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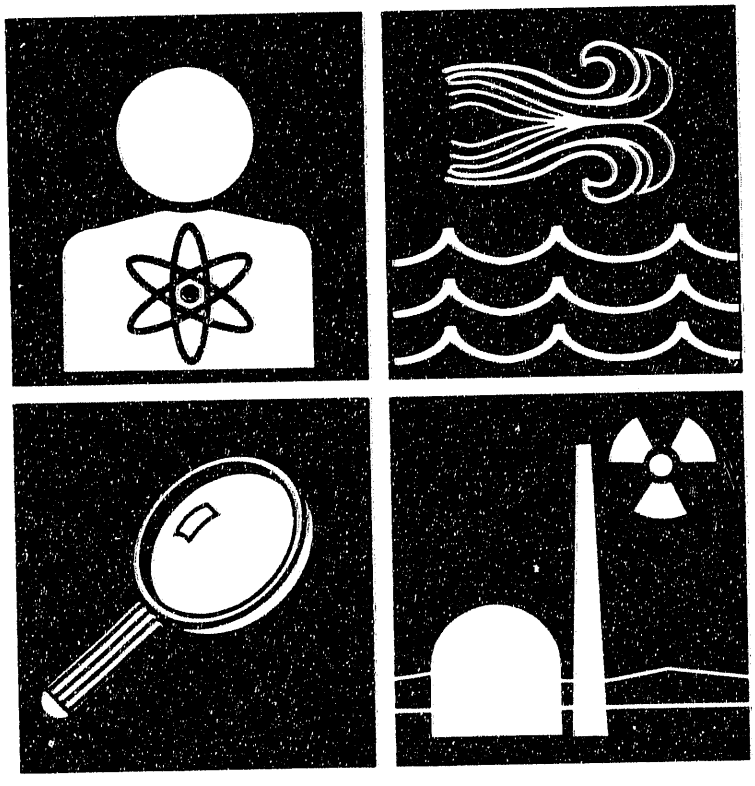
PNL-6450-50-HEDR
UC-707

Hanford Environmental Dose Reconstruction Project

Monthly Report

December 1991



Prepared for the Technical Steering Panel

Battelle

PNL-6450-50-HEDR

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Pacific Northwest Laboratory
Richland, Washington 99352

PNL-6450-50-HEDR
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HANFORD ENVIRONMENTAL DOSE
RECONSTRUCTION PROJECT

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Preface

This monthly report summarizes the technical progress and project status for the Hanford Environmental Dose Reconstruction (HEDR) Project being conducted at the Pacific Northwest Laboratory (PNL)[a] under the direction of a Technical Steering Panel (TSP). The TSP is composed of experts in numerous technical fields related to this project and represents the interest of the public. The U.S. Department of Energy (DOE) funds the project.

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

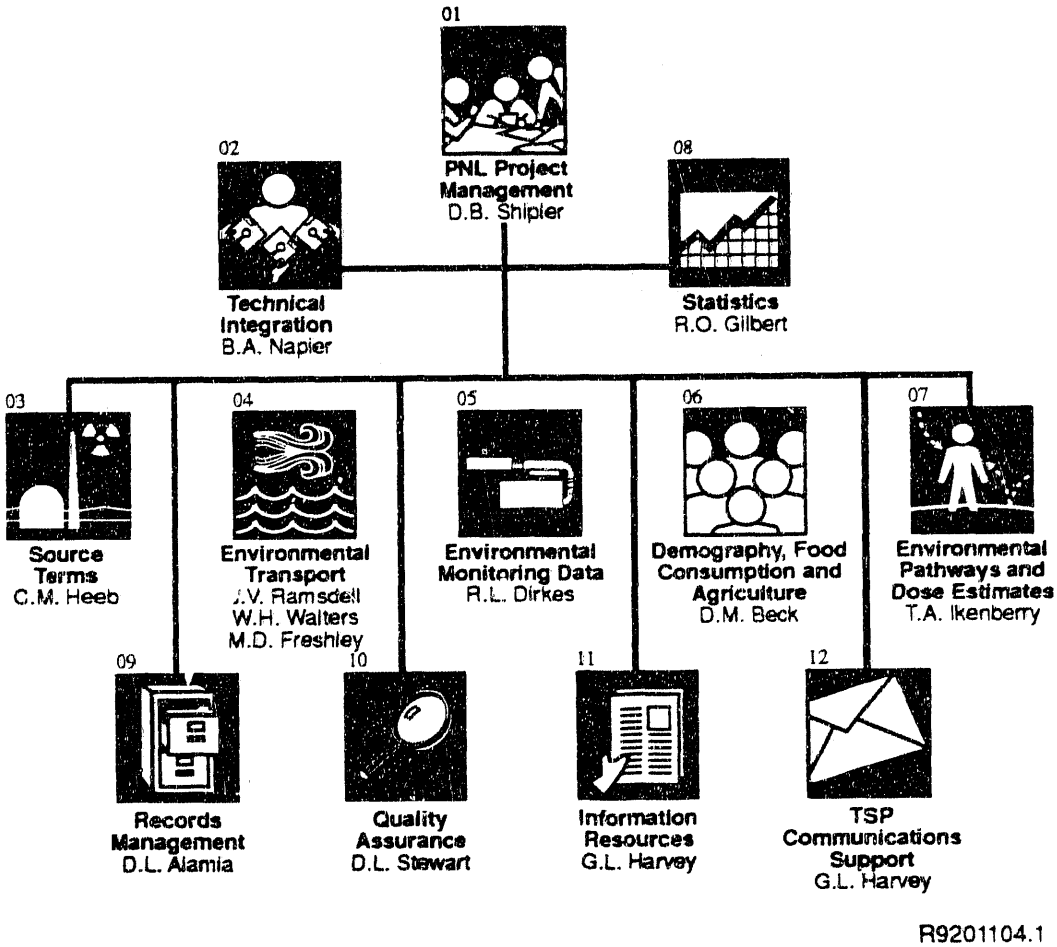


FIGURE 1. Organizational Structure of the Hanford Environmental Dose Reconstruction Project

[a] Battelle Memorial Institute operates the Pacific Northwest Laboratory.

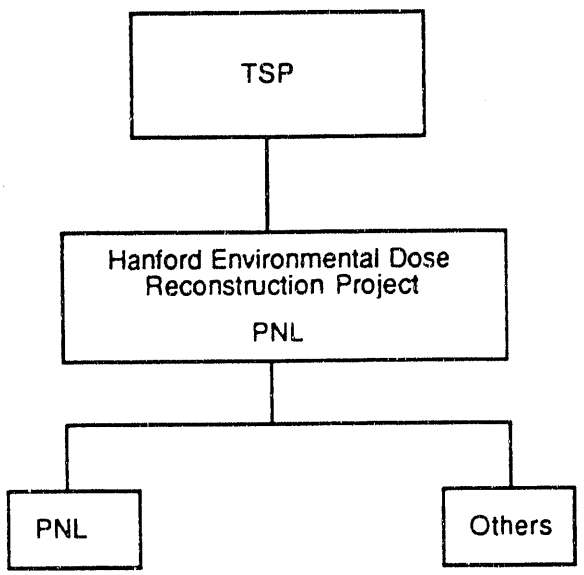
TABLE 1. Status of Directives[a]

		Complete	Ongoing	Phase I	FY 1991
88-1	(a) Proposals		x		
	(b) Source Terms			x	x
88-2	Vegetation			x	x
88-3	Status Reports		x		
88-4	Ground Water			x	x
88-5	Maps	x			
88-6	Resumes	x			
89-1	Indian Tribes			x	x
89-2	Bioassay Data			x	
89-3	Document Handling		x		
89-4	Reactor Purging			x	x
89-5	Phased Approach	x		x (modified 2/14/91)	
89-6	Meeting Materials		x		x
89-7	Tech Communication		x		
89-8	Phase II Planning	x			x (modified 2/14/91)
89-9	Project QA Plan		x	x (revised)	x (revised)
89-10	Contracts with Tribes			x	x
90-1	Project Direction (Task Plans)		x		x
90-2	Dose Cut-Off Limit			(deferred)	

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

Executive Summary

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



The TSP consists of experts in environmental pathways, epidemiology, surface-water transport, ground-water transport, statistics, demography, agriculture, meteorology, nuclear engineering, radiation dosimetry, and cultural anthropology. Included are appointed technical members representing the states of Oregon and Washington, 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
- Demographics, Agriculture, Food Habits
- Environmental Pathways and Dose Estimates.

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

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

The Environmental Monitoring Data Task assembles, evaluates, and reports historical environmental monitoring data.

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

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

Lifestyle and food habit information will also be developed for individuals included in the Hanford Thyroid Disease Study as a basis for dose estimates and for other interested individuals.

The Environmental Pathways and Dose Estimates Task uses the information produced by the other tasks 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 monthly report, which is available to the public.

