	Presented at TSP meeting, Dec. 11-13, 1989, Richland, WA
Preliminary Calculated and measured Con- centrations of Iodine-131 in Vegetation for Phase I	BA Napier	12/89	PNL-SA-17674 HEDR	Presented at TSP meeting, Dec. 11-1, 1989, Richland, WA
Communications Directive	RE Rhoads	02/90	PNL-SA-17903 S HEDR	Presented at TSP meeting, Feb. 15-17, 1990, Richland, WA
HEDR Project Report to the TSP	HA Haerer	02/90	PNL-SA-17904 S HEDR	Presented at the TSP meeting, Feb. 15-17, 1990, Richland, WA

Title	Author	Date Issued	Publication No.	Additional Information
Detailed Example Calculations for HEDR, Phase I	BA Napier	02/90	PNL-SA-17913 S HEDR	Presented at TSP meeting, Feb. 15-17, 1990, Richland, WA
Soil Ingestion by Dairy Cattle	RF Darwin	02/90	PNL-SA-17918 HEDR	Presented at TSP meeting, Feb. 15-16, 1990, Richland, WA
Hanford Environmental Dose Reconstruction Project - Phase I Report	HA Haerer	05/90	PNL-SA-18304 S HEDR	Presented at workshop "Public Health Aspect of Hanford Health Studies," June 6, 1990
Uncertainty Analysis	JC Simpson	01/91	PNL-SA-18948 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Long-Range Project Plan	DB Shipler	01/91	PNL-SA-18949 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Project Model and Analysis and Restructuring	BA Napier	01/91	PNL-SA-18955 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Atmospheric Model Restructuring	JV Ramsdell	01/91	PNL-SA-18956 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Dose Model and Parameter Restructuring	TA Ikenberry	01/91	PNL-SA-18957 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Application of Geographical Information System to the HEDR Project	JG Stephan	01/91	PNL-SA-18958 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Status of TSP Directive 89-9	R Cuello	01/91	PNL-SA-18962 S HEDR	Presented at TSP meeting, Jan. 11, 1991, Pasco, WA
Preliminary Response to the FY 1991 Project Plan	DB Shipler	01/91	PNL-SA-18981 HEDR	Presented at the TSP meeting, Jan. 11, 1991, Pasco, WA
Phase I Dose Estimates for the Kalispel Tribe	TA Ikenberry	02/91	PNL-SA-19098 A HEDR	Presented to Kalispel Tribal Council, Feb. 5, 1991, Usk, WA
Information for the HEDR Planning Workshop	DB Shipler	02/91	PNL-SA-19108 S HEDR	Presented at TSP Workshop, Feb. 14-16, 1991, Seattle, WA
Effects of the Loss of Correlation Structure on Phase I Dose Estimates	JC Simpson	02/91	PNL-SA-19115 S HEDR	Presented at ANS Annual meeting, Jun. 2-6, 1991, Orlando, FL
Process for Estimating Doses to the Coeur d'Alene Tribe	TA Ikenberry	03/91	PNL-SA-19204 S HEDR	Presented to Coeur d'Alene Tribal Council Feb. 28, 1991, Plummer, ID
Status of Technical Work - Hanford Environmental Dose Reconstruction Project	BA Napier et al.	04/91	PNL-SA-19356 S HEDR	Presented at TSP meeting, Apr. 3, 1991, Lewiston, ID
Battelle Status of Technical Work, Hanford Environmental Dose Reconstruction Project	DB Shipler et al.	07/91	PNL-SA-19752 S HEDR	Presented at the TSP meeting, Jul. 10-13, 1991, Pasco, WA

