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**HANFORD ENVIRONMENTAL DOSE
RECONSTRUCTION PROJECT**

Monthly Report

April 1992

Prepared for the Technical Steering Panel

**Pacific Northwest Laboratory
Richland, Washington 99352**

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MASTER

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.

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

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

TABLE 1. Status of Directives^(a)

		<u>Complete</u>	<u>Ongoing</u>
88-1	(a) Proposals		x
	(b) Source Terms		x
88-2	Vegetation		x
88-3	Status Reports		x
88-4	Ground Water		x
88-5	Maps	x	
88-6	Resumes	x	
89-1	Indian Tribes		x
89-2	Bioassay Data	x	
89-3	Document Handling		x
89-4	Reactor Purging		x
89-5	Phased Approach	x (modified 2/14/91)	
89-6	Meeting Materials		x
89-7	Tech Communication		x
89-8	Phase II Planning	x (modified 2/14/91)	
89-9	Project QA Plan		x
89-10	Contracts with Tribes		x (revised annually)
90-1	Project Direction (Task Plans)		x
90-2	Dose Cut-Off Limit	x	
92-1	Demography, Food, and Agriculture Tasks		x

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

Executive Summary

The objective of the Hanford Environmental Dose Reconstruction Project is to estimate the radiation doses that 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, 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 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 April 1992:

- revised the FY 1992 Task Plans and submitted them to the TSP for review and approval, completing Milestone 0101D
- submitted the literature search report on the Columbia River pathway to the TSP for review, completing Milestone 0404A
- published Phase I food estimates report, completing Milestone 0601B
- completed review of the existing HEDR quality assurance (QA) plan and submitted letter to the TSP summarizing the review and changes, completing Milestone 1002A
- submitted the second "best and final" offer to the Centers for Disease Control (CDC) on the contract to continue HEDR work into FY 1994. Signing is expected by June 1, 1992.
- completed data inputs and final coding changes on the Source Term Release Model, which will be used to provide the iodine-131 release amounts as well as time of release. Verification is substantially completed.
- completed an initial review of radioactivity released to the Columbia River in the 1947 - 1957 period
- agricultural staff met with dose model staff to discuss the level of resolution required as input to the model. Agreed to construct food consumption estimates and the database of individual diets for 74 food types.
- gathered information from the Census of Agriculture about farm populations and numbers of farms by farm type for 1945 and 1987
- began conducting a pilot study for Yakima County to determine the efficiency of using current farmers as a way to contact farmers who were farming in 1945 and 1951. A subcontract was initiated with the Washington Agricultural Statistics Service to contact a sample of current farmers in Yakima County for each of the farm categories.
- performed preaward survey of the subcontract for the Social and Economic Science Research Center at Washington State University (WSU) to assess quality systems used for performing the agricultural survey for the three low-dose counties
- gave a presentation to Hanford Thyroid Disease Study (HTDS) staff to discuss the status of HTDS pilot-phase investigations and the timing of information needed from HEDR data collection to meet the HTDS pilot-phase milestone
- began compiling a list of references regarding computer modeling, model validation techniques, sensitivity analyses, and ways of measuring reliability and validity. These reference resources will help tribal representatives prepare for the workshop on sensitivity and uncertainty analysis.
- met with CDC, TSP, and tribal representatives in Atlanta to discuss future contracts with the tribes
- received classification guidance which authorizes the implementation of the February 1992 Secretary Watkins declassification on Hanford production information from 1961 - 1972. Met with Westinghouse Hanford Company and the U.S. Department of Energy Richland Field Office (RL) to develop procedures for preparation of a title listing of these currently classified reports.
- declassified 191 Hanford-Site-originated documents, 34 of which are of potential interest/use to the project

- helped arrange a HEDR Project overview for members of a Canadian emergency preparedness group.

Major Problems or Changes and Action Taken

Battelle received TSP Directive 92-1, Demography, Food, and Agriculture Tasks. To respond to this directive, a plan is being prepared that describes staffing and scheduling of Task 06 activities. The two most recent Task 06 staff members, P. Wilfert and D. Anderson, are carrying out planned Task 06 activities. Milestones 0602B and 0603B will be delivered by May 29, 1992.

D. Denham was assigned to replace R. Dirkes as leader of Task 05, Environmental Monitoring Data. M. Thiede will lead several of the subtasks. New statistics staff D. Bates and P. Redgate were added to support Task 08 work. Staffing problems for essentially all tasks have been mitigated.

During the April TSP meeting, the TSP recommended that Battelle combine the draft environmental accumulation and dose code report (Milestone 0702A) and the model/code design specification reports (Milestones 0202A and 0205A) into one report. As a result, Milestone 0702B, the population dose model report, will now incorporate the other three reports.

See "Budget Status" section for major problems with funding.

Planned Work for the Next Three Months

- provide the TSP with a staffing plan for food distribution research and for data analysis from the producer survey
- complete letter report on HEDR modeling approach
- complete final negotiations and sign contract with the CDC to continue HEDR work
- prepare HEDR data management plan (Milestone 0204A)
- develop recommendation for TSP consideration on sufficiency of monitoring data for surface-water dose calculations (Milestone 0204B)
- complete the iodine closure document (Milestone 0302A)
- complete meteorological data report (Milestone 0204B)
- finalize Milestone 0501A, Environmental Monitoring Data Report and 0502A, Vegetation Data Report
- complete Milestone 0502B, Letter Report: Vegetation Monitoring Data (1948-1951), Bias and Data Correction
- issue remaining HEDR procedure, "HEDR Documentation of Critical Decisions" (HEDR TP-3)
- complete Milestone 0601B, Food Estimates Final Report; 0601C, Milk Distribution Estimates Final Report; 0602B, Letter Report: Status of Food Consumption Methodology; 0603B, Letter Report on Milk Outside Phase I; and 0603C, Letter Report: Assessment of Fruit and Vegetable Pathways, 1944-1957
- complete letter reports on parameters and dose factors for Phase I (Milestone 0703B)
- complete Milestone 0802A, 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. Additional DOE funds for April and May have been requested through CDC. It is evident from Figure 2 that PNL ran out of authorized funds before the end of April. Negotiations to keep work moving under way.

Funding for work performed by PNL is expected to transfer from DOE to CDC on June 1, 1992. At the request of CDC, DOE will fund PNL to administer the TSP and the Native American research contracts through September, 1992. The fiscal year budgets for the TSP and the Native American research contracts are shown in Figures A.2 and A.3, respectively.

Capital Status

The HEDR Project has been approved for \$75K of capital funding for FY 1992. Funding for the \$75K was transferred from RL to PNL in the

March 1992 Financial Plan. The purchase requisitions for addition computer disk storage and upgrades have been submitted to Battelle's procurement department.

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 direction.