Project Summary

Progress

Figure A.1 in Appendix A shows the status of project milestone activities. The following is a summary of activities conducted by HEDR staff in December 1991:

- received word from the U.S. Department of Energy Richland Field Office (RL) that the HEDR Project will receive $2 million for the first half of FY 1992, which is 80% of the TSP-approved budget. Consequently, Battelle has reduced its spend rate (and associated work rate) to 80% of the TSP-approved budget for the first half of FY 1992.
- completed and mailed the proposal for continuing HEDR work under contract to the Centers for Disease Control (CDC). The proposed contract period is February 28, 1992 through February 28, 1994.
- notified the TSP Chairman of a new DOE Order requiring two reviewers for declassification
- continued work on the reactor fuel peaking factor model, which will be used in the final estimate of iodine-131 releases
- completed atmospheric transport code and continued preparing code documentation (Milestone 0402B) for TSP review in February
- began addressing peer review comments on the groundwater pathway report
- continued writing the Columbia River pathway summary report, including completing a summary of Hanford-oriented Columbia River monitoring activities during 1944 - 1990
- completed initial coding of the individual dose estimation model and submitted the initial draft of the dose code documentation report to internal review
- submitted the draft environmental monitoring data report (in which TSP comments are addressed) to internal review
- finalized arrangements for subcontracted staff who will work on Subtask 0503, Monitoring Document Search and inventory
- received word that the Agricultural Survey Design Team has been established within Washington State University (WSU) and will meet with representatives of the WSU Social and Economic Sciences Research Center in January to begin survey design. This work is part of reconstructing agricultural patterns from 1944 to present.
- prepared draft guidance for new work orders for tribes following their submittal of preliminary food consumption data. Discussed data-gathering issues with tribes.
- continued work on documenting radioiodine transfer parameters, focusing on soil and plant transfer factors
- submitted the draft report on uncertainty and sensitivity analysis of historical iodine-131 vegetation measurements in 1945 - 1947 to internal review
- declassified 88 Hanford-Site-originated documents, 12 of which are of potential interest/use to the project
- responded to a request from a member of the public who had identified several documents of potential value to the HEDR Project
- discussed, with TSP Communications Subcommittee members, methods to provide additional information on project progress and results to the Franklin County agribusiness community
- presented four talks on the HEDR Project as invited speakers for a 1-day session at the workshop, "Statistical Issues in Environmental Modeling and Monitoring" at the National Institute of Statistical Sciences in Research Triangle Park, North Carolina. Topics included statistical/uncertainty issues and source terms work.

Major Problems or Changes and Action Taken

Unavailability of staff continues to delay project work. Recruiting efforts continue, especially for environmental health physics staff.

The iodine closure document (Milestone 0302A) continues to be delayed while efforts focus on developing the peaking factor model for iodine-131 releases. This delay is consequently delaying the wind field modeling paper, which needs source terms input.

The TSP is delaying release of dose estimates based on tribal information pending the finalization of the Native American Working Group's policy statement on release of tribal data and documents. Four tribes have not submitted their preliminary food consumption data compilations, and two others have not submitted their additional food consumption data compilations. No-cost work order extensions are being prepared to cover this work.

HEDR Task 11 staff are focusing on searching for technical information to be used directly in dose estimation work. Declassification activities have been shifted to staff members in PNL's Classification Office. Additional staff are being recruited who are authorized to declassify documents.

Planned Work for the Next Three Months

- respond to requests for backup information from the CDC as they review the proposal to continue HEDR work, negotiate contract details, and sign contract in April 1992.
- submit the following milestones to the TSP:
  - Project Management Plan
  - Draft code design specifications
  - Documented Phase I iodine-131 releases
  - Wind field modeling white paper
  - Atmospheric model documentation report
  - Report on air model sensitivity/uncertainty
  - Groundwater, Columbia River, atmospheric code, and dose code reports
  - Phase I reports on environmental monitoring data, population, food, and milk distribution estimates
  - Letter report on milk outside Phase I
  - Iodine-131 conversion factor report

Budget Status

Figure 2 shows the budget status of the HEDR Project. Table A.1 in Appendix A shows FY 1992 costs and budget by task and subtasks. Figure A.2 shows TSP budget status. Figure A.3 shows Native American Research Budget status.

The TSP approved a budget for PNL, the TSP, and the Native American research contracts for FY 1992 for $5,022K. Because the funding source for the HEDR Project transfers from DOE to the CDC in FY 1992, PNL is being funded in FY 1992 initially through DOE and then through CDC. DOE is funding PNL at 80% of the spending rate of the TSP-approved budget for October 1991 through March 1992. Therefore, PNL reduced its spending rate to the 80% level (plus carryover funding from FY 1991) for October 1991 through March 1992. The PNL budget (expected from CDC) for the remainder of FY 1992 (March through September 1992) was increased to ensure the full TSP budget to perform approved FY 1992 work. PNL assumes CDC will authorize this modified budget amount when the contract is signed between Battelle and CDC in April 1992.

Capital Status

A request for $178K of FY 1992 and $23K of FY 1994 capital equipment funds was submitted to Battelle's Plans and Budget Department. The FY 1992 request of $150K was for storage disks for the HEDR computer system, $15K for a portable computer and a color overhead projection system to be used with the Geographic Information System computer, and $13K for an application server. The FY 1994 request was [illegible] Sparc workstation II and support equipment. This request will be prioritized with the other laboratory requests and submitted to the RL for approval. The HEDR Project should be notified by January the amount of funding to be received.

1. ID (Contract) Number:	2. Program/Project Title:	3. Reporting Period:
DE-AC06-76RLO 1830 18620 (CDC)	HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - PNL	DECEMBER 1991

4a. Participant Name and Adress	4b. Client Name and Address	5. Start Date
Pacific Northwest Laboratory/Battelle P.O. Box 999 Richland, WA 99352	RL Richland, Washington 99352 CDC Atlanta, GA 30333	OCTOBER 1991 6. Completion Date SEPTEMBER 1992

7. FY 92 | 8. Months

9. Cost Status

a. $ Expressed in: Thousands

b. B&R No./ Subaccount No.
12578
HR0120

c. FIN No.

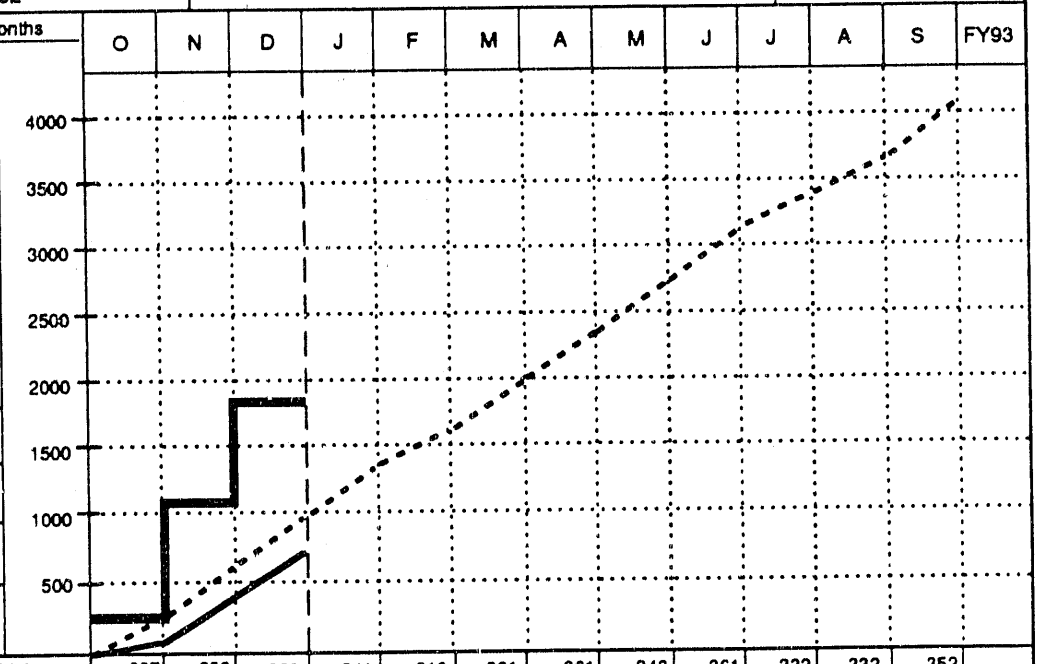
d. Actual Costs Prior Years
10,514 (a)

e. FY Budget
4,079 (b)

f. Total Budget

g. FY Funds Auth.
1,746 (c)

h. Total Funds Auth.
12,261 (d)



Costs	O	N	D	J	F	M	A	M	J	J	A	S	FY93
i. Planned (e)	287	338	330	341	316	381	361	348	361	332	332	352	
j. Actual	191	244	310										
k. Variance	96	94	20										
l. Cum Planned (e)	287	625	955	1296	1612	1993	2354	2702	3063	3395	3727	4079	
m. Cum Actual	191	435	745										
n. Cum Variance	96	190	210										

10. Legend: Planned - - - - - Actual ——— Funds Auth. ▬▬ 90% Funds Spent ▷ Time Now

(a) "Actual cost prior years" excludes TSP costs but includes Native American research costs. (TSP prior year costs are shown separately in Figure A.2.) (b) Projected FY budget excludes TSP and Native American research budgets. (c) Includes carryover and PNL's share of current fiscal year funding that has been received. (d) FY 88-92; excludes capital, TSP funding, and FY 91 carryover and FY 92 funding for Native American research. (e) Refer to the "Budget Status" section of the Project Summary, page x, for an explanation of the FY 1992 budget.

11. Name/Signature of Participants Prog/Proj Manager & Date
D. B. SHIPLER

FIGURE 2. HEDR Project Budget Status - Pacific Northwest Laboratory

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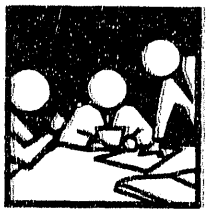


Task 01 PNL Project Management

Objective

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

Progress

***Milestone 0101C*- Project Management Plan, due September 1991 and rescheduled to February 1992**

- internally cleared the Project Management Plan and began addressing clearance comments

Other Activities

- completed and mailed the technical and business proposals for continuing HEDR work under contract to the Centers for Disease Control (CDC). Task plans for FY 1992 through the first five months of FY 1994 were attached to the technical proposal and will become part of the contract. The proposed contract period is April 1992 through April 1994. A contract is expected to be signed between Battelle and the CDC in April 1992.
- notified the TSP Chairman of a new DOE Order requiring two reviewers for declassification
- briefed the new U.S. Department of Energy Richland Field Office (RL) Manager of Communications on the HEDR Project

Major Problem Areas or Changes and Action Taken

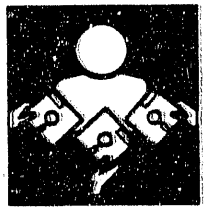
Battelle received word from RL that HEDR will receive $2M for the first half of FY 1992, which is 80% of the TSP-approved budget. Consequently, Battelle has reduced its spend rate (and associated work rate) to 80% of the TSP-approved budget for the first half of FY 1992. In addition, at the direction of the TSP, TSP contracts are being modified to extend through March 1992 and funds added to be 80% of the FY 1992 TSP-approved budget.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- negotiate and sign the contract with the CDC to continue HEDR work
- complete the Project Management Plan ❑



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, that technical task work is integrated effectively for performing the final dose calculations, and that quality technical products are produced to meet requirements.