Title	Author	Date Issued	Publication No.	Additional Information
HEDR Project-Invoice Process and Procedures	SM Finch	09/91	PNL-SA-19994 S HEDR	Presented at NAWG meeting, Sep. 23-24, 1991, Pasco, WA
Status of Technical Work - HEDR Project	DB Shipler et al.	10/91	PNL-SA-20068 HEDR	Presented at TSP meeting, Oct. 10-12, 1991, Walla Walla, WA
Status of Technical Work - HEDR Project	DB Shipler	02/92	PNL-SA-20578 S HEDR	Presented at TSP meeting, Feb. 20-22, 1992, Pasco, WA
Status of Technical Work - Hanford Environmental Dose Reconstruction Project	DB Shipler	04/92	PNL-SA-20856 S HEDR	Presented at TSP meeting, Apr. 23-25, 1992, Pasco, WA
Status of Technical Work - Hanford Environment Dose Reconstruction Project - July 17, 1992	BA Napier	07/92	BN-SA-3564 S HEDR	Presented at TSP meeting, Jul. 16-18, 1992, Astoria, OR
Status of Technical Work - Hanford Environment Dose Reconstruction Project - July 17, 1992	WH Walters	07/92	BN-SA-3565 S HEDR	Presented at TSP meeting, Jul. 16-18, 1992, Astoria, OR
Status of Technical Work - Hanford Environment Dose Reconstruction Project	CM Heeb DB Shipler TL Marsh WT Farris	10/92	BN-SA-3615 S HEDR	Presented at the TSP meeting, Oct. 8-10, 1992, Pasco, WA
Preliminary Investigation of Source of Uncertainty in HEDRIC	JV Ramsdell	11/92	BN-SA-3644 S HEDR	Presented at TSP meeting, October 8-10, 1992, Pasco, WA
Introduction to the RATCHET Computer Code	JV Ramsdell	11/92	BN-SA-3645 S HEDR	Presented at RATCHET Program Review meeting, October 21, 1992, Atlanta, GA
Scoping Calculation for Components of the Cow-Milk Dose Pathway for Evaluating the Dose Contribution from Iodine-131	TA Ikenberry BA Napier	12/92	BN-SA-3661 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Software Development Plans for DESCARTES and CIDER	PW Eslinger	12/92	BN-SA-3667 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Dose Code Review	DB Shipler BA Napier PW Eslinger WT Farris DK Cyphers	12/92	BN-SA-3668 S HEDR	Presented at the TSP and CDC review meeting, December 17-18, 1992, Richland, Washington, the and TSP meeting, January 7-8, 1993, Richland, Washington

Title	Author	Date Issued	Publication No.	Additional Information
Responses to TSP Directive 92-2: Summary Report	DB Shipler	12/92	BN-SA-3671 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of the Contribution of Livestock Water Ingestion to Dose from the Cow-Milk Pathway	TA Ikenberry	12/92	BN-SA-3672 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of Radionuclides and Pathways Contributing to Cumulative Dose	BA Napier	12/92	BN-SA-3673 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of Radionuclides and Pathways Contributing to Dose in 1945	BA Napier	12/92	BN-SA-3674 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of Dose Distributions and Parameter Sensitivity	BA Napier	12/92	BN-SA-3675 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Software Requirements Specification for the Hanford Environmental Dose Reconstruction Project Air Pathway Environmental Accumulation and Dose Codes	BA Napier	12/92	BN-SA-3676 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of the Spatial Resolution Required for the HEDR Dose Code	BA Napier JC Simpson	12/92	BN-SA-3677 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of the Feasibility of Reducing the Spatial Domain of the HEDR Dose Code	BA Napier SF Snyder	12/92	BN-SA-3678 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Data Model Description for the DESCARTES and CIDER Codes	TB Miley SJ Ouderkrk WE Nichols PW Eslinger	12/92	BN-SA-3679 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Benchmarking for the DESCARTES and CIDER Codes	PW Eslinger SJ Ouderkrk WE Nichols	12/92	BN-SA-3680 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Design Studies for the DESCARTES and CIDER codes	PW Eslinger TB Miley SJ Ouderkrk WE Nichols	12/92	BN-SA-3681 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA

Title	Author	Date Issued	Publication No.	Additional Information
Determination of the Temporal Resolution Required for the HEDR Dose Code	BA Napier JC Simpson	12/92	BN-SA-3682 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Scoping Calculation for Components of the Cow-Milk Dose Pathway for Evaluating the Dose Contribution from Iodine-131	TA Ikenberry BA Napier	12/92	BN-SA-3661 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Software Development Plans for DESCARTES and CIDER	PW Eslinger	12/92	BN-SA-3667 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Dose Code Review	DB Shipler BA Napier PW Eslinger WT Farris DK Cyphers	12/92	BN-SA-3668 S HEDR	Presented at the TSP and CDC review meeting, December 17-18, 1992, Richland, WA and the TSP meeting, January 7-8, 1993, Richland, WA
Responses to TSP Directive 92-2: Summary Report	DB Shipler	12/92	BN-SA-3671 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
D.7 Determination of the Contribution of Livestock Water Ingestion to Dose from the Cow-Milk Pathway	TA Ikenberry	12/92	BN-SA-3672 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of Radionuclides and Pathways Contributing to Cumulative Dose	BA Napier	12/92	BN-SA-3673 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of Radionuclides and Pathways Contributing to Dose in 1945	BA Napier	12/92	BN-SA-3674 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA; Milestone 0205B
Determination of Dose Distributions and Parameter Sensitivity	BA Napier	12/92	BN-SA-3675 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA; Milestone 0205B
Software Requirements Specification for the Hanford Environmental Dose Reconstruction Project Air Pathway Environmental Accumulation and Dose Codes	BA Napier	12/92	BN-SA-3676 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of the Spatial Resolution Required for the HEDR Dose Code	BA Napier JC Simpson	12/92	BN-SA-3677 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA

Title	Author	Date Issued	Publication No.	Additional Information
Determination of the Feasibility of Reducing the Spatial Domain of the HEDR Dose Code	BA Napier SF Snyder	12/92	BN-SA-3678 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Data Model Description for the DESCARTES and CIDER Codes	TB Miley SJ Ouderkrk WE Nichols PW Eslinger	12/92	BN-SA-3679 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Benchmarking for the DESCARTES and CIDER Codes	PW Eslinger SJ Ouderkrk WE Nichols	12/92	BN-SA-3680 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Design Studies for the DESCARTES and CIDER codes	PW Eslinger TB Miley SJ Ouderkrk WE Nichols	12/92	BN-SA-3681 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of the Temporal Resolution Required for the HEDR Dose Code	BA Napier JC Simpson	12/92	BN-SA-3682 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Status of Technical Work	DB Shieler/ PW Eslinger/ BA Napier/ WT Farris	01/92	BN-SA-3685 HEDR	Presented at the TSP meeting, January 7-8, 1993, Richland, WA
Determination of Radionuclides Contributing to Dose from the Columbia River Pathway and other Results of Scoping Studies	BA Napier	02/93	BN-SA-3735 A HEDR	Presented at the TSP Budget/Fiscal Subcommittee meeting, February 25-26, 1993, Seattle, WA; Milestone 0205B
Status of Technical Work - HEDR Project	DB Shieler et al.	03/93	BN-SA-3766 S HEDR	Presented at TSP meeting, Apr. 1-3, 1993, Richland, WA
TSP Subcommittee Discussions	DB Shieler et al.	03/93	BN-SA-3767 A HEDR	Presented at the TSP meeting, Apr. 1-3, 1993, Richland, WA
Determination of Key Radionuclides and Parameters Related to Dose from the Columbia River Pathway	BA Napier	03/93	BN-SA-3768 HEDR	Presented at the TSP meeting, Apr. 1-3, 1993, Richland, WA; Milestone 0205B

Title	Author	Date Issued	Publication No.	Additional Information
Software Requirements Specifications for Columbia River Pathway: Source Term, River Transport, Environmental Accumulation and Dose Models	WT Farris	5/93	BN-SA-3799 HEDR	Presented at the TSP meeting, July 15-17, 1993, Post Falls, ID
Status of Technical Work - Hanford Environmental Dose Reconstruction Project	DB Shipler et al.	7/93	BN-SA-3834 S HEDR	Presented at the TSP meeting, July 15-17, 1993, Post Falls, ID
Discussion Items at Technical Steering Panel Subcommittee Meetings	DB Shipler et al.	7/93	BA-SA-3835 A HEDR	Presented at the TSP meeting, July 15-17, 1993, Post Falls, ID
Status of Technical Work-Hanford Environmental Dose Reconstruction Project	DB Shipler et al.	10/93	BN-SA-3896 S HEDR	Presented at the TSP meeting, Oct. 7-9, 1993, Richland, WA
Discussion Items at TSP Subcommittee Meetings	DB Shipler et al.	10/93	BN-SA-3902 A HEDR	Presented at the TSP meeting, Oct. 7-9, 1993, Richland, WA
Model Validation Activities	BA Napier et al.	10/93	BN-SA-3902 S HEDR	Presented at the TSP meeting, Oct. 7-9, 1993, Richland, WA
Initial Radiation Dose Estimates for Native American Tribes	TA Ikenberry	10/93	BN-SA-3906 S HEDR	Presented Oct. 6, 1993, Richland, WA
Model Uncertainty & Sensitivity Analysis Overview for Native American Data Applications	TA Ikenberry	10/93	BN-SA-3915 S HEDR	Presented Nov. 1-5, 1993, Seattle, WA