Progress

Milestone 0101D - FY 1992 Revised Task Plans, due April 1992 and completed

- revised FY 1992 Task Plans and submitted them to the TSP for review. A more detailed FY 1992 budget summary was provided to the TSP after the April public meeting, at their request. The task plans will be published after receiving TSP approval.

Other Activities

- submitted the second "best and final" offer to the Centers for Disease Control (CDC) on the contract to continue HEDR work into FY 1994. Signing is expected by June 1, 1992.
- Mailed time and funds modifications to the TSP and tribes to continue their contracts through FY 1992. Sent a letter to the CDC requesting the additional funds needed for administration of TSP and tribal contracts.
- gave a HEDR presentation and poster session at the 3rd Annual International High-Level Radioactive Waste Management conference

Major Problem Areas or Changes and Action Taken

Battelle received TSP Directive 92-1, Demography, Food, and Agriculture Tasks. In response to the directive, HEDR management met with management of Task 06 staff to discuss staffing coverage for planned work. A plan is being prepared that describes staffing and scheduling of Task 06 activities. As discussed in the March monthly report, two new staff members, G.L. (Pete) Wilfert and D.M. (Dave) Anderson were assigned to Task 06 work to replace D.M. Beck. Progress on assigned work is being carefully monitored and will be reported to the TSP regularly as required in the directive.

D.H. (Dale) Denham was assigned to replace R.L. Dirkes as leader of Task 05, Environmental Monitoring Data. M.E. (Mike) Thiede will lead Subtask 0502, Terrestrial Monitoring Data; 0503, Environmental Monitoring Data Availability and Review; and 0504, Surface-Water Monitoring Data.

Variance

The cumulative overrun was caused by intensive internal peer review of recent documents. An increase was requested in the Revised FY 1992 Task Plans.

- submit revised FY 1993 Task Plans to the TSP for review (Milestone 0101E)
- sign a contract with the CDC to continue HEDR work once the second "best and final" offer is agreed upon ☐

Planned Work for the Next Three Months

- publish revised FY 1992 Task Plans after receiving TSP approval

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 0204A - Letter Report: Data Management Plan, due March 1992 and rescheduled to June 1992

- prepared a draft annotated outline for internal review. Staff have been identified and work has begun on the plan.

Milestone 0204B - Recommendation on Modeling or Monitoring Approach for River Pathways, due June 1992

- reported data related to water pathways in the Columbia River pathway summary report, Milestone 0404A, which was discussed at the TSP meeting in Pasco. Met with scientists from Russia and the Ukraine and with Dr. B. G. Blaylock of Oak Ridge National Laboratory, and discussed modeling techniques for river biota, including migratory salmon.

Milestone 0205B - Letter Report: Key Radionuclides, Rev. 1, due May 1992 and rescheduled to September 1992

- began documenting key exposure pathways, including dermal absorption, and began investigating the possibility of deriving fish concentrations from total beta measurements

Other Activities

- prepared a "white paper" on the HEDR modeling approach and routed it for internal discussion and comment. The contents were discussed at the April TSP meeting.
- addressed HEDR-related questions from members of a Canadian emergency preparedness delegation in Richland

Major Problem Areas or Changes and Action Taken

Comments were received from the TSP on Milestone 0202A, Draft Code Design Specifications. At the request of the TSP, this report will be combined with the two Task 07 reports on the dose code documentation (Milestones 0702A and 0702B) as well as Milestone 0205A, Final Code Design Specification.

Milestone 0205D, Letter Report: Model Parameters Distribution Strategy, is directly connected with Milestone 0703B, Documentation Report of Population Dose Model, Major Pathways. The timing for this milestone (0205D) has been internally adjusted to make it available to Task 07 for incorporation as the introductory portion of the 0703B report.

Staffing difficulties have delayed startup of work on several milestones. Staff have been identified and work has begun to recover the lost time.

Variance

The cumulative cost underrun was caused by staff support directed to other tasks earlier in the year and temporary staff unavailability, primarily in Subtask 0205. Staff have been identified and work has begun on all milestones.

Planned Work for the Next Three Months

- coordinate with Surface Water Modeling Subtask staff to develop recommendation on sufficiency of monitoring data for surface-water dose calculations (Milestone 0204B)

- complete project data management plan (Milestone 0204A)
- finalize Hanford scenario for publication by the International Atomic Energy Agency
- continue coordinating efforts with Hanford Thyroid Disease Study (HTDS) personnel □

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 July 1992

- completed data inputs and final coding changes on the Source Term Release Model, which will be used to provide the iodine-131 release amounts as well as time of release. Verification was substantially completed.

Milestone 0307A - Letter Report: Hanford Operations, 1944-1991, due September 1992

- continued to process Hanford document reference material for reconstructing the operations of Hanford reactors and separations plants. This activity was limited because of work on Milestone 0302A.

Other Activities

- completed an initial review of radioactivity released to the Columbia River in the 1947-1957 period. By-reactor gross beta activity on a monthly basis was covered, as were releases of specific dominant radionuclides. Comparisons were made among radionuclides and reactor thermal energy generation.

Major Problem Areas or Changes and Action Taken

Milestone 0302A should be completed in May when release files are provided to the project atmospheric model and a draft report is delivered to the HEDP Project Office. However, the internal review and approval processes will delay the report's submittal to the TSP until July.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- complete the 1944-1947 iodine-131 release document (Milestone 0302A)
- continue construction of reactor and separation facility operations database
- continue work on river release estimation methods □

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 0402D - Meteorological Data Report, due December 1991 and rescheduled to June 1992

- continued entry of meteorological data for 1946-1947. Entry of 1944 and 1945 data is complete, and meteorological data files have been prepared for runs to provide data for the DESCARTES and CIDER model sensitivity tests.

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

- began to address TSP comments and revise the report for final publication

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

- submitted this report to the TSP for review. A summary of the report was presented at the April TSP meeting.

Major Problem Areas or Changes and Action Taken

The staff needed to complete the meteorological data report (Milestone 0402D) have been diverted to preparation of the RATCHET (atmospheric) code for model runs to support the sensitivity and uncertainty analysis of the DESCARTES and CIDER (environmental and dose) codes. This effort is also delaying the verification of the RATCHET code. Work in these areas will resume when the model runs are completed. Initial TSP comments on the RATCHET report have been received, but report revisions are on hold pending review of code by J. Till and others.

Because of temporary staff unavailability, it will take until June to address TSP comments on the groundwater report and produce a revised version for TSP approval.

As discussed in the March monthly report, the problem of funds available to complete the FY 1992 surface-water work still remains. It is assumed that the extra funds will be included in the CDC contract.

Milestone 0402A, Wind Field Modeling White Paper, is awaiting revision following peer review. Revision is being 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.

Variance

The cumulative cost overrun in the Atmospheric Transport Task is the result of 1) additional time spent on the code documentation during November and December and 2) addition of a second person entering meteorological data. The variance is decreasing.