Progress

Milestone 0202A **- Draft Code Design Specifications, due April 1991 and rescheduled to January 1992**

- continued to internally clear this report

Milestone 0203B **- Submit Hanford Scenario to VAMP, due FY 1991 and rescheduled to March 1992**

- completed collection of data sets for terrestrial vegetation, milk, and human exposure for the 1963 PUREX Plant accidental release of iodine-131. These data sets are being organized for submission to the International Atomic Energy Agency as a test case for the Validation of Model Predictions (VAMP) model validation exercise.

Milestone 0204B **- Letter Report: Recommendation on Modeling or Monitoring Approach for River Pathway, due FY 1993**

- prepared initial dose and uncertainty estimates for use in a value of information alternatives evaluation model

Other Activities

- met with TSP member M. Robkin to discuss project progress and approach to scoping decisions
- participated in a workshop with the National Institute for Statistical Sciences (NISS) at Research Triangle Park, North Carolina, "Statistical Strategies in Environmental Modelling and Monitoring," and presented the paper, "Statistical and Uncertainty Issues of the Hanford Environmental Dose Reconstruction Project." The NISS is considering using the HEDR Project as a case study of the involvement of statistics and statisticians in a large, complex scientific undertaking.

Major Problem Areas or Changes and Action Taken

Staff activities have been directed toward the other HEDR tasks. No significant delays have yet resulted.

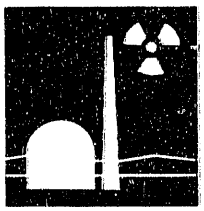
Variance

The cumulative underrun was caused by staff support directed to other tasks. This situation should improve following the February TSP meeting.

Planned Work for the Next Three Months

- attend Native American Working Group meetings
- submit outline for VAMP Hanford scenario

- continue coordinating efforts with Hanford Thyroid Disease Study personnel
- begin preparing project data management plan
- coordinate with Surface Water Modeling Subtask to develop recommendation on sufficiency of monitoring data for surface water dose calculations
- coordinate preparation of HEDR task milestone reports concerning development and implementation of the project computational model, including source term, atmospheric transport, environmental accumulation, and individual dose components ❑



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 0302A **- Documented Phase I Iodine-131 Releases, due May 1991 and rescheduled to June 1992**

- continued work on the peaking factor model, which will be used in the final estimate of iodine-131 releases. This model reconstructs the average power for each batch of discharged fuel. Because the iodine-131 content of the fuel is directly proportional to this average power, an accurate model is required to estimate the iodine-131 content of fuel in the dissolver.

Milestones 0307A and 0307B **- Letter Reports, Hanford Operations, 1944-1960 and 1961-1991, respectively, due September 1992**

- continued to process Hanford document reference material for reconstructing the historical operations of Hanford reactors and separations plants

Other Activities

- made a presentation on HEDR source terms work at the National Institute for Statistical Sciences meeting in Research Triangle Park, North Carolina

Major Problem Areas or Changes and Action Taken

The iodine closure document (Milestone 0302A) will be delayed until June while efforts are focused on developing the peaking factor model. This delay will impact Task 04 air transport model work and subsequent model testing and evaluations. It is important that time be taken to properly complete this model because of the significant contribution of the early iodine releases to dose. Data and techniques not anticipated in the original milestone schedule will make possible more accurate and detailed source term estimates.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- complete the iodine closure document (Milestone 0302A)
- continue constructing database on reactor and separation facility operations
- begin work on methods for estimating releases to the river ❑

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 are studied.

Progress

Milestone 0402B **- Atmospheric Model Documentation Report, due December 1991 and rescheduled to February 1992**

- completed development of code; continued preparing code documentation

Milestone 0402D **- Meteorological Data Report, due December 1991 and rescheduled to March 1992**

- continued entry of meteorological data for 1944 - 1947. The first portion of the meteorological data needed for the extended model domain was received from the National Climatic Data Center.

Milestone 0403A **- Groundwater Report, due December 1991 and rescheduled to January 1992**

- completed a draft of the groundwater pathway report, "Ground-Water Contribution to Dose from Past Hanford Operations," and final preparation of graphics for the document. The document was submitted to internal peer and editorial review and comments from 12 reviewers were received

- met with TSP members S. Davis and P. Klingeman at PNL to discuss the groundwater pathway report and associated work

Milestone 0404A **- Columbia River Pathway Summary Report, due December 1991 and rescheduled to March 1992**

- continued evaluating and sorting report information and data for the report, and submitted a preliminary draft of some sections to the HEDR Project office for review

- presorting data in terms of geographic location, as discussed in the November monthly report, was to difficult to develop in the draft report. The best approach seemed to be the organization of the data and information with respect to the agency that conducted the monitoring of studies. The discussion of the monitoring and studies is presented in chronological order where possible.

Major Problem Areas or Changes and Action Taken

The meteorological data report scheduled for December was delayed; it will be prepared when the code documentation and supporting reports are complete. Milestone 0402A, Wind Field Modeling White Paper, has been delayed until input is available from the Source Terms task that will permit evaluation of the uncertainty in dispersion estimates associated with uncertainty in release times.

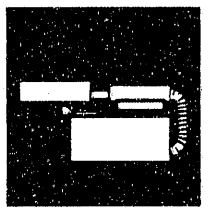
The groundwater pathway report was delayed because of the number of peer review comments necessitated more time to finalize and incorporate than originally anticipated.

Variance

The cumulative underrun for the Groundwater Transport Subtask (0403) was caused by over-estimating the level of effort (number of people) required on groundwater work during November and December. Graphics and editing activities during January will reduce the variance. The cumulative overruns for the Atmospheric Model Development Subtask (0402) and the Surface Water Transport Subtask (0404) were caused by increased efforts to complete Milestones 0402B and 0404A.

Planned Work for the Next Three Months

- complete the wind field modeling report when the input data become available
- complete the atmospheric model code documentation
- complete the Columbia River report
- continue work on databases for use with the revised atmospheric model
- complete meteorological data report
- complete incorporation of review comments into the groundwater pathway report and submit it to the TSP for review by the end of January 1992 ❑



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 0501A **- Environmental Monitoring Data Final Report, due April 1991 and rescheduled to March 1992**

- completed the draft and submitted it to internal review

Monitoring Document Search and Inventory (Subtask 0503)

- continued work on the Monitoring Document Search and Inventory activities. Subcontract arrangements were finalized and staff were committed to this activity during the month. New entries, obtained from Subtask 0404, Surface Water Data, were entered into the Environmental Monitoring Document Database (EMDD), bringing the total number of document entries to more than 1,000. Bibliographic summaries and annotated bibliographies, where available, were updated as well.

Surface Water Data (Subtask 0504)

- completed a summary of the Hanford-oriented Columbia River monitoring activities during 1944 - 1990 for inclusion in the Surface Water Pathway Report, Milestone 0404A, Surface Water Transport Subtask

Major Problem Areas or Changes and Action Taken

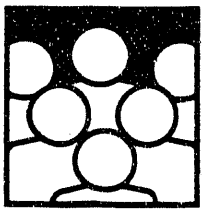
Milestones 0501A and 0502A continue to be delayed. Subcontracts were finalized, which will provide some staff support to various activities.

Variance

The cumulative cost underrun was caused by delays in the establishment of subcontract work orders and in the lag time associated with the subcontract billing process. All subcontracts were in place during December, and costs associated with their activities are expected to enter the system in January.

Planned Work for the Next Three Months

- finalize Milestone 0501A, Environmental Monitoring Data Report
- support Surface Water Transport Subtask in the finalization of Milestone 0404A, Surface Water Pathway Report
- complete the vegetation monitoring data report (Milestone 0502A) ❑



Task 06 Demography, Food Consumption and Agriculture

Objective

The objective of the task is to develop the demographic, food consumption, and food production and distribution information needed to estimate doses. Demographic information for populations that may have been exposed to radionuclides during the time period of interest is developed for the general population and for several special population groups that are not adequately represented by the U.S. Census.

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

Progress

Milestones 0601A, 0601B, and 0601C **- Population Estimates Final Report, Food Estimates Final Report, and Milk Distribution Estimates Final Report, respectively, due April 1991, and rescheduled to March and April 1992**

- continued addressing TSP comments in preparation for submitting these reports to the TSP for final approval

Milestone 0602B **- Letter Report: Status of Food Consumption Methodology, due March 1992**

- received word that the Agricultural Survey Design Team has been established within Washington State University (WSU) and will meet with representatives of the WSU Social and Economic Sciences Research Center (SESRC) on January 10 to begin survey instrument design and sampling frame

Milestone 0603B **- Letter Report on Milk Outside Phase I, due September 1991 and rescheduled to March 1992**

- received the milk report from WSU SESRC on Ferry, Stevens, and Okanogan counties and began finalizing the report

Native American Data (Subtask 0605)

- prepared draft guidance for new work orders for tribes following their submittal of preliminary food consumption data. These work orders are expected to include four tasks: 1) "hands-on" tribal involvement in data reduction and analysis, 2) scoping studies, 3) preparation for tribal participation in the sensitivity analysis workshops scheduled for May 1992, and 4) development of long-term follow-on research plans.

- discussed with the Umatilla Tribe data entry procedures and other quality issues regarding the compilation of food consumption and population data

- reviewed a revised draft of the survey form to be used by the Yakima Tribe to collect food consumption and agricultural practices information. Provided informal comments and discussed sampling procedures for the administration of these surveys.