Appendix E

HEDR Open-Literature Publications and Presentations - Complete Compilation

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

Appendix E

HEDR Open-Literature Publications and Presentations - Complete Compilation

E.1

Title	Author	Date Issued	Publication No.	Audience	Status
Estimating Atmospheric Dispersion for Reconstruction of Doses from Hanford Operations	JV Ramsdell	04/88	PNL-SA-16767 HEDR	69th Annual Meeting of the Pacific Division of the American Assoc. for the Advancement of Science	Presented Jun. 1988, Corvallis, OR
Potential Applications of Geographical Information Systems for Analyzing Hanford Environmental Dose Reconstruction Data	JG Stephen et al.	03/89	PNL-SA-16767 HEDR	Regional Symposium on HPS Computer Applications in Health Physics	Presented Mar. 1989, Richland, WA
The Hanford Environmental Dose Reconstruction Project: Overview	HA Haerer et al.	09/89	PNL-SA-16859 HEDR	Hanford Symposium on Health & the Environment	Presented Oct. 1989, Richland, WA
The Hanford Environmental Dose Reconstruction Project: Technical Approach	BA Napier et al.	09/89	PNL-SA-16874 HEDR	Hanford Symposium on Health & the Environment	Presented Oct. 1989, Richland, WA
The Hanford Environmental Dose Reconstruction Project: The Role of Applied Sociology	DM Beck	04/89	PNL-SA-16880 HEDR	Pacific Sociological Assoc. Meeting	Presented Apr. 89, Reno, NV
The Identification of Terrain-Induced Circulations Using Principal Components	ED Skyllingstad M Schwartz	10/89	PNL-SA-17164 HEDR	American Meteorological Soc.	Presented Oct. 1989, Monterey, CA
Temporal Variations in Atmospheric Dispersion at Hanford	JV Ramsdell	09/89	PNL-SA-17375 HEDR	Hanford Symposium on Health & the Environment	Presented Oct. 1989, Richland, WA
Statistical Aspects of Reconstructing the I-131 Dose to the Thyroid Disease Study	RO Gilbert et al.	03/90	PNL-SA-17384 HEDR	Workshop: Statistics of Human Radiation Exposure to Ionizing Radiation	Presented April 1990, Oxford, UK
Mathematical and Statistical Aspects of Reconstructing Doses to Individuals Living Near the Hanford Site Since the 1940s	AM Liebetrau	10/89	PNL-SA-17498 HEDR	SIAM conference on Applied Probability in Science and Engineering	Presented Mar. 1990, New Orleans, LA
Sensitivity and Uncertainty Analysis for Environmental Dose Reconstruction	B Sagar et al.	11/89	PNL-SA-17586 A HEDR	Workshop on Uncertainty Analysis	Presented Nov. 1989, Santa Fe, NM