The cumulative cost overrun in the Surface-Water Transport Task was caused by the extra effort required in report preparation. This variance should decrease during May because the report was provided to the TSP for review in April.

Planned Work for the Next Three Months

- generate 100 realizations of the daily time-integrated air concentrations and surface contamination for use in sensitivity and uncertainty tests of DESCARTES AND CIDER

- complete numerical verification of the RATCHET code and begin preliminary sensitivity studies on it
- continue work on database for use with RATCHET
- complete the meteorological data report (Milestone 0402D)
- complete the wind field modeling report (Milestone 0402A) when the input data become available
- address TSP comments on the groundwater pathway report (Milestone 0403A) and, when received, on the Columbia River literature review report (Milestone 0404A) □

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 FY 1991 and rescheduled to July 1992

- completed this Phase I report and scheduled it for peer review

Milestone 0502B - Letter Report: Vegetation Monitoring Data (1948-1951) Bias and Data Correction, due February 1992 and rescheduled to August 1992

- continued assembling the draft report into HEDR letter report format

Vegetation Monitoring Data (Subtask 0502)

- completed the vegetation monitoring data summaries for the years 1951-1971 and began assembling them into a HEDR letter report

Monitoring Document Search and Inventory (Subtask 0503)

- continued to correct format and data entry inconsistencies found through cross-checking records in the Environmental Monitoring

Document Database (EMDD). Work continues to obtain hard copies of documents which are referred to by format cover sheets in the EMDD but not contained in the other Battelle files. Bibliographic checklists continue to be updated to accurately reflect document contents.

Surface-Water Data (Subtask 0504)

- completed input for internal comment resolution on the Columbia River pathway report (Milestone 0404A)

Major Problem Areas or Changes and Action Taken

D. Denham and M. Thiede were assigned to Task 05 effective April 8, 1992. D. Denham is assigned as Leader of Task 05, Environmental Monitoring Data. M. Thiede will lead Subtasks 0502, Terrestrial Monitoring Data; 0503, Environmental Monitoring Data Availability and Review; and 0504, Surface-Water Monitoring Data.

Variance

The cumulative cost underrun was caused by staff unavailability prior to the assignment of Denham and Thiede. It is anticipated that the cumulative underrun will continue to be reduced over the next few months as planned work is completed.

Planned Work for the Next Three Months

- complete review draft of the vegetation monitoring data report (Milestone 0502A)
- complete review draft of the vegetation monitoring data bias (1948-1951) letter report (Milestone 0502B) ☐
- finalize Phase I report (Milestone 0501A, Environmental Monitoring Data Report)

Task 06 Demography, Food Consumption and Agriculture

Objective

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

Progress

Milestone 0601B - Food Estimates Final Report, due FY 1991, rescheduled to April 1992, and completed

- published this final Phase I report

Milestone 0601C - Milk Distribution Estimates Final Report, due FY 1991 and rescheduled to May 1992

- prepared this Phase I report for final publication. It will be received by the TSP in May.

Milestone 0602B - Letter Report: Status of Food Consumption Methodology, due March 1992 and rescheduled to May 1992

- submitted this report to the HEDR Project Office for internal review

Milestone 0603B - Letter Report on Milk Outside Phase I, due FY 1992 and rescheduled to May 1992

- submitted this report to the HEDR Project Office for internal review

Subtask 0602, Food Consumption

- met with HEDR staff to discuss the limitations of the dose model in terms of the level of resolution required as input to the model. Task 07 needs consumption and production data to be highly aggregated into groups that resemble the five types of plants modeled by the dose code. Task 06 needs to collect data from farmers by crop type, and consumption data need to be reported by food type for construction of a database of individual diets. We agreed to proceed using food and crop resolution sufficient to distinguish specific foods and crops in Task 06. Specifically, the food consumption estimates and data base of individual diets will be constructed for 74 food types.
- entered fish consumption data from the 1966 PNL study of local (Tri-Cities) fishing into a spreadsheet. Preliminary distributions of fish consumption have been estimated for the various population subgroups. No information is available beyond the age and sex of the survey respondents and the amount of fish consumed per meal. It is hoped that these data will be of value in identifying any significant differences in local fish consumption patterns from those of other regions of the country.

Subtask 0603, Milk and Other Food Model Development

- Three agricultural production activities for 1945 and 1951 are important: 1) bearing acreage of fruits and vegetables, 2) volume of fresh and stored fruits and vegetables, and 3) location of production (within a county) of fruits and vegetables. Secondary data sources are being used to develop commercial estimates of fruit and vegetable production in terms of acreage and volume (poundage) for each of the counties in the HEDR study area from primarily two data sources: 1) U.S. Department of Agriculture Census of Agriculture for Washington, Oregon, and Idaho and 2) Horticulture Report for the State of Washington. The data collection portion of the task is nearing completion.
 - identified two people who may be able to identify additional individuals who can provide information on the fruit distribution network as it operated in 1945
 - gathered information from the Census of Agriculture about farm populations and numbers of farms by farm type for 1945 and 1987. Farms were categorized as dairy, vegetable, other agriculture, and home farms.
 - began conducting a pilot study for Yakima County to determine the efficiency of using current farmers as a way to contact farmers who were farming in 1945 and 1951. Washington State Agricultural Statistics Service was considered to be the most reliable source for generating a list of current farmers by type of farm production. Other sources considered included a telephone directory listing with rural addresses, the Bureau of Land Reclamation, and the Agricultural Soil Conservation Service. It was proposed that farmers would be asked to voluntarily provide contact information if they were farming in 1945 and 1951. A subcontract was initiated with Washington Agricultural Statistics Service to contact a sample of current farmers in Yakima County for each of the farm categories. A telephone survey was conducted with these farmers.
- ### **Native American Data (Subtask 0605)**
- met with the CDC, TSP, and Native American representatives in Atlanta to discuss future contracts with the tribes for data collection activities.
 - provided input for a draft statement regarding the implementation of the TSP's Data and Document Release Policy
 - gave a presentation to HTDS staff to discuss the status of HTDS pilot-phase investigations and the timing of information needed from HEDR data collection to meet the HTDS pilot-phase milestone
 - provided input to the Native American Working Group's recommendations regarding a scope of work for tribal work orders expected to extend through the end of FY 1992
 - attended a meeting of the Native American Working Group in Atlanta with the CDC and the Agency for Toxic Substances Disease Registry. The topic was ongoing tribal work.
 - provided input to the Native American Working Group regarding the text of a Memorandum of Understanding that the CDC is planning with each Native American tribe
 - provided input to the Native American Working Group in connection with recommendations it will make to the CDC regarding work requirements for HEDR and HTDS-related investigations
 - attended a meeting of the Native American Working Group in Pasco in conjunction with the April TSP meeting. Battelle prepared a meeting summary for distribution to the Working Group.
 - scheduled meetings at each tribe's headquarters during the first two weeks of May to consult on work planning for the remainder of FY 1992
 - began compiling a list of elementary references regarding computer modeling, model validation techniques, sensitivity analysis, and ways of measuring reliability and validity. These reference resources will assist tribal representatives in preparation for the September workshop on sensitivity analysis and model validation.
 - began preparing a plan to collect relevant published and unpublished information sources that will help to independently assess the reliability, validity, and uncertainty associated with key informant and sample survey interview data regarding food consumption and mobility patterns. One component of this scoping study

will focus on reports concerning Native American lactation and culturally patterned nursing practices (e.g., tribal difference in onset of weaning among nursing children, differences in nursing patterns by gender of child, influence of burgeoning public health practitioners during the study period, economic influences).