- examined two potential data sources for applicability in scoping activities involving a regional model of residential mobility: a patient registration database maintained by the Indian Health Service and the Seattle Federal Archives agency records. An important emphasis in defining the scope of long-term follow-on research will include an evaluation of demographic data sources. This preliminary examination of available sources is helping to establish criteria by which these data sources can be evaluated.

Major Problem Areas or Changes and Action Taken

Native American Tribes are not receiving feedback regarding the food consumption data they have submitted. The TSP is delaying release of dose estimates based on tribal information pending the finalization of the Native American Working Group's policy statement on release of tribal data and documents.

The Colville, Nez Perce, Umatilla, and Yakima Tribes have not submitted their preliminary food consumption data compilations. The Kalispel and Coeur d'Alene Tribes have not submitted their additional food consumption data compilations. No-cost work order extensions are being prepared to cover these delays.

Variance

The cumulative cost underrun was caused by a delay in placing a subcontract with WSU for FY 1992 work on Subtask 0603, Milk/Other Food Model Development.

Planned Work for the Next Three Months

- participate in discussions of model development and assumptions relevant to Native American concerns

- participate in discussions regarding sensitivity analysis and model validation techniques

- review tribal interview guides for the Warm Springs Tribe

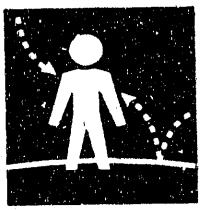
- review preliminary tribal food consumption data

- contribute to development of Native American Continuing Research Plan

- contribute to discussions concerning integration of HEDR with HTDS and Public Health Practice Training program

- design and implement agricultural survey for a 19-county area

- develop food consumption information collection methodology ❑



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 populations, 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 0702A **- Air Pathway Dose Code Documentation, due December 1991 and rescheduled to February 1992**

- completed initial coding of the individual dose estimation model and conducting final functional testing and debugging. Coding of the post-processor/report generator program is nearing completion.
- completed the first draft of the report documenting the atmospheric exposure pathways and dose estimation code. The document has received initial technical editing and HEDR management review.

Milestone 0703A **- Letter Report: Iodine-131 Parameters and Dose Factors, Phase I, due November 1991 and rescheduled to March 1992**

- began identifying areas for revision and expansion after the draft letter report underwent preliminary technical review

Milestone 0703B **- Letter Report: Iodine-131 Parameters and Dose Factors, Revised Model, due March 1992**

- continued research on the radioiodine transfer parameters. Work concentrated on collecting information on soil and plant transfer factors.

Native American Data (Subtask 0605)

- prepared summary files of food consumption data for the Spokane Tribe

Major Problem Areas or Changes and Action Taken

Implementation and testing of the revised air pathway code (environmental accumulation and individual dose codes) took longer than expected, impacting completion of the code documentation (Milestone 0702A). This milestone report will be provided to the TSP prior to the February TSP meeting.

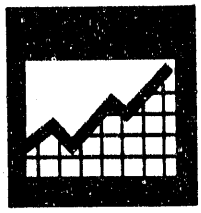
The letter report on Phase I iodine-131 parameters and dose factors (Milestone 0703A) is also behind schedule because of staff commitments to other work. This milestone is expected to be completed in February 1992.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- complete air pathway code documentation and provide to TSP for review (Milestone 0702A)
- complete letter report on Phase I iodine-131 parameters and dose factors (Milestone 0703A)
- continue and complete literature search and documentation of iodine-131 parameters and dose factors for the revised air pathway code (Milestone 0703B)
- complete final testing and debugging of the individual dose estimation and post-processor codes
- transfer and convert revised air pathway code (environmental accumulation and individual dose codes) to the HEDR Sun-4/490 computer
- initiate design and development of the parameter selection submodel as soon as possible, pending the availability of computer science staff to do the code development. An additional individual may be hired by Battelle's Computer Sciences Department to do this work. ❑



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

Milestone 0802A **- Iodine-131 Conversion Factor Report, due December 1991 and rescheduled to April 1992**

- revised the draft report, "Uncertainty and Sensitivity Analysis of Historic Iodine-131 Vegetation Measurements in 1945-47," to address initial review comments by HEDR Project staff and sent revised draft to HEDR Project staff for further review

Milestone 0803A **- Letter Report: Project Sensitivity Uncertainty Analysis Plan, due August 1992**

- began planning for the sensitivity/uncertainty workshop to be held in the summer of 1992

Other Activities

- attended the workshop, "Statistical Issues in Environmental Modeling and Monitoring," sponsored by the National Institute of Statistical Sciences (NISS), Research Triangle Park, North Carolina, December 9-10, 1991. Four HEDR Project staff gave invited presentations on the topic "Statistical and Uncertainty Issues of the Hanford Environmental Dose Reconstruction Project" (PNL-SA-20295 S HEDR).
- reviewed draft of the groundwater report (Milestone 0403A) and transmitted comments to the authors
- developed source term uncertainty analysis model and conducted uncertainty analyses to support Milestone 0301C (Iodine-131, 1944-1947 Final Report)

Major Problem Areas or Changes and Action Taken

None.

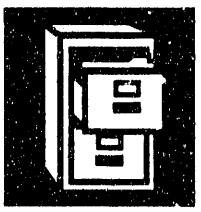
Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- complete Milestone 0802A, Iodine-131 Conversion Factor Report
- support development of the verification/validation plan and the sensitivity/uncertainty plan

- support development of the data management plan
- review all project deliverables for the Project Office
- support statistical analyses for Tasks 03, 04, 05, 06, and 07 for data evaluation and model testing
- support development of the survey design for Task 06 ❑



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

- received project records from the HEDR Project Office (107 records/1,161 pages)
- verified, processed, and stored project records (24 records/603 pages)
- transferred two packages of records to the RL Public Reading Room (8 records/537 pages)
- provided the HEDR Project Office with an electronic copy of the records received prior to 8/89 listed in the Records Center database. This will assist the Project Office in identifying and locating records.

Major Problem Areas or Changes and Action Taken

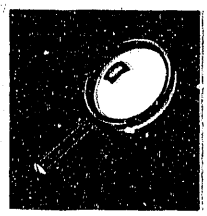
None.

Variance

The cumulative cost underrun was caused by other obligations and assignments for records staff.

Planned Work for the Next Three Months

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



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 the Task 04 groundwater report to determine whether data quality objectives had been met
- continued development of HEDR procedures

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative variance was caused by a less-than-anticipated level of effort this month.

Planned Work for the Next Three Months

- issue remaining HEDR procedure: HEDR–TP–3, "HEDR Documentation of Critical Decisions"
- develop action tracking procedure to be used for documenting results of technical staff meetings
- review all deliverables for the Project Office
- continue performing oversight activities to check for compliance to project technical, QA and data quality objective 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 microcomputer-based tracking system for ready retrieval of historical information.

Milestone 1102A **- Letter Report: Declassified, Prioritized Document List, due September 1992**

- declassified 88 Hanford-Site-originated documents, 12 of which are of potential interest/use to the project. Table 11.1 shows the status of declassification to date.

Milestone 1103A **- Letter Report: Status of Document Search and Data Quality Objectives Efforts, due September 1992**

- began preparing a document that will include all available daily reactor operating data for the years 1960 - 1964. All copies of these annual collections were destroyed more than 20 years ago.
- verified all references in the Task 04 groundwater report and ensured their public availability
- responded to a request to the TSP from B. Cook, who identified 67 documents that he felt should be reviewed for potential value to the HEDR Project. Of these, 42 were unclassified and already in the HEDR database, 8 were already publicly available, 8 were of no use to the project, and 9 were classified but contained no Hanford-Site-related information.
- examined the listing of boxes of Hanford historical records identified by TSP member G. Caldwell and prepared for his January visit
- added new citations to the tracking system that now contains nearly 5,100 citations
- provided the RL Reading Room with 67 documents of potential interest/use in the HEDR Project. A title listing of these reports is given in Appendix B.

RL Public Reading Room Activity

In December, the RL Public Reading Room had 12 HEDR users and distributed 21 HEDR reports.

Major Problem Areas or Changes and Action Taken

No progress was made on declassification of documents on the TSP "single-request" list because declassifiers were unavailable. At the direction of the HEDR Project Manager, S. Gydesen is now focusing on searching for source terms information to be used by Task 03 staff. Consequently, declassification activities have been shifted to other staff members of the PNL Classification Office. Additional staff are being recruited who are authorized to declassify documents.

Variance

No significant cumulative variance.

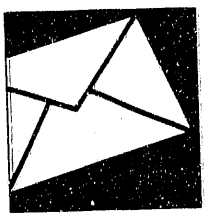
TABLE 11.1. Declassification of Hanford-Originated Documents

Documents Declassified	Hanford Historical	HEDR-Related[a]
March 1987 - September 1987 (FY 1987)	35	27
October 1987 through September 1988 (FY 1988)	52	37
October 1988 through September 1989 (FY 1989)	186	177
October 1989 through September 1990 (FY 1990)	455	236
October 1990 through September 1991 (FY 1991)	1323	599
October 1991 through November 1991 (FY 1992)	209	62
TOTAL (March 1987 - December 1991)	2260	1138

(a) Reported in HEDR monthly 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.

Planned Work for the Next Three Months

- continue to add input to the information resources tracking data base and provide documents to the RL Public Reading Room in an orderly, timely fashion
- watch for information that may explain in detail, and support data in, "green run" document HW-17381 DEL
- identify significant documents that address fuel element failures that occurred in now decommissioned Hanford production reactors
- identify significant documents that address fuel element failures that occurred in now decommissioned Hanford production reactors
- continue to develop "packing lists" for boxes of retired Hanford records of potential interest/use to the project
- identify and collect documents that address reactor purges, 1944-1971
- identify and retrieve data of ruthenium releases from separations processes ❑



Task 12 TSP Communications Support

Objective

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

Progress

- discussed with TSP Communications Subcommittee ways to provide additional information to the Franklin County agribusiness community. The Subcommittee is exploring options for improving interaction with this audience.
- provided comments on the revised draft of the TSP poster
- reviewed TSP documents on file at the Crosby Library, Gonzaga University, Spokane, Washington. Discussed with L. Miller, Librarian, an orderly transfer of TSP and other Hanford-related documents to the new library building in 1992.
- provided four copies of the TSP videotape to interested individuals as a result of HEDR staff presentations at the National Institute of Statistical Science, during a recent meeting in Research Triangle Park, North Carolina.
- provided general information regarding the HEDR Project to R. Collins, UNOCAL, Brea, California. Also provided information to W. Cummins, Portland State University, regarding media coverage in July 1990.