Title	Author	Date Issued	Publication No.	Audience	Status
Uncertainty Analysis of the Conversion Factor for Historic Iodine-131 Gross Beta	DL Strenge et al.	12/89	PNL-SA-17713 HEDR	1990 Health Physics Society Meeting	Presented Jun. 1990, Anaheim, CA
Reconstruction of Hanford Vegetation Monitoring Data for Dose Reconstruction for 1945-1947	RK Woodruff E Mart RW Hanf	01/90	PNL-SA-17760 A HEDR	1990 Health Physics Society Meeting	Presented Jun. 1990, Anaheim, CA
Statistical Aspects of the Hanford Environmental Dose Reconstruction Project and the Conference on Radiation and Health	RO Gilbert et al.	07/90	PNL-SA-18396 HEDR	American Statistical Assoc. Hanford Thyroid Disease Study	Presented Jul. 1990, Copper Mountain, CO
GENII - Hanford Environmental Dosimetry Package	BA Napier et al.	07/90	PNL-SA-18478 HEDR	ANS 1990 Winter Meeting	Presented Nov. 1990, Orlando, FL
Atmospheric Modeling for Dose Reconstruction at Hanford	JV Ramsdell KW Burk	07/90	PNL-SA-18487 A HEDR	ANS Winter Meeting	Presented Nov. 1990, Washington, DC
A Multi-Method Approach to Audience Analyses in Developing Comprehensive Public Communications Programs	C Holmes S Byram D Von Winterfelt	10/90	PNL-SA-18676 HEDR	Society for Risk Analyses 1991	Presented Oct. 1990, New Orleans, LA
Overview of Hanford Environmental Dose Reconstruction Project	DB Shipler	01/91	PNL-SA-19078 A HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Providing Information Resources for the Hanford Environmental Dose Reconstruction Project	SP Gydesen	01/91	PNL-SA-19079 A HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Effects of the Loss of Correlation Structure on Dose Estimates	JC Simpson	02/91	PNL-SA-19115 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Developments in Atmospheric Modeling for Dose Reconstruction at Hanford	JV Ramsdell	02/91	PNL-SA-19116 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Sensitivity of the MESOILT2 Dispersion Model to Input Uncertainty	JV Ramsdell	02/91	PNL-SA-19117 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Hanford Environmental Dose Reconstruction: A Public Communications Effort Toward Credibility, Understanding and Independence	GL Harvey	02/91	PNL-SA-19118 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Recovery and Evaluation of Historic Environmental Monitoring Data at Hanford	RL Dirkes	02/91	PNL-SA-19119 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL

Title	Author	Date Issued	Publication No.	Audience	Status
Developing Milk Industry Estimates for Dose Reconstruction Projects	DM Beck	02/91	PNL-SA-19172 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Developing Population Estimates for Dose Reconstruction Projects	DM Beck	02/91	PNL-SA-19173 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Native American Food Consumption Data Collection	CL Bruneau	02/91	PNL-SA-19174 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Initial Findings of the Hanford Environmental Dose Reconstruction Project	TA Ikenberry BA Napier	03/91	PNL-SA-19251 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Integration of Models for the Hanford Environmental Dose Reconstruction Project	BA Napier	03/91	PNL-SA-19252 S HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Reconstruction of Radionuclide Movement in Ground Water at the Hanford Site	MD Freshley PD Thorne	03/91	PNL-SA-19269 S HEDR	ANS Annual Meeting	Presented Jun. 1991, Orlando, FL
The Estimation of Early Hanford Releases of Iodine-131	CM Heeb et al.	03/91	PNL-SA-19321 A HEDR	ANS 1991 Annual Meeting	Presented Jun. 1991, Orlando, FL
Application of a Geographic Information System to the HEDR Project	DB Shipler et al.	05/91	PNL-SA-19487 A HEDR	Society of Environmental Toxicology and Chemistry 12th Annual Meeting	Presented Nov. 3-7, 1991, Seattle, WA
Communicating Risk to Non-Scientific Audiences	RE Lundgren AH McMakin	10/91	PNL-SA-19488 A HEDR	Society of Environmental Toxicology and Chemistry 12th Annual Meeting	Presented Nov. 3-7, 1991, Seattle, WA
Communicating Risk to Non-Scientific Audiences: Misconceptions and Guidelines	AH McMakin	03/92	PNL-SA-19488 S HEDR	Society for Risk Analysis Chapter Meeting	Presented Mar. 6 and 14, 1992, Richland, WA and Seattle, WA
Overview of the Hanford Environmental Dose Reconstruction Project	DB Shipler et al.	01/92	PNL-SA-20021 HEDR	ANS International High-Level Radioactive Waste Management Conference	Presented Apr. 12-16, 1992, Las Vegas, NV
Overview of the HEDR Project	DB Shipler	10/91	PNL-SA-20022 A HEDR	Society of Environmental Toxicology and Chemistry 12th Annual Meeting	Presented Nov. 3-7, 1991, Seattle, WA
Statistical and Uncertainty Issues of the Hanford Environmental Dose Reconstruction Project	BA Napier et al.	12/91	PNL-SA-20295 HEDR	National Institute of Statistical Sciences	Presented Dec. 9-10, 1991, Triangle Park, NC