Major Problem Areas or Changes and Action Taken

Milestones 0602B and 0603B will be delayed beyond the May 15, 1992 date specified in TSP Directive 92-1 because of internal review requirements. They are planned to be delivered by May 29. Planning is being initiated to address items 2, 3 and 4 of the directive. Formal response will be provided in a separate letter.

Currently PNL has only the 1977-1978 National Food Consumption Survey (NFCS) individual intake data for the winter and spring seasons. PNL does not have readable tapes of the 1965 NFCS individual intake data. The Food Consumption Subtask is awaiting the arrival from the National Technology Information Service of the summer and fall data sets from the 1977-1978 NFCS. The 1965 NFCS individual intake data (spring only) are available from the Health and Nutrition Information Service (HNIS) of the USDA. HNIS has requested that PNL send data tapes. They will copy the data and send it to PNL at no additional expense.

Variance

The cumulative cost underrun is primarily associated with delayed contracting with and invoicing of Washington State University (WSU) work on agricultural practices. Delays in CDC contracting with Battelle are impacting Battelle's ability to place contracts with WSU in a timely manner. Work is planned and staff are assigned to begin work.

Planned Work for the Next Three Months

- issue reports for Milestones 0601C, 0602B, and 0603B
- provide the TSP with a staffing plan for food distribution research and for data analysis from the producer survey
- provide the TSP with a monthly progress report within 10 days after the end of each month
- travel to tribal headquarters to consult on FY 1992 work planning and preliminary food consumption data
- participate in discussions regarding sensitivity analysis and model validation techniques
- review tribal interview guides for the Warm Springs Tribe
- contribute to discussions concerning integration of HEDR with HTDS and Public Health Practice Training program □

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

Pathways and Dose Code Development and Documentation (Subtask 0702)

- completed transfer of the environmental accumulation and dose codes (DESCARTES and CIDER) from the VAX computer to the HEDR Sun computer and made best-estimate runs of both codes on the Sun. The single-run report generator program (REPGEN) has also been converted to the Sun for use in reporting and comparing model outputs. Conversion testing is under way. The stochastic REPGEN program is under development.
- began coding of the fully stochastic parameter selection code (PARSEL) on the Sun. A set of software routines to perform Latin hypercube sampling has been acquired and tested and is being incorporated into PARSEL. There are still a few parameters for which distributions and distributional parameters remain to be defined. A conceptual design for the population model has been developed.

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

- completed the report and sent it to final printing. The TSP will receive it in May.

Milestone 0703B - Letter Report: Iodine-131 Parameters and Dose Factors, Revised Model, due February 1992 and rescheduled to September 1992

- continued documenting parameter values and descriptions in the controlled manual format

Major Problem Areas or Changes and Action Taken

During the April TSP meeting, the TSP recommended that Battelle combine the draft environmental accumulation and dose code report (Milestone 0702A) and the model/code design specification reports (Milestones 0202A and 0205A) into one

report. As a result, Milestone 0202B, the population dose model report, will now incorporate the other three reports. The revised Milestone 0702B, a report to be completed in September 1992, will be expanded to describe the Task 07 effort for environmental accumulation and dose modeling of the air exposure pathway.

Variance

The cumulative cost overrun was caused by work on Subtask 0702, where four staff members are completing computer coding for DESCARTES, CIDER, PARSEL, and REPGEN. Additional funds have been requested because of an underestimate of the planned work.

Planned Work for the Next Three Months

- complete VAX to Sun conversion verification tests on the best-estimate versions of DESCARTES and CIDER and put the codes into the Sun software configuration management system as the initial software version

- complete the stochastic parameter selection code PARSEL and test it on the Sun computer. Enter PARSEL into the Sun configuration management system.
- complete the stochastic REPGEN report generator program for the environmental accumulation and individual dose codes
- complete the population dose code
- continue progress on iodine-131 parameters and dose factors report for revised air pathway codes (Milestone 0703B) □

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 May 1992

- began internal clearance of this report

Milestone 0803A - Letter Report: Project Sensitivity/Uncertainty Analysis Plan, due August 1992 and rescheduled to September 1992

- completed most preparations for the sensitivity and uncertainty analysis workshop to be held in Pasco, Washington, September 1992

Statistic Technical Planning, Control, and Reporting (Subtask 0801)

- attended TSP subcommittee meeting in April

Analysis of Model Reliability (Subtask 0803)

- completed reactor model development and uncertainty analyses for Milestone 0302A, Documented Phase I Iodine-131 Releases

- met frequently with the Assistant Project Manager for Technical Integration to plan and coordinate model reliability activities for the project

General Statistics Support

- participated in meetings of the survey design team to plan and review activities for the agricultural producers' survey being conducted by WSU's Social and Economic Science Research Center. This work is in support of Milestone 0603D, Milk Production/Distribution Report, 1944-1991.
- reviewed a draft of the letter report for Milestone 0602B, Letter Report on Status of Food Consumption Methodology and a draft of the letter report for Milestone 0603B, Letter Report on Milk Outside Phase I

Major Problem Areas or Changes and Action Taken

New statistics staff D. J. (Rick) Bates and P. E. (Patricia) Redgate were added to support Task 08 work.

Variance

The cumulative cost underrun was caused by unavailability of staff and the delay in completing the dose code and subsequent sensitivity and uncertainty analyses. The variance is expected to decline in future months with the addition of new statistics staff, who will assist with conducting sensitivity and uncertainty analyses.