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

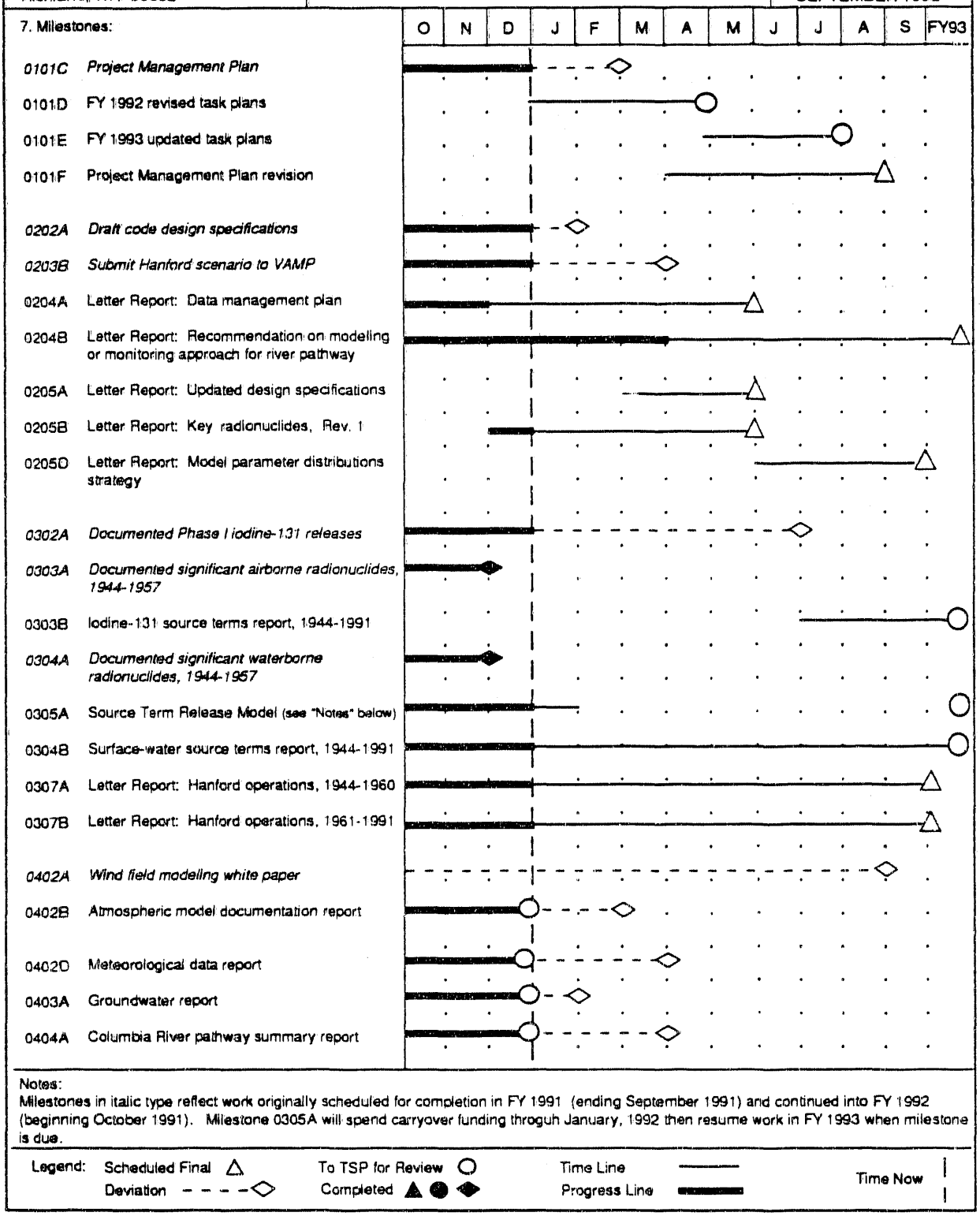
- complete letter report on media analysis, 1991, for the TSP Communications Subcommittee (Milestone 1203B)
- support the TSP Communications Subcommittee in its planning and development of focus groups and poster finalization
- attend TSP Communications Subcommittee meeting in January
- prepare draft text for two fact sheets on the revised dose model and sensitivity studies, by request of the TSP Communications Subcommittee ❑

Appendix A

Milestones, Schedule, and Costs

1. ID (Contract) Number:	2. Program/Project Title:	3. Reporting Period:
DE-AC06-76RLO 1830 (DOE) 18620 (CDC)	HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION	DECEMBER 1991

4a. Participant Name and Adress	4b. Client Name and Address	5. Start Date
Pacific Northwest Laboratory /Battelle P.O. Box 999 Richland, WA 99352	RL Richland, WA 99352 CDC Atlanta, GA 30333	OCTOBER 1991 6. Completion Date SEPTEMBER 1992



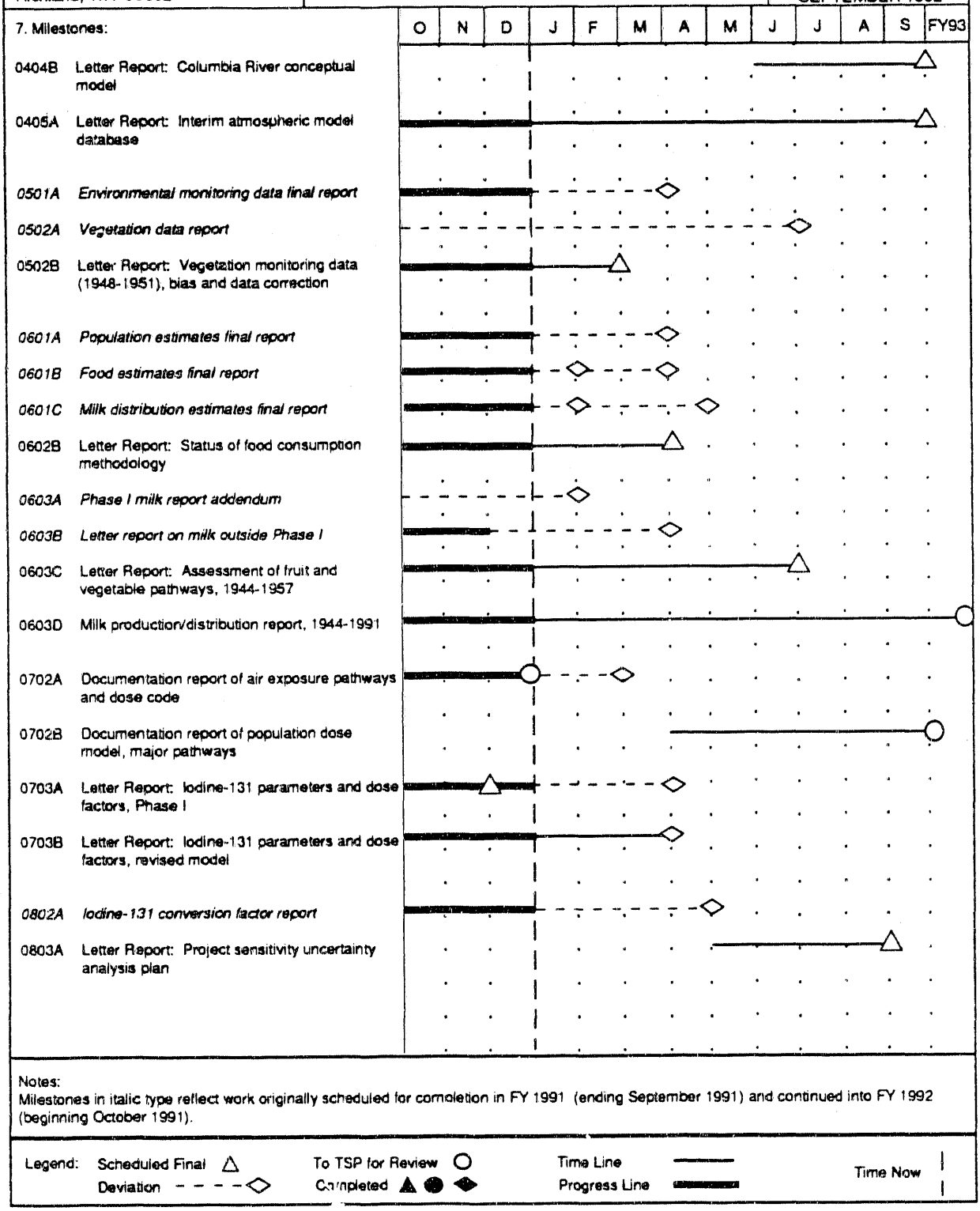
Notes:
Milestones in italic type reflect work originally scheduled for completion in FY 1991 (ending September 1991) and continued into FY 1992 (beginning October 1991). Milestone 0305A will spend carryover funding throguh January, 1992 then resume work in FY 1993 when milestone is due.

Legend: Scheduled Final △ Deviation – – – –◇ To TSP for Review ○ Completed ▲ ● ◆ Time Line ——— Progress Line ▬▬ Time Now

FIGURE A.1. HEDR Project Milestones

1. ID (Contract) Number:	2. Program/Project Title:	3. Reporting Period:
DE-AC06-76RLO 1830 (DOE) 18620 (CDC)	HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION	DECEMBER 1991

4a. Participant Name and Adress	4b. Client Name and Address	5. Start Date
Pacific Northwest Laboratory/Battelle P.O. Box 999 Richland, WA 99352	RL Richland, WA 99352 CDC Atlanta, GA 30333	OCTOBER 1991 6. Completion Date SEPTEMBER 1992



Notes:
Milestones in italic type reflect work originally scheduled for completion in FY 1991 (ending September 1991) and continued into FY 1992 (beginning October 1991).