Title	Author	Date Issued	Publication No.	Audience	Status
Decision Management for the Hanford Environmental Dose Reconstruction Project	WJ Roberts et al.	01/92	PNL-SA-20432 HEDR	ANS International High-Level Radioactive Waste Management Conference	Presented Apr. 12-16, 1992, Las Vegas, NV
Uncertainty and Sensitivity Analysis of Historical Measurements of Iodine-131 for Vegetation in 1945-1947	RO Gilbert	07/92	PNL-SA-20580 A HEDR Listed incorrectly in July Monthly report as BN-SA-3564 S HEDR	1992 Joint Statistical Meetings	Presented Aug. 9-13, 1992, Boston, MA
Statistical Aspects of Reconstructing the Iodine-131 Dose to Thyroid of Individuals Living Near the Hanford Site in the Mid-1940s	RO Gilbert	03/92	PNL-SA-20632 S HEDR	32nd Annual Congress of the South African Association of Physicists in Medicine and Biology	Presented Mar. 11-13, 1992, Johannesburg, SA
Data Quality Objectives for Retrospective Studies	DB Shippler et al.	05/92	PNL-SA-20918 A HEDR	13th Annual Meeting, Society of Environmental Toxicology and Chemistry	Presented Nov. 8-12, 1992, Cincinnati, OH
Environmental Accumulation of Radionuclides Released to the Atmosphere	DB Shippler et al.	05/92	PNL-SA-20919 A HEDR	13th Annual Meeting, Society of Environmental Toxicology and Chemistry	Presented Nov. 8-12, 1992, Cincinnati, OH
Uncertainty Issues of the Hanford Environmental Dose Reconstruction (HEDR) Project	RO Gilbert JC Simpson	07/92	BN-SA-3576 HEDR	National Meeting of American Chemical and American Statistical Association	Presented Aug. 23-28, 1992, Washington, DC
Evaluating Historical Scans of Worker Thyroids for Environmental Dose Reconstruction	TA Ikenberry	09/92	BN-SA-3609 HEDR	38th Annual Conference on Bioassay, Analytical and Radiochemistry	Presented Nov. 1-6, 1992, Los Alamos National Laboratory, NM
Status of HEDR Project Work	DB Shippler	10/92		Westinghouse Hanford Company Seminar	Presented Oct. 28, 1992, Richland, WA
Evaluating Historical Scans of Worker Thyroids for Environmental Dose Reconstruction	TA Ikenberry	11/92	BN-SA-3609 S HEDR	38th Annual Conference on Bioassay, Analytical and Environmental Radiochemistry	Presented Nov. 2-6, 1992, Santa Fe, NM
Data Quality Objectives for Retrospective Studies	DB Shippler et al.	11/92	BN-SA-3635 S HEDR	13th Annual Meeting, Society of Environmental Toxicology and Chemistry	Presented Nov. 8-12, 1992, Cincinnati, OH

Title	Author	Date Issued	Publication No.	Audience	Status
Environmental Accumulation of Radionuclides Released to the Atmosphere	DB Shipler BA Napier TA Ikenberry	11/92	BN-SA-3637 S HEDR	13th Annual Meeting, Society of Environmental Toxicology and Chemistry	Presented Nov. 8-12, 1992, Cincinnati, OH
Environmental Accumulation of Radionuclides Released to the Atmosphere	DB Shipler BA Napier TA Ikenberry	11/92	BN-SA-3637 S HEDR	Health Physics Mid-Year Symposium	Presented Jan. 23-28, 1992, Coeur d'Alene, ID
Uncertainty and Sensitivity Analysis Approach for the Hanford Environmental Dose Reconstruction Project	JC Simpson	4/93	BN-SA-3777 S HEDR	Joint International Conference on Mathematical and Supercomputing in Nuclear Application	Presented April 1993, Karlsruhe, Germany
Environmental Modeling for the Hanford Environmental Dose Reconstruction Project	BA Napier et al.	6/93	BN-SA-3832 HEDR	Fourth Research Coordination Meeting for Validation of Model Predictions Program (VAMP)	Presented July 1993, Vienna, Austria
Science in a Fishbowl: Public Involvement in the Hanford Environmental Dose Reconstruction Project	DB Shipler	7/93	BN-SA-3840 S HEDR	American Nuclear Society Paper Review	Presented July 1993, San Francisco, CA
Science in a Fishbowl: Public Involvement in the Hanford Environmental Dose Reconstruction Project	DB Shipler	11/93	BN-SA-3840 S HEDR	ANS 1993 Winter Meeting	Presented Nov. 12-19, 1993, San Francisco, CA
Sensitivity of a Lagrangian Puff Climatological Dispersion Model to Model Parameters	JV Ramsdell, Jr.	10/93	BN-SA-3897 HEDR	8th Joint Conference on Applications of Air Pollution Meteorology	To be presented Jan. 23-28, 1994, Nashville, TN
Radiation Dose Assessment	BA Napier	10/93	BN-SA-3911 S HEDR	NAS/NRC Workshop on Dose Reconstruction for Epidemiological Users	Presented Oct. 25-27, 1993, Washington, DC