Planned Work for the Next Three Months

- send completed Milestone 0802A, Iodine-131 Conversion Factor Report, to the TSP for review and comment
- develop a draft of Milestone 0803A, Project Sensitivity Uncertainty Analysis Plan, and continue planning for the sensitivity/uncertainty analysis workshop
- finalize the strategy for uncertainty and sensitivity analyses and the elicitation of expert opinion for HEDR Project dose models
- continue close interactions with the Assistant Project Manager for Technical Integration and other staff to provide statistical and uncertainty/sensitivity analysis support
- continue to serve on the HEDR Project survey design team for the survey of agricultural producers being conducted by WSU
- continue to review and assist with Milestone 0602B, Letter Report: Status of Food Consumption Methodology
- review draft manuscripts of HEDR Project reports □

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 - 83 records, totalling 3,973 pages
- verified, processed, and stored project records - 21 records, totalling 696 pages
- transferred one packages of records to the RL Public Reading Room - 4 records, totalling 544 pages
- explained and demonstrated records management procedures and activities to M. Sage and P. Renard, CDC, during their visit to the Pacific Northwest Division Records Center. This is in preparation for transferring HEDR Project records to the CDC.
- revised the HEDR Records Inventory and Disposition Schedule/File Index (RIDS) and sent draft copies to the HEDR Project Office and task leaders for review and comment

Major Problems or Changes and Action Taken

None.

Variance

The cumulative cost underrun resulted from less records management activities than expected.

Planned Work for the Next Three Months

- continue processing incoming project records
- continue transferring processed project records to the RL Public Reading Room
- finalize the revised RIDS form and forward copies to the Project Office and task leaders
- provide training to new project staff on records management requirements ☐

Task 10 Quality Assurance

Objective

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

Progress

Milestone 1002A - Letter Report: Review of QA Plan, due April 1992 and completed

- completed review of the existing HEDR QA plan and submitted letter to the TSP summarizing the review and changes to the plan. The plan will be revised and reissued next month.
- performed preaward survey of the subcontract for the Social and Economic Science Research Center at WSU to assess quality systems used for performing the agricultural survey for the low-dose additional counties
- participated in the TSP subcommittee meeting for Quality Assurance and Technical Integration
- reviewed data management plan outline, second draft of the critical decision plan and procedure, and several project milestone reports

Major Problem Areas or Changes and Action Taken

None.

Variance

The cumulative cost underrun resulted from less quality assurance activities than expected.

Planned Work for the Next Three Months

- revise and issue HEDR QA plan
- develop surveillance plan to assess project implementation of the QA plan
- finalize critical decision plan and issue the implementing procedure HEDR-TP-3, "HEDR Documentation of Critical Decisions"
- develop action tracking procedure to be used for documenting results of technical staff meetings
- continue performing oversight activities to check for compliance to project technical, QA, and data quality objective requirements and for implementation of corrective actions for the last audit ☐

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

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

- received classification guidance which authorizes the implementation of the February 1992 Secretary Watkins declassification on Hanford production information from 1961 to 1972
- declassified 191 Hanford-Site-originated documents, 34 of which are of potential interest/use to the project. Table 11.1 shows the status of declassification to date. Approximately 60 declassifications requested by the TSP and the public remain to be completed.
- met with Westinghouse Hanford Company and RL to develop detailed procedures for preparation of title listing of Hanford-Site-originated reports that are currently classified and address operations for the years 1961-1972

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

- prepared an initial draft of a document that will include all available daily reactor operating data for the years 1960-1964

- met with M. Robkin, TSP, to identify subject collections compiled to date that relate to assignments he will address during the summer of 1992
- collected additional daily separations processes data and related information. The year 1951 was completed during the month.
- added new citations to the tracking system that now contains nearly 5,400 citations
- provided the RL Reading Room with 25 documents (18,000 pages) of potential interest/use in the HEDR Project. A title listing of these reports is given in Appendix B.

RL Public Reading Room Activity

The Reading Room had 12 HEDR patrons and distributed 11 HEDR reports in April 1992.

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

TABLE 11.1. Declassification of Hanford-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 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 March 1992 (FY 1992)	<u>1145</u>	<u>151</u>
TOTAL (March 1987 - March 1992)	3196	1227

(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 input to the information resources tracking database and provide documents to the RL Public Reading Room in an orderly, timely fashion
- identify significant documents that address fuel element failures that occurred in now-decommissioned Hanford production reactors
- identify and collect documents that address reactor purges, 1944-1971
- watch for information that may explain in detail, and support data in, "green run" document HW-17381 DEL REV 1
- continue to develop "packing lists" for boxes of retired Hanford records of potential interest/use to the project
- identify and retrieve data on 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

- assisted in arranging a HEDR Project overview for members of a technical Canadian Emergency Preparedness group visiting the Hanford Site. The presentation was given by M. L. Blazek, TSP Vice Chair, and B. Napier, Project Technical Integration. The TSP videotape was viewed and handout materials provided. Key technical reports were mailed to six members of the group.
- transferred the recently purchased notebook computer and word processing and graphics software to the TSP Communication Subcommittee staff
- delivered fact sheet text on the computer dose model to D. Barth, Environmental Pathways, and the TSP Communications Subcommittee. Dr. Barth will use the material to create a new TSP fact sheet for public distribution.
- presented a case study on risk communications to students in the environmental communications class at WSU/Tri-Cities regarding the HEDR Project. The HEDR videotape and portions of the July 1990 press conference were viewed. Methods of public communication and media interactions were discussed.
- attended TSP Communications Subcommittee meetings in Pasco
- discussed Battelle surface-water pathway report (PNL-8083 HEDR) with L. Lang, Seattle PI, and M. Wall, National Public Radio/Richland. Provided copy of HEDR groundwater report (PNL-7978 HEDR) to D. Allison, Heart of America Northwest upon request.
- prepared and submitted information summary on scope and accomplishments of HEDR Project during FY 1992 for the Hanford Site-Specific Plan, which is being prepared by Westinghouse Hanford Company

Major Problem Areas or Changes and Action Taken

None.

Variance

No significant cumulative variance.

Planned Work for the Next Three Months

- prepare and submit draft of HEDR fact sheet on sensitivity studies to the TSP Communications Subcommittee
- follow up on issues dealing with the dose estimating turnover package that concern the TSP Communications Subcommittee
- attend TSP Communications Subcommittee meeting in June ☐

Appendix A
Milestones, Schedule, and Costs

FIGURE A.1. HEDR Project Milestones

FIGURE A.1. HEDR Project Milestones (contd)

1. ID (Contract) Number: DE-ACO6-76RLO 1830 18620 (CDC)		2. Program/Project Title: HANFORD ENVIRONMENTAL DOSE RECONSTRUCTION - PNL		3. Reporting Period: APRIL 1992																						
4a. Participant Name and Address Pacific Northwest Laboratory/Battelle P.O. Box 999 Richland, WA 99352		4b. Client Name and Address RL Richland, Washington 99352 CDC Atlanta, GA 30333		5. Start Date OCTOBER 1991 6. Completion Date SEPTEMBER 1992																						
7. Milestones:		<table border="1"> <tr> <td>O</td><td>N</td><td>D</td><td>J</td><td>F</td><td>M</td><td>A</td><td>M</td><td>J</td><td>J</td><td>A</td><td>S</td><td>FY93</td> </tr> </table>												O	N	D	J	F	M	A	M	J	J	A	S	FY93
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 (PNL-8071 HEDR)																										
1203C Letter Report: Mid-year media analysis, 1992																										
Notes:		<p>Milestones in <i>italic type</i> reflect work originally scheduled for completion in FY 1991 (ending September 1991) and continued into FY 1992 (beginning October 1991).</p>																								
Legend:		<p>Scheduled Final To TSP for Review Deviation Completed Time Line Progress Line Time Now </p>																								