Legend: Scheduled Final △ To TSP for Review ○ Time Line ——— Time Now
Deviation - - - -◇ Completed ▲ ● ◆ Progress Line ═══

FIGURE A.1. HEDR Project Milestones (contd)

1. ID (Contract) Number:	2. Program/Project Title:	3. Reporting Period:
DE-AC06-76RLO 1830 18620 (CDC)	HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - PNL	DECEMBER 1991

4a. Participant Name and Adress	4b. Client Name and Address	5. Start Date
Pacific Northwest Laboratory/Battelle P.O. Box 999 Richland, WA 99352	RL Richland, Washington 99352 CDC Atlanta, GA 30333	OCTOBER 1991 6. Completion Date SEPTEMBER 1992

7. Milestones:

		O	N	D	J	F	M	A	M	J	J	A	S	FY93
10B	Internal audit report	◆												
1002A	Letter Report: Review of QA plan								△					
1003A	Letter Report: Internal audit												△	
1102A	Letter Report: Declassified, prioritized document List												△	
1103A	Letter Report: Status of document search and DQO efforts												△	
1202B	*Videotape*	◆												
1203B	Letter Report: Media analysis, 1991					◇								
1203C	Letter Report: Mid-year media analysis, 1992										△			

Notes:
Milestones in italic type reflect work originally scheduled for completion in FY 1991 (ending September 1991) and continued into FY 1992 (beginning October 1991).

Legend: Scheduled Final △ — To TSP for Review ○ — Time Line ——— — Time Now |
Deviation - - - ◇ — Completed ▲ ● ◆ — Progress Line ▬▬

FIGURE A.1. HEDR Project Milestones (contd)

TABLE A.1. Cost Summary (Dollars in Thousands)

HEDR Project Tasks	December 1991			FY 1992 to Date (October 1991 - September 1992)						
	Labor $	Non-Labor $ (a)	Total $	Labor $	Non-Labor $ (a)	Total $	Cum Budget	Cum Variance	TSP (b) Approved FY Budget	Budgeted FY Labor Hours
Task 01 - Project Management (c)										
0101 Project Planning & Control	48	24	72	111	33	144	156	12	722	7,566
0102 Final Phase I Reports	1	1	2	4	1	5	7	2	12	250
0103 Project Administration	22	3	25	59	14	73	93	20	379	5,271
0104 Project Peer Review	5	0	5	12	1	13	3	-10	14	120
Subtotal Task 01	76	28	104	186	49	235	259	24	1,128	13,207
Task 02 - Technical Integration										
0201 Tech Planning/Control/Rep	1	1	2	14	1	15	17	2	66	664
0204 Proj Tech Cord /Analysis	10	1	11	16	1	17	19	2	78	785
0205 Path & Dose Model Require	1	0	1	7	0	7	35	28	131	1,335
Subtotal Task 02	12	2	14	37	2	39	71	32	274	2,784
Task 03 - Source Terms										
0301 Tech Planning/Control/Rep	1	1	2	10	6	16	15	-1	54	475
0302 Closure of Ph I Iodine Rel	4	0	4	4	0	4	5	1	5	54
0304 Rad Releases to Water	0	0	0	1	0	1	5	4	99	870
0305 Source Term Release Model	0	0	0	2	0	2	5	3	5	54
0307 Rad Release Data Avail/Rev	10	3	13	31	6	37	44	7	182	2,154
Subtotal Task 03	15	4	19	48	12	60	74	14	344	3,607

TABLE A.1. Cost Summary (Dollars in Thousands)

	December 1991			FY 1992 to Date (October 1991 - September 1992)						
	Labor $	Non-Labor $ (a)	Total $	Labor $	Non-Labor $ (a)	Total $	Cum Budget	Cum Variance	TSP (b) Approved FY Budget	Budgeted FY Labor Hours
Task 04 - Environmental Transport										
0401 Tech Planning/Control/Rep	0	0	0	1	0	1	0	-1	56	576
0402 Atmospheric Model Develop	23	0	23	67	1	68	30	-38	214	2,228
0403 Groundwater Transport	14	2	16	24	3	27	46	19	61	684
0404 Surface Water Transport	15	1	16	30	1	31	26	-5	114	1,224
0405 Atmospheric Model Databas	1	3	4	2	2	4	11	7	72	940
0406 Atmospheric Model Calculat	0	0	0	0	0	0	0	0	31	355
Subtotal Task 04	53	6	59	124	7	131	113	-18	547	6,007
Task 05 - Environmental Monitoring Data										
0501 Tech Planning/Control/Rep	3	0	3	7	1	8	10	2	43	394
0502 Terrestrial Monitoring Data	7	0	7	12	1	13	32	19	67	621
0503 Enviromental Monitoring Dat	0	0	0	0	0	0	13	13	44	518
0504 Surface-Water Monitoring	9	1	10	18	0	18	15	-3	15	186
Subtotal Task 05	19	1	20	37	2	39	70	31	169	1,719
Task 06 - Demography, Food Consumption & Agriculture										
0601 Tech Planning/Control/Rep	2	0	2	8	0	8	11	3	40	421
0602 Food Consumpion	4	0	4	4	0	4	11	7	60	512
0603 Milk/Other Food Model Dev	0	0	0	1	1	2	72	70	340	1,481
0605 Native American Data	0	5	5	0	13	13	26	13	100	309
Subtotal Task 06	6	5	11	13	14	27	120	93	540	2,723

TABLE A.1. Cost Summary (Dollars in Thousands)

	December 1991			FY 1992 to Date (October 1991 - September 1992)						
	Labor $	Non-Labor $ (a)	Total $	Labor $	Non-Labor $ (a)	Total $	Cum Budget	Cum Variance	TSP (b) Approved FY Budget	Budgeted FY Labor Hours
Task 07 - Environmental Pathways & Dose Estimates										
0701 Tech Planning/Control/Rep	1	0	1	7	0	7	13	6	55	591
0702 Path & Dose Code Dev/Doc	26	3	29	58	8	66	53	-13	170	1,924
0703 Path & Dose Model Paramet	6	0	6	14	0	14	25	11	40	466
0705 Dose Calculations	0	0	0	0	0	0	3	3	40	412
Subtotal Task 07	33	3	36	79	8	87	94	7	305	3,393
Task 08 - Statistics										
0801 Tech Planning/Control/Rep	5	0	5	10	2	12	12	0	50	409
0802 Stats Support for Tech Work	8	0	8	23	0	23	34	11	140	1,234
0803 Analysis of Model Reliability	13	0	13	30	1	31	33	2	166	1,639
Subtotal Task 08	26	0	26	63	3	66	79	13	355	3,282
Task 09 - Records Management										
0901 Tech Planning/Control/Rep	0	0	0	2	0	2	2	0	19	301
0902 Project Records Management	1	1	2	6	0	6	10	4	72	1,632
Subtotal for Task 09	1	1	2	8	0	8	12	4	91	1,933
Task 10 - Quality Assurance										
1001 Tech Planning/Control/Rep	2	0	2	5	0	5	3	-2	31	374
1002 QA Program Development	0	0	0	0	1	1	4	3	18	245
1003 QA Verification	0	0	0	0	0	0	2	2	12	184
Subtotal Task 10	2	0	2	5	1	6	9	3	61	803

TABLE A.1. Cost Summary (Dollars in Thousands)

	December 1991			FY 1992 to Date (October 1991 - September 1992)						
	Labor $	Non-Labor $ (a)	Total $	Labor $	Non-Labor $ (a)	Total $	Cum Budget	Cum Variance	TSP (b) Approved FY Budget	Budgeted FY Labor Hours
Task 11 - Information Resources										
1101 Tech Planning/Control/Rep	3	0	3	10	0	10	12	2	40	966
1102 Hanford Document Declass	2	0	2	7	0	7	9	2	52	1,179
1103 Hanford Info Resources Iden	7	0	7	18	0	18	20	2	65	1,141
Subtotal Task 11	12	0	12	35	0	35	41	6	157	3,286
Task 12 - TSP Communications Support										
1201 Tech Planning/Control/Rep	2	2	4	6	2	8	4	-4	29	482
1202 TSP Public Outreach Support	0	1	1	0	1	1	2	1	10	52
1203 Comm Assessment Research	0	0	0	2	0	2	2	0	14	134
1204 TSP Meeting/Material Sup	0	0	0	0	1	1	5	4	26	152
Subtotal - Task 12	2	3	5	8	4	12	13	1	79	820
Subtotal, HEDR Project Tasks	**257**	**53**	**310**	**643**	**102**	**745**	**955**	**210**	**4,049**	**43,564**
Management Reserve	0	0	0	0	0	0	0	0	30	0
Subtotal, Project Tasks Plus Management Reserve	**257**	**53**	**310**	**643**	**102**	**745**	**955**	**210**	**4,079**	**43,564**

TABLE A.1. Cost Summary (Dollars in Thousands)

	December 1991			FY 1992 to Date (October 1991 - September 1992)						
	Labor $	Non-Labor $ (a)	Total $	Labor $	Non-Labor $ (a)	Total $	Cum Budget	Cum Variance	TSP (b) Approved FY Budget	Budgeted FY Labor Hours
Technical Steering Panel (d)	0	2	2	0	49	49	181	132	300 (e)	0
Native American Research	0	0	0	0	0	0	66	66	110 (e)	0
TOTAL	257	55	312	643	151	794	1,202	408	4,489	43,564

(a) Non-labor dollars include expenses such as travel, publication production, procurements, and subcontracts.
(b) "TSP approved FY Budget" is the approved FY 1992 budget from the FY 1992 Task Plans plus the allocation of FY 1991 carryover funds as approved in a letter from D. B. Shipler to J. E. Till, dated 11-19-91.
(c) Project management includes activities such as project control and administration, project communications, subcontract administration, records control, and peer review.
(d) TSP costs are administered through subcontracts which are reflected as non-labor costs. Actual TSP expenses include both labor and non-labor.
(e) FY budget assumes Technical Steering Panel and Native American contracts will transfer to CDC in conjunction with the signing of a contract between Battelle and CDC on February 28, 1992.