Appendix F

Communications Log - September-November 1993

Appendix F

Communications Log - September-November 1993

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
September 1993			
D Baldonado/TSP Staff	SM Finch/BNW	Phone	ATSDR document request
DS Barth/TSP	DB Shieler/BNW	Phone	Vegetation report; validation; HTDS questions
WA Bishop/TSP	EB Liebow/BNW	Phone	YIN response to CDC RFP and BNW Work Order requirements
K CharLee/TSP Staff	SM Finch/BNW	Phone	October TSP meeting agenda items; March TSP meeting dates; October TSP meeting model validation session
D Ernst/ST	TA Ikenberry/BNW	Phone	Draft CDC protocol; CDC work plan
SM Finch/BNW	M Henrion/ Consultant	Phone	Uncertainty/sensitivity workshop invoice
SM Finch/BNW	O Hoffman/SENES	Phone	Uncertainty/sensitivity workshop invoice
SM Finch/BNW	R Koontz/WSU	Phone	Invoices for expired work orders
SM Finch/BNW	K Niles/TSP Staff	Phone	ML Blazek security clearance
TA Ikenberry/BNW	B Aripa/CT	Phone	Nespelem meeting confirmation
TA Ikenberry/BNW	WA Bishop/TSP	Phone	WT Farris NAWG presentation
EB Liebow/BNW	B Aripa/CT	Phone	Data review; status of CDC contract
EB Liebow/BNW	WA Bishop/TSP	Phone	CDC RFP and BNW work order require- ments; CDC contract negotiations; October NAWG meeting; 9/29 pre-NAWG meeting; training; work plans; River Pathway modeling
EB Liebow/BNW	WA Bishop/TSP DE Walker/TSP	Fax	October NAWG meeting agenda
EB Liebow/BNW	D Ernst/ST	Phone, Fax	Study protocol
EB Liebow/BNW	M Queahpama/WST	Phone	CDC RFP and Batteille work order requirements

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
B Robbins/Golder Associates	SM Finch/BNW	Phone	TSP meeting; validation report; Native American doses
DB Shieler/BNW	JE Till/TSP	Phone	Hotspots; double plumes; salmon
JE Till/TSP	DB Shieler/BNW	Phone	Feeding regime workshop; TSP agenda
October 1993			
DS Barth/BNW	DB Shieler/BNW	Phone	Validation meeting schedule
WA Bishop/TSP	EB Liebow/BNW	Phone	NAWG meeting agenda; NAWG and TSP meetings; CA and YIN contract negotiations; training program plans
V Bowman/KT	TA Ikenberry/BNW	Phone	10/14 presentation cancellation; Kalispel tribal council presentation; map
V Bowman/KT	EB Liebow/BNW	Phone	CDC-sponsored efforts work plan
G Combs/TSP Staff	GL Harvey/BNW	Phone	Materials provided to Dr. Stan Davis; his attendance at October TSP meeting
D Ernst/ST	TA Ikenberry/BNW	Phone	CDC work plan/study; HEDR Native American Data Release Policy; moving data to project records
TA Ikenberry/BNW	V Bowman/KT	Phone	HEDR grid maps; tribal council presentation dates
TA Ikenberry/BNW	D Seyler/CA	Phone	Food consumption data
EB Liebow/BNW	Alexis/NP	Phone	Food summary data
EB Liebow/BNW	B Aripa/CT	Phone	CDC work planning
EB Liebow/BNW	WA Bishop/TSP	Phone	NAWG meeting; CA and YIN negotiations with CDC
EB Liebow/BNW	R Jim/YIN	Phone	NAWG meeting
EB Liebow/BNW	D Powaukee/NP JH Reuben/NP	Phone	NAWG meeting; food summary
EB Liebow/BNW	M Queahpama/WST	Phone	Food consumption summary data
EB Liebow/BNW	L Seyler/CA	Phone	Work plan; negotiations with CDC
EB Liebow/BNW	M Squeochs/YIN	Phone	Work order status meeting
DB Shieler/BNW	DE Barth/TSP	Phone	Budget adjustments; DESCARTES; feeding regimes; HTDS; model validation; meteorological problem; milk cow feeding regimes