FIGURE A.1. HEDR Project Milestones (contd)

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

FY 1992 to Date (October 1991 - September 1992)										
April 1992				TSP (c)						
	Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (a)	Total \$	Cum(b) Planned	Cum Variance	Approved FY Budget	Budgeted FY Labor Hours
<u>HEDR Project Tasks</u>										
Task 01 - Project Management (d)										
0101 Project Planning & Control	60	19	79	355	92	447	403	-44	722	7,566
0102 Final Phase I Reports	1	1	2	10	2	12	12	0	12	250
0103 Project Administration	23	6	29	147	24	171	211	40	379	5,271
0104 Project Peer Review	1	0	1	31	1	32	8	-24	14	120
Subtotal Task 01	85	26	111	543	119	662	634	-28	1,128	13,207
Task 02 - Technical Integration										
0201 Tech Planning/Control/Rep	4	1	5	29	1	30	38	8	66	664
0204 Proj Tech Cord /Analysis	7	-1	6	46	3	49	44	-5	78	785
0205 Path & Dose Model Require	3	0	3	26	3	29	83	54	131	1,335
Subtotal Task 02	14	0	14	101	7	108	165	57	274	2,784
Task 03 - Source Terms										
0301 Tech Planning/Control/Rep	3	0	3	19	5	24	34	10	54	475
0302 Closure of Ph I Iodine Rel	9	0	9	4	0	4	5	1	5	54
0304 Rad Releases to Water	10	0	10	29	0	29	52	23	99	870
0305 Source Term Release Model	1	2	3	3	4	7	5	-2	5	54
0307 Rad Release Data Avail/Rev	15	0	15	104	8	112	96	-16	182	2,154
Subtotal Task 03	38	2	40	159	17	176	192	16	344	3,607

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

April 1992		FY 1992 to Date (October 1991 - September 1992)				
Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (a)	Total \$	TSP (c) Approved FY Budget
Labor \$	Labor \$ (a)	Total \$	Labor \$	Labor \$ (a)	Total \$	Budgeted FY Labor Hours
Task 04 - Environmental Transport						
0401 Tech Planning/Control/Rep	0	0	1	0	1	56
0402 Atmospheric Model Develop	12	12	116	3	119	214
0403 Groundwater Transport	2	2	47	9	56	61
0404 Surface-Water Transport	13	14	66	3	69	114
0405 Atmospheric Model Database	19	19	66	3	69	72
0406 Atmospheric Model Calc	0	0	0	0	0	31
Subtotal Task 04	46	47	296	18	314	547
Task 05 - Environmental Monitoring Data						
0501 Tech Planning/Control/Rep	6	6	19	1	20	43
0502 Terrestrial Monitoring Data	3	3	34	-3	31	67
0503 Environ Monitoring Data	1	1	14	8	22	44
0504 Surface-Water Monitoring	1	1	16	-1	15	15
Subtotal Task 05	11	11	83	5	88	169
Task 06 - Demography, Food Consumption & Agriculture						
0601 Tech Planning/Control/Rep	0	1	25	1	26	40
0602 Food Consumption	4	4	31	6	37	60
0603 Milk/Other Food Model Dev	16	17	36	3	39	340
0605 Native American Data	1	3	5	36	41	100
Subtotal Task 06	21	25	97	46	143	540

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

FY 1992 to Date (October 1991 - September 1992)										Budgeted
April 1992				TSP (c)						FY Labor Hours
Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (a)	Total \$	Cum(b) Planned	Cum Variance	Approved FY Budget		
Task 07 - Environmental Pathways & Dose Estimates										
0701 Tech Planning/Control/Rep	4	0	4	22	0	22	32	10	55	591
0702 Path & Dose Code Dev/Doc	37	3	40	137	14	151	107	-44	170	1,924
0703 Path & Dose Model Paramet	8	0	8	60	1	61	40	-21	40	466
0705 Dose Calculations	0	0	0	0	0	0	15	15	40	412
Subtotal Task 07	49	3	52	219	15	234	194	-40	305	3,393
Task 08 - Statistics										
0801 Tech Planning/Control/Rep	2	1	3	20	2	22	29	7	50	409
0802 Stats Support for Tech Work	2	0	2	45	-1	44	78	34	140	1,234
0803 Analysis of Model Reliability	7	0	7	67	1	68	93	25	166	1,639
Subtotal Task 08	11	1	12	132	2	134	200	66	355	3,282
Task 09 - Records Management										
0901 Tech Planning/Control/Rep	2	0	2	10	0	10	12	2	19	301
0902 Project Records Management	2	0	2	12	1	13	32	19	72	1,632
Subtotal for Task 09	4	0	4	22	1	23	44	21	91	1,933
Task 10 - Quality Assurance										
1001 Tech Planning/Control/Rep	1	1	2	11	3	14	14	0	31	374
1002 QA Program Development	2	0	2	6	0	6	8	2	18	245
1003 QA Verification	2	0	2	3	0	3	5	2	12	184
Subtotal Task 10	5	1	6	20	3	23	27	4	61	803

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

April 1992				FY 1992 to Date (October 1991 - September 1992)						
Labor \$	Non-Labor \$ (a)	Total \$	Labor \$	Non-Labor \$ (a)	Total \$	Cum(b) Planned	Cum Variance	TSP (c) Approved FY Budget	Budgeted FY Labor Hours	
Task 11 - Information Resources										
1101	Tech Planning/Control/Rep	3	0	3	25	28	3	40	966	
1102	Hanford Document Declass	8	0	8	34	31	-3	52	1,179	
1103	Hanford Info Resources Iden	4	1	5	39	46	6	65	1,141	
Subtotal Task 11		15	1	16	98	105	6	157	3,286	
Task 12 - TSP Communications Support										
1201	Tech Planning/Control/Rep	2	0	2	16	12	-6	29	482	
1202	TSP Public Outreach Support	0	0	0	0	5	1	10	52	
1203	Comm Assessment Research	0	0	0	6	8	2	14	134	
1204	TSP Meeting/Material Sup	1	4	5	4	13	-1	26	152	
Subtotal - Task 12		3	4	7	26	38	4	79	820	
Subtotal, HEDR Project Tasks		302	43	345	1,796	2,354	308	4,049	43,564	
Management Reserve		0	0	0	0	0	0	30	0	
Subtotal, Project Tasks Plus Management Reserve		302	43	345	1,796	2,354	308	4,079	43,564	