1. ID (Contract) Number:	2. Program/Project Title:	3. Reporting Period:
DE-AC06-76RLO 1830	HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - TSP	DECEMBER 1991

4a. Participant Name and Adress	4b. Client Name and Address	5. Start Date / 6. Completion Date
Pacific Northwest Laboratory P.O. Box 999 Richland, WA 99352	RL Richland, Washington 99352	5. Start Date: OCTOBER 1991 6. Completion Date: SEPTEMBER 1992

7. FY 92 | 8. Months

9. Cost Status

a. $ Expressed in: Thousands

b. B&R No./ Subaccount No.: 12578 HR0120

c. FIN No.:

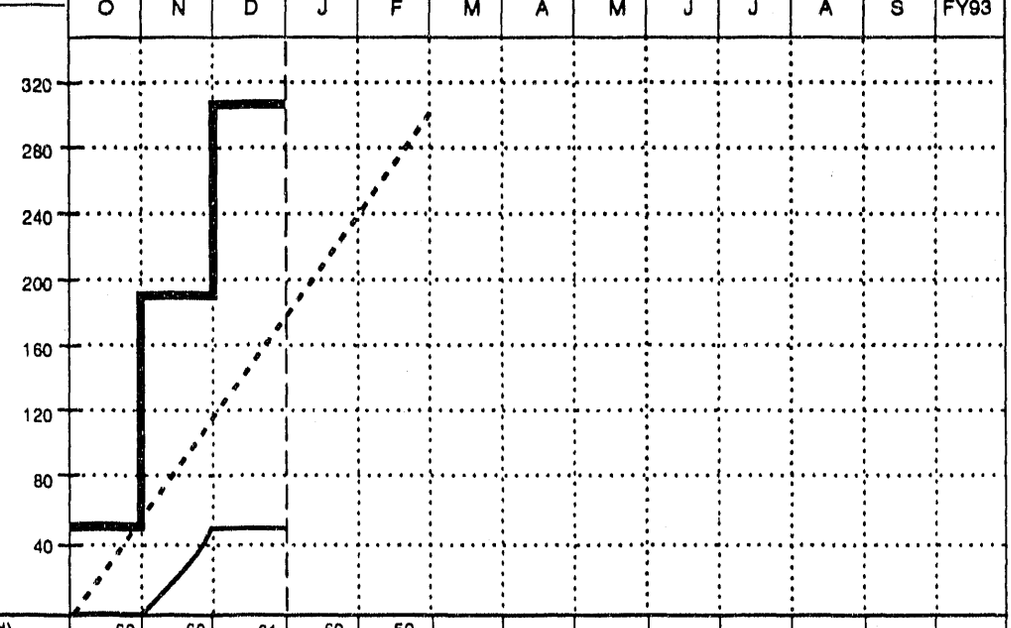
d. Actual Costs Prior Years: 2,251

e. FY Budget: 300 (a)

f. Total Budget:

g. FY Funds Auth.: 300 (b)

h. Total Funds Auth.: 2,551 (c)



		O	N	D	J	F	M	A	M	J	J	A	S	FY93
Costs	i. Planned (d)	60	60	61	60	59								
	j. Actual (e)	2	45	2										
	k. Variance	58	15	59										
	l. Cum Planned (d)	60	120	181	241	300								
	m. Cum Actual (e)	2	47	49										
	n. Cum Variance	58	73	132										

10. Legend: Planned - - - - - Actual ——— Funds Auth. ▬▬ 90% Funds Spent ▷ Time Now |

(a) FY budget assumes TSP contracts will transfer to CDC in conjunction with the signing of a contract between Battelle and CDC on February 28, 1992. (b) Includes carryover and TSP's share of current fiscal year funding that has been received. (c) FY 88-92. (d) Refer to the "Budget Status" section of the Project Summary, page x, for an explanation of the FY 1992 budget. (e) Actual costs are recorded after invoices are received and processed. Therefore, current month costs may not reflect actual work performed.

11. Name/Signature of Participants Prog/Proj Manager & Date

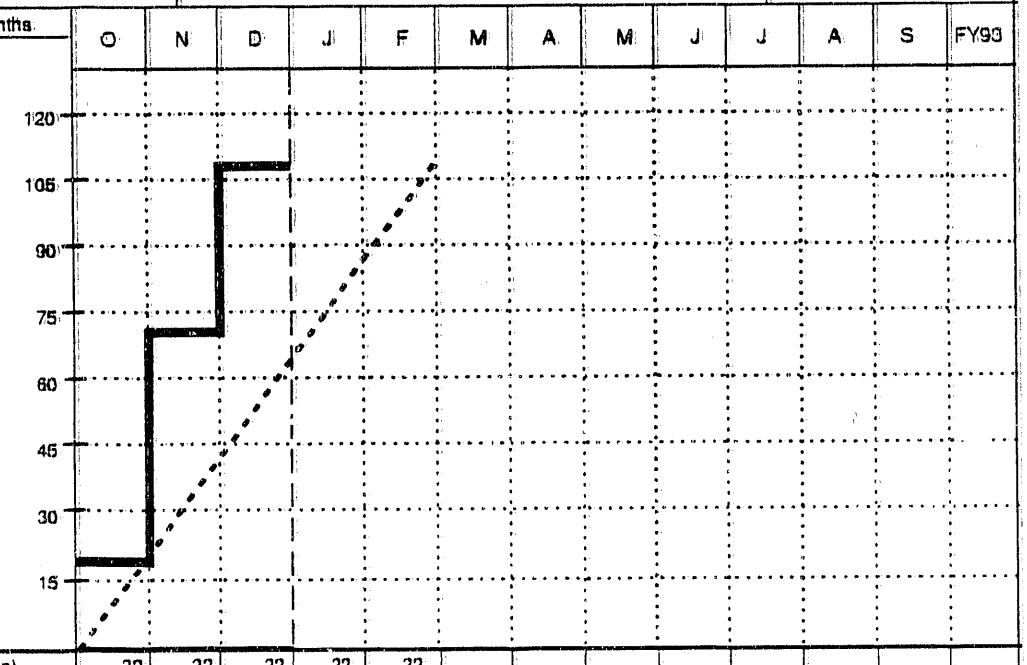
D. B. SHIPLER

FIGURE A.2. Technical Steering Panel Budget Status

1. ID (Contract) Number:	2. Program/Project Title:	3. Reporting Period:
DE-AC06-76RLO 1830	HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - TRIBES	DECEMBER 1991

4a. Participant Name and Adress	4b. Client Name and Address	5. Start Date	6. Completion Date
Pacific Northwest Laboratory P.O. Box 999 Richland, WA 99352	RL Richland, Washington 99352	OCTOBER 1991	SEPTEMBER 1992

7. FY 92 | 8. Months



9. Cost Status

a. $ Expressed In: Thousands

b. B&R No./ Subaccount No.: 12578 HR0120

c. FIN No.:

d. Actual Costs Prior Years (a):

e. FY Budget 110 (b):

f. Total Budget:

g. FY Funds Auth. 110 (c):

h. Total Funds Auth. 110 (d):

		O	N	D	J	F	M	A	M	J	J	A	S	FY93
Costs	i. Planned (e)	22	22	22	22	22								
	j. Actual (f)	0	0	0										
	k. Variance	22	22	22										
	l. Cum Planned (e)	22	44	66	88	110								
	m. Cum Actual (f)	0	0	0										
	n. Cum Variance	22	44	66										

10. Legend: Planned - - - - - Actual ——— Funds Auth. ▬▬▬ 90% Funds Spent ▷ Time Now |

(a) Actual costs for prior fiscal years are part of the costs shown in Figure 2, HEDR Project Budget Status. At the direction of the TSP, Battelle is tracking Native American research costs separately, beginning in FY 92. (b) FY budget assumes Native American research contracts will transfer to CDC in conjuction with the signing of a contract between Battelle and CDC on February 28, 1992. (c) Includes carryover and Native American's share of current fiscal year funding that has been received. (d) FY 91 carryover plus FY 92 funds. (e) Actual costs are recorded after invoices are received and processed. Therefore, current month costs may not reflect actual work performed.