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
DB Shipler/BNW	JE Till/TSP	Phone	TSP meeting agenda
B Shleien/TSP	DB Shipler/BNW	Phone	Conversion factors, thyroid counting data
November 1993			
M Allen/BNW	G Combs/TSP Staff	Phone	Radiation dose booklet
DS Barth/TSP	DB Shipler/BNW	Phone	Validation report review; feeding regimes; TSP meeting presentation
WA Bishop/TSP	EB Liebow/BNW	Phone	Tribal project coordinators' training; HHIN Workshop presentation; training activities meeting
ML Blazek/TSP	GL Harvey/BNW	Phone	HHIN visit
SD Cannon/BNW	G Combs/TSP Staff	Phone	Radiation dose booklet
K CharLee/TSP Staff	SM Finch/BNW	Phone	January TSP meeting agenda; January TSP presentation
K CharLee/TSP Staff	GL Harvey/BNW	Phone	Upcoming TSP visits; request to review document references
PR Chevalier/BNW	G Combs/TSP Staff	Phone	Radiation dose booklet
R Cline/Portland	GL Harvey/BNW	Phone/ Fax	REDOX and silver reactors.
G Collins/WDOE	BA Napier/BNW	Phone	QUEST software; map interpretation
G Combs/TSP Staff	GL Harvey/BNW	Phone	TSP video RFP package; report schedule; handout material
G Combs/TSP Staff	PR Chevalier/BNW	Phone	Radiation dose booklet
SM Finch/BNW	K CharLee/TSP Staff	Phone	TSP meeting dates
TA Ikenberry/BNW	D Seyler/CA	Phone	Tribal dose calculations and presentation; mid-January meeting schedule
L Kaplan/HHIN	BA Napier/BNW	Phone	Map details
EB Liebow/BNW	WA Bishop/TSP	Phone	CA and YIN contract negotiations
EB Liebow/BNW	C Palmer/YIN	Phone	Work order and invoicing
EB Liebow/BNW	M Queahpama/WST	Phone	Data summary corrections
EB Liebow/BNW	M Squeochs, A Peters/YIN	Phone	Work order and invoice

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G Linville/HHIN	BA Napier/BNW	Phone Fax	Map displays; brochure map
P McGavran/TSP	BA Napier/BNW	Phone	Individual exposure parameters ; individual survey question formats
AH McMakin/BNW	G Combs/TSP Staff	Phone	Radiation dose booklet
BA Napier/BNW	B Shleien/TSP	Phone	Monitoring document reference
K Niles/TSP Staff	GL Harvey/BNW	Phone	Video subcontracting process; handout materials
M Saporito/HTDS	BA Napier/BNW	Phone	Second test disk; reference diets and milk sources; potential visit; translation of survey data to feeding regimes, county cells; reducing HTDS survey to CIDER inputs
B Shleien/TSP	BA Napier/BNW	Phone	Monitoring document reference; thyroid count data
J Swanberg/WA DOE	GL Harvey/BNW	Phone	Video production/subcontracting process
R Tharwani/ Environmental and Occupational Health Sciences Institute	SM Finch/BNW	Phone	Documents request
J Thomas/HHIN	SM Finch/BNW	Phone	Mailing list change
J Thomas/HHIN	BA Napier/BNW	Phone	Whole body count data
JE Till/TSP	CM Heeb/BNW	Phone	Invitation to serve on NCRP
R Watts/Richland	GL Harvey/BNW	Phone	HEDR handout
DB Shipler/BNW	DS Barth/TSP	Phone	Validation document; DS Barth report
JE Till/TSP	DB Shipler/BNW	Phone	DW Price follow up

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