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

	April 1992			FY 1992 to Date (October 1991 - September 1992)					Budgeted FY Labor Hours	
	Labor \$	Non- Labor \$(a)	Total \$	Labor \$	Non- Labor \$(a)	Total \$	Cum(b) Planned	Cum Variance		TSP (c) Approved FY Budget
Technical Steering Panel (e)	0	22	22	3	247	250	500	250	1,003 (f)	0
Native American Research	0	-1	-1	0	4	4	180	176	356 (f)	0
TOTAL	302	71	373	1,799	501	2,300	3,034	734	5,438	43,564

- (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, pages xi, A.9, and A.10, respectively.
- (c) "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. Shippler to J. E. Till, dated 11-19-91.
- (d) Project management includes activities such as project control and administration, project communications, subcontract administration, records control, and peer review.
- (e) TSP costs are administered through subcontracts which are reflected as non-labor costs. Actual TSP expenses include both labor and non-labor.
- (f) FY budget provides funding through September 30, 1992. See Figures A.2 and A.3 for additional information. The FY budget includes FY 1991 carryover and PNL overheads applied to subcontracts.

FIGURE A.2. Technical Steering Panel Budget Status

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 April 1992**

Appendix B

Hanford Site-Originated Documents of Potential Interest/Use in the HEDR Project - Placed in the RL Public Reading Room During April 1992

DUN-6888	Historical Events-Single Pass Reactors and Fuels Fabrication (Replaces RL-REA-2247). 71p.	04/10/70
HAN-72985	Letter: Events of Importance for Week Ending 8-12-59. 4p.	08/11/59
HW-11715	Water Leak 100-F Area. 11p.	12/01/48
HW-22610-DEL	Hanford Works Monthly Report for October 1951. 364p.	11/21/51
HW-22875-DEL	Hanford Works Monthly Report for November 1951. 378p.	12/21/51
HW-23140-DEL	Hanford Works Monthly Report for December 1951. 367p.	01/22/51
HW-23437-DEL	Hanford Works Monthly Report for January 1952. 382p.	02/21/52
HW-23698-DEL	Hanford Works Monthly Report for February 1952. 380p.	03/21/52
HW-23982-DEL	Hanford Works Monthly Report for March 1952. 366p.	04/18/52
HW-25781-DEL	Hanford Works Monthly Report for September 1952. 387p.	10/21/52
HW-27431	Radiological Sciences Department Investigation, Radiation Incident Class I, No. 225 - Ruthenium. 4p.	03/16/53
HW-27447	Radiological Sciences Department Investigation, Radiation Incident Class I, No. 246 - Ruthenium. 3p.	03/16/53
HW-27624-DEL	Monthly Report Hanford Atomic Products Operation March 1953. 392p.	04/22/53
HW-27932-DEL	Monthly Report Hanford Atomic Products Operation April 1953. 395p.	05/20/53
HW-28267-DEL	Monthly Report Hanford Atomic Products Operation May 1953. 408p.	06/19/53

**Hanford Site-Originated Documents of
Potential Interest/Use in the HEDR Project -
Placed in the RL Public Reading Room
During April 1992**

HW-28576-DEL	Monthly Report Hanford Atomic Products Operation June 1953. 390p.	07/22/53
HW-30423-DEL	Monthly Report Hanford Atomic Products Operation December 1953. 372p.	01/22/54
HW-30724-DEL	Monthly Report Hanford Atomic Products Operation January 1954. 361p.	02/25/54
HW-31734-DEL	Monthly Report Hanford Atomic Products Operation April 1954. 373p.	05/21/54
HW-48741	Hanford Labs Operation Monthly Report-February 1957. 134p.	03/15/57
HW-83102-DEL	Chemical Processing Department Monthly Report for June 1964. 44p.	07/22/64
PNL-7870-HEDR	Project Management Plan for the Hanford Environmental Dose Reconstruction Project. 36p.	02/11/92
RHO-92001941	200-Areas Fact Book. 123p.	08/11/85
WHC-MR-0293	Legend and Legacy: Fifty Years of Defense Production at the Hanford Site. 55p.	03/19/92

Appendix C

HEDR Documents to the TSP - April 1992

Appendix C

HEDR Documents to the TSP - April 1992

Title	Author	Date Issued	Publication No	Additional Information	Status
FY 1992 Revised Task Plans for the Hanford Environmental Dose Reconstruction Project	DB Shipler	4/92	PNL-7757 HEDR, Rev. 1	Update of previous version, PNL-7757 HEDR, based on mid-year scope/budget review (Milestone 0101D)	Provided to TSP for review and approval, 4/92
Media Information Review, 1991	GL Harvey	4/92	PNL-8071 HEDR	Reviews content and amount of HEDR press coverage in 1991 (Milestone 1203B)	Issued 4/92
Literature and Data Review for the Surface-Water Pathway: Columbia River and Adjacent Coastal Areas	WH Walters, RL Dirkes, BA Napier	4/92	PNL-8083 HEDR	Information in report presented at April TSP meeting (Milestone 0404A)	Provided to TSP for review and approval, 4/92
Estimation of Food Consumption	JM Callaway, Jr.	4/92	PNL-7760 HEDR	Final Phase I report (Milestone 0601B)	Published final 4/92

Appendix D

HEDR Presentation Handouts to the TSP - April 1992

Appendix D

HEDR Presentation Handouts to the TSP - April 1991

Title	Author	Date Issued	Publication No.	Additional Information
Status of Technical Work - Hanford Environmental Dose Reconstruction Project	DB Shieler	4/92	PNL-SA-20856 S HEDR	Presented at TSP meeting, 4/23-24/92

Appendix E

HEDR Open-Literature Publications and Presentations - April 1992

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 - April 1992

Title	Author	Date Issue	No	Publication Audience	Status
Overview of the Hanford Environmental Dose Reconstruction Project	D.B. Shipler et al.	1/92	PNL-SA-20021 HEDR	American Nuclear Society International High-Level Radioactive Waste Manage- ment Conference 4/92 Las Vegas, Nevada	Presented 4/92
Decision Management for the Hanford Environmental Dose Reconstruction Project	W.J. Roberts et al.	1/92	PNL-SA-20432 HEDR	American Nuclear Society International High-Level Radioactive Waste Manage- ment Conference 4/92 Las Vegas, Nevada	Presented 4/92