11. Name/Signature of Participants Prog/Proj Manager & Date

D. B. SHIPLER

FIGURE A.3. Native American Research Budget Status

Appendix B

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

Appendix B

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

BNSA-155	Snow and Rain Washout Coefficients for Inorganic Iodine Vapor. 6p.	04/16/65
* -CLVI-254-DEL	I.P.D. Operating Summary 100 Areas (1-1-54 through 12-31-54). 54p.	08/20/54
* FTS-CLVI-255-DEL	I.P.D. Operating Summary 100 Areas (9-1-51 through 12-31-53). 119p.	08/20/54
* FTS-CLVI-256-DEL	I.P.D. Operating Summary 100 Areas (1-1-55 through 12-31-55). 74p.	12/31/51
* FTS-CLVI-257-DEL	I.P.D. Operating Summary for 100 Areas (1-1-56 through 12-31-57). 338p.	02/09/56
* FTS-CLVI-697-DEL	Operating Summary for 100 Areas (1-1-58 through 12-31-58). 136p.	04/25/59
* FTS-CLVI-698	Operating Summary for 100 Areas (1-1-59 through 12-31-59). 122p.	04/25/59
* FTS-XX-0148	Record Book, "S" Department. 120p.	04/12/46
* HAN-18510	Letter Piper to Gorman Regarding Hydrologic Investigations. 21p.	08/25/48
* HAN-29905	Power Levels of Hanford Piles. 2p.	01/09/50
* HAN-42596	100 Area Daily Logs (7-18-45 through 12-31-45). 167p.	12/31/45
* HAN-42597	100 Area Daily Logs (1-1-46 through 6-30-46). 182p.	06/30/47
* HAN-45707	100 Area Daily Logs (1-1-47 through 6-30-47). 182p.	06/30/47
* HAN-45708	100 Area Daily Logs (7-1-47 through 12-24-47). 125p.	12/31/47
* HAN-45709	100 Area Daily Logs (1-1-48 through 9-19-48). 67p.	09/19/48
HW-32175	Study of Certain Properties of Ruthenium Compounds Found in the REDOX Process. 8p.	06/23/54

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

* HW-32571	Radiation Monitoring Unit, Radiological Sciences Department Monthly Report for July 1954.	07/30/54
• HW-32630-SUP1-DEL	Bibliography of Reactor Hazards. 56p.	06/12/56
HW-32896	Preliminary Flowsheet for the Removal of Ruthenium from 60% UNH Solution by Ozone Sparging. 3p.	08/31/54
HW-34216	REDOX Decontamination Performance. 7p.	12/23/54
HW-35445	Items for Over-All REDOX Contamination Improvement. 10p.	01/13/55
* HW-35496	Addendum to HW-34882: Technical Appraisal of REDOX Ruthenium Problems and their Resolution. 6p.	02/24/55
• HW-40730-DEL	Project Proposal, Rev-1 Back-up Radioiodine Removal Facilities, PUREX (CG-647). 25p.	01/03/56
HW-42223	Summary Analysis of the REDOX Plant Sandfilter Radiation Measurements. 3p.	03/26/56
HW-44784	Radioactive Contamination in Liquid Wastes Discharged to Ground at Separations Facilities. 56p.	08/13/56
HW-48518	Radioactive Contamination in Liquid Wastes Discharge to Ground at Separations Facilities through December 1956. 45p.	02/19/57
• HW-50266-RD-DEL	Separation Plant Effluent Gas Measurement for Determining Plutonium Production Rate. 13p.	05/20/57
• HW-54005	"A" Plant Weekly Summary PUREX Operation 1-6-58 through 12-29-58. 53p.	01/06/58
HW-55014-RD	E-Metal Dissolvers-REDOX. 10p.	02/19/58
HW-55455	Revised Definitive Process Design "E" Metal Dissolving equipment REDOX Facility. 10p.	03/31/58
• HW-55603-DEL	Chemical Processing Department Daily Production Report. 1-1-58 through 3-31-58. 67p.	04/04/58

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

HW-57675	Shaped Charge System for Well Casing Perforating.	10/06/85
• HW-58933-DEL	Chemical Processing Department Daily Production Reports, 1-1-58 through 12-31-58. 63p.	01/19/59
HW-60143	Definitive Process Design REDOX Multi-Purpose Dissolver Installation. 15p.	05/06/59
• HW-67741-DEL	Causes of Reactor Shutdowns. 31p.	12/19/60
HW-71388	Sensitive Flowmeter for Measuring Vertical Well Flows. 14p.	11/30/61
• HW-89083	Hanford Site Process Flow Diagrams 1958. 6p.	12/05/91
• MED-1005-DEL	Notebook (RL Manager's) Overall Plant Data. 65p.	01/01/44
PNL-3181	Characterization of Gaseous and Particulate Effluents from the Nuclear Waste. 36p.	10/10/79
PNL-4251	Summary Report of Ground-Water Monitoring Practices at Department of Energy Facilities. 105p.	10/01/82
PNL-6456	Hazard Ranking System evaluation of CERCLA Inactive waste sites at Hanford.	10/31/88
PNL-6847	Response to TSP Directive 88-4, Ground-Water Contamination Data. 11p.	04/20/89
PNL-7144	Initial Inverse Calibration of the Ground-Water Flow Model for the Hanford Unconfined Aquifer. 44p.	03/31/90
PNL-7713-HEDR	Document Search and Declassification for Phase I of the HEDR Project. 8p.	05/07/91
PNL-7868-HEDR	Letter Report: References for Radioactive Releases to the Atmosphere from Hanford Operations (1944-1957). 12p.	11/09/91
PNL-7869-HEDR	Letter Report: References for Radioactive Releases to the Columbia River from Hanford Operations (1944-1957). 13p.	11/04/91

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

PNL-SA-11435	Irradiation and Gamma-Ray Spectrometric Parameters for 129-I Neutron Activation Analysis. 9p.	09/03/83
RHO-BWI-C-098	Pasco Basin Hydrometeorological Study. 247p.	04/30/80
RHO-BWO-ST-5	Hydrologic Studies within the Columbia River Plateau, Washington; An Integration of Current Knowledge. 12p.	10/31/79
WHC-EP-0133	U1/U2 Uranium Plume Characterization, Remedial Action Review and Recommendation for Future Action. 62p.	06/06/88

•Declassified by Secretary of Energy Watkins' directive.
*Declassified in 1991 by earlier guidance.

Appendix C

HEDR Documents to the TSP - December 1991

Note: This appendix lists only publications that are new this month or have undergone some kind of change, such as being approved by the TSP. A complete list for FY 1992 will be included in the September 1992 report.

No documents to the TSP were generated in December.

Appendix E

HEDR Open Literature Publications and Presentations - December 1991

Note: This appendix lists publications (new this month) that present aspects of dose reconstruction in the open scientific literature; TSP approval is not required. A complete listing for FY 1992 will be included in the September 1992 report.

Appendix E

HEDR Open Literature Publications and Presentations - December 1991

Title	Author	Date Issued	Publication No.	Audience	Status
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 (NISS)	Presented 12/91 at NISS Research Triangle Park, NC

Appendix F

Communications Log - December 1991

Appendix F

Communications Log - December 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
K CharLee/TSP Staff	SP Gydesen/PNL	Phone	Visit to Records Holding Area
SP Gydesen/PNL	MA Robkin/TSP	Phone	Identified requested documen'
MA Robkin/TSP	SP Gydesen/PNL	Phone	Plans for remainder of FY 1992
K CharLee/TSP Staff	SP Gydesen/PNL	Phone	Visit to Records Holding Area
K Niles/TSP Staff	GL Harvey/PNL	Phone	Fact sheet development for TSP Subcommittee
K Niles/TSP Staff	GL Harvey/PNL	Phone	Survey analysis results
K Niles/TSP Staff	GL Harvey/PNL	Phone	Purchase of computer equipment/ software, TSP poster, 1993 TSP Public Information Plan
K CharLee/TSP Staff	GL Harvey/PNL	Phone	WDOE printing Shleien's annotated bibliography
K Niles/TSP Staff	GL Harvey/PNL	Phone	Baltimore health physics conference relating to TSP communication support work
GL Harvey/PNL	K Niles/TSP Staff	Phone	HEDR meeting with agriculture community
GL Harvey/PNL	M Power/TSP Staff	Phone	HEDR survey
GL Harvey/PNL	A Beers/TSP Staff	Phone	Meeting with Benton/Franklin agriculture community
GL Harvey/PNL	W Cummins/Portland State University	Phone	Comments Secretary of Energy made prior to Phase I information released in 1990
GL Harvey/PNL	A Beers/TSP Staff	Phone, Fax	Comments submitted on draft TSP newsletter
MS Power/TSP Staff	GL Harvey/PNL	Phone	Survey results and PNL's assessment of findings

Communications Log - December 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
A Beers/TSP Staff	GL Harvey/PNL	Phone, Fax	Draft of TSP newsletter for review
K Niles/TSP Staff	GL Harvey/PNL	Phone	Videotape distribution
D Grossmen/MIT	RO Gilbert/PNL	Phone	Contact E. Mart
B VanPelt/Umatilla Tribe	SM Finch/PNL	Phone	Status of workshop agreement
K CharLee/TSP Staff	SM Finch/PNL	Phone	Letters sent to J. Till and copied to J. Stohr
B Shleien/TSP	SM Finch/PNL	Phone	Carryover funds from FY 1991 and supplemental funding for M. Robkin
K Partridge/PNL	TSP Members	Phone	TSP subcontract supplements
B Shleien/TSP	SM Finch/PNL	Phone	TSP subcontract supplements, security clearance
SM Finch/PNL	K CharLee/TSP Staff	Phone	February TSP meeting agenda items
JE Till/TSP Chairman	SM Finch/PNL	Phone	February TSP meeting; report outlines, G. Caldwell's visit
C Rowland/Tom Fould's office	SM Finch/PNL	Phone	HEDR goals
K Charlee/TSP Staff	SM Finch/PNL	Phone	Visit to PNL 1/16-17, agenda items for February TSP meeting
J Richards/Umatilla Tribe	SM Finch/PNL	Phone	Status of supplement to purchase software
WA Bishop/TSP	SM Finch/PNL	Phone	Time extensions for Native American contracts
B Shleien/TSP	SM Finch/PNL	Phone, Fax	Supplements for TSP funding
D Walker/TSP	SM Finch/PNL	Phone	Subcontract funding
M Sage/CDC	DB Shipler/PNL	Phone	NAWG meeting

Communications Log - December 1991

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
DB Shipler/PNL	B Shleien/TSP	Phone	FY 1991 Carryover funding distribution
B Shleien/TSP	DB Shipler/PNL	Phone	TSP subcontracts, TSP bibliography
R Brich/RL	DB Shipler/PNL	Phone	RL public information briefing
ML Blazek/TSP	DB Shipler/PNL	Phone	TSP fact sheets
DB Shipler/PNL	L Sewell/CDC	Phone	TSP and Native American subcontracts
DB Shipler/PNL	JE Till/TSP	Phone	TSP meeting, Native American research
DB Shipler/PNL	W Bishop/TSP	Phone	Native American research-training, data release
DB Shipler/PNL	R Brich/RL	Phone	RL public information briefing

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