Appendix F
Communications Log - April 1992

Appendix F
Communications Log - April 1992

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
L Lang/Seattle PI	WH Walters/PNL	Phone	Columbia River report
M Wall/Northwest Public Radio	WH Walters/PNL	Phone	Request for a phone interview on the river report contents
ML Blazek/TSP	WH Walters/PNL	Phone	Information on 1984-1990 State of Oregon river sampling
J Thomas/HEAL	SP Gydesen/PNL	Phone	Information on three communica- tions logs in November 1991
MA Robkin/TSP	SP Gydesen/PNL	Phone	Scheduled meeting to discuss his literature needs this summer
EE Pride/RL Chief Counsel	R Habor/Attorney SP Gydesen/PNL C Reeploeg/RL Attorney	Phone	Hanford-originated literature from 1944-1964
K CharLee/TSP Staff	SP Gydesen/PNL	Phone	Declassification
B Shleien/TSP	SM Finch/PNL	Phone	Request for HEDR and TSP financial info prior to April TSP meeting
K CharLee/TSP Staff	SM Finch/PNL	Phone	Request for documents from M Maslia, CLC
K CharLee/TSP Staff	SM Finch/PNL	Phone	Columbia River Report copies
W Hanson/Yakima Indian Nation	SM Finch/PNL	Phone	Status of supplement on work order 2; invoice for workshop agreements for December and January
JM Daer/PNL	LE Sewell/CDC	Phone	Names and SS #'s for two people
K CharLee/TSP Staff	JM Daer/PNL	Phone	Copies of the FY 1992 Task Plans at the TSP meeting
SM Finch/PNL	DS Barth/TSP	Phone	Status of security clearance paperwork
SM Finch/PNL	WA Bishop/TSP	Phone	Rate changes for tribal contracts
S Toulouse/Colville Tribe	SM Finch/PNL	Phone	Funds for salary increases in contract

Communications Log - April 1992

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
B Shleien/TSP	SM Finch/PNL	Phone	TSP invoice
SM Finch/PNL	LE Sewell/CDC	Phone	Attendees at declassification meeting
J Thomas/HEAL	JV Ramsdell/PNL	Phone	Questions on RATCHET code
JM Daer/PNL	West coast TSP members	Phone	Available to receive fax before leaving for Pasco TSP meeting?
S Powers/Kirkland Ellis	SM Finch/PNL	Phone	Information on documents sent to the Public Reading Room
K Millpointer/Downwinder	SM Finch/PNL	Phone	Request for information on Battelle's names and affiliations
SM Finch/PNL	WA Bishop/TSP	Phone	Statement of work for new work orders for the tribes
F Rogers/CDC	AH McMakin/PNL	Phone	Problems with GENII disk
AH McMakin/PNL	K Niles/TSP Staff	Phone	July 1990 press conference videotape
ML Blazek/TSP	GL Harvey/PNL	Phone	Declassification
GL Harvey/PNL	ML Blazek/TSP	Phone	Request for information on the surface-water pathway
GL Harvey/PNL	L Lang/Seattle PI	Phone	Columbia River pathway report
K Niles/TSP Staff	GL Harvey/PNL	Phone, Fax	Comments on fact sheet
GL Harvey/PNL	ML Blazek/TSP	Phone	Conversation with L Lang, Seattle PI regarding Columbia River pathway report
K Niles/TSP Staff	GL Harvey/PNL	Phone	Preparations for TSP meeting; declassification fact sheet comments; dose model fact sheet; arrival of notebook computer
ML Blazek/TSP	GL Harvey/PNL	Phone	Canadian presentation to emergency preparedness group

Communications Log - April 1992

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
NJ Germond/TSP	GL Harvey/PNL	Phone	HEDR's need to examine all releases of radioactive materials in study; requested list of past and present Hanford contractors and method to review classified card catalogues in technical library vault
GL Harvey/PNL	ML Blazek/TSP	Phone, Fax	Sent Mr. Allison groundwater report
ML Blazek/TSP	GL Harvey/TSP	Phone	Information on U-17 and Z-20 crib in 200-West Area
WA Bishop/TSP	EB Liebow/PNL	Phone	Data release policy
EB Liebow/PNL	WA Bishop/TSP	Phone	Contract status of Warm Springs, Yakima supplement status, Atlanta meeting agenda
B Aripa/Colville Tribe	EB Liebow/PNL	Phone	Clarification on contract supplement
DE Walker/TSP	EB Liebow/PNL	Phone	Status of Native American data collection
EB Liebow/PNL	JR Wilkinson/Confederated Tribe of the Umatilla Indian Reservation (CTUIR)	Phone	Appointment at CTUIR
TA Ikenberry/PNL	JR Wilkinson/CTUIR	Fax, Phone	Faxed and discussed material to be used for compilation of Umatilla food and demography data
EB Liebow/PNL	WA Bishop/TSP	Phone	Agenda for Atlanta meeting: project timeline, contract types, staffing, technical, coordination between programs, data release policy, Memorandum of Understanding (MOU)
WA Bishop/TSP	EB Liebow/PNL	Phone	Work statement for discussion in Atlanta
EB Liebow/PNL	MS Power/TSP Staff	Phone	Data release policy
DE Walker/TSP	EB Liebow/PNL	Phone	Comments on draft MOU language
Amundson/FHCRC	EB Liebow/PNL	Phone	Comments on draft MOU language

Communications Log - April 1992

Initiated By/ Affiliation	Contact/ Affiliation	Type	Subject
WA Bishop/TSP	EB Liebow/PNL	Phone	Comments on draft MOU language
JR Wilkinson/CTUIR	EB Liebow/PNL	Phone	Do not need MOU at CTUIR, still need non-traditional foods tally sheet
WA Bishop/TSP	EB Liebow/PNL	Phone	Agenda for NAWG meeting at TSP meeting
EB Liebow/PNL	B Aripa/Colville Tribe	Phone	Status of Colville data entry
WA Bishop/TSP	EB Liebow/PNL	Phone	Status of action items from NAWG meeting
EB Liebow/PNL	M Queapahma/Warm Springs	Phone	Visit to Warm Springs Tribe in May
EB Liebow/PNL	JR Wilkinson/CTUIR	Phone	Visit CTUIR on 5/7/92
EB Liebow/PNL	D Powauke/Nex Perce	Phone	Visit Nez Perce Tribe in May
J Richards/CTUIR	DB Shipler/PNL	Phone	Subcontract extension
B Kelleigh/	DB Shipler/PNL	Phone	Hanford Health Information Network/HEDR impacts and processes
DB Shipler/PNL	MS Sage/CDC	Phone	TSP and Native American funding - assigning contracts to Washington State
NJ Germond/TSPDB	Shipler/PNL	Phone	Post-1960s declassification process - TSP reviewers
RF Brich/RL	DB Shipler/PNL	Phone	Scope of CDC meeting with Native American tribes
B Shleien/TSP	DB Shipler/PNL	Phone	Vote on revised budget for FY 1992 Task Plans
L Hamilton/Brookhaven Nat'l Lab	BA Napier/PNL	Phone	Availability of birth records for 10 counties; other isotopes; copy of dominant nuclides report; alternatives to litigation; project schedule; dose levels and populations

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