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U.S. Department of Energy
Office of Inspector General

March 1995

Report on

Audit of the Richland Operations Office Site Characterization Program

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United States Government **Department of Energy**

memorandum

DATE: March 20, 1995

REPLY TO ATTN OF: IG-1

SUBJECT: INFORMATION: Report on "Audit of the Richland Operations Office Site Characterization Program"

TO: The Secretary

BACKGROUND:

With its designation as an environmental cleanup site in 1989, the Hanford Site has represented a major activity of the Department of Energy (Department). The final cleanup of this site is estimated to take over 50 years and cost close to $100 billion. Although there are many factors influencing the operations at Hanford, the Department and the Richland Operations Office (Richland) are ultimately responsible for its success. The Department and Richland are responsible for establishing procedures that ensure program goals are accomplished using the most cost-effective methods.

DISCUSSION:

The Office of Inspector General audited certain methodologies used by the Department and Richland to complete site characterization objectives at Hanford. The audit disclosed that characterization costs were increased without a similar increase in benefits. For example, in implementing Defense Nuclear Facilities Safety Board (Safety Board) recommendations, the Department directed Richland to complete core-sampling of high-level radioactive waste tanks in 3 rather than 6 years. This action increased characterization costs by over $71 million, but was not needed to satisfy the Safety Board's recommendation nor would it significantly impact the retrieval and pretreatment of the waste.

In another action, Richland renegotiated a Tri-Party Agreement milestone that required 80 percent of Hanford's low level waste sample analyses be performed within 25 miles of Hanford. Richland made this change without first determining whether the 25-mile restriction was more costly. In its response to our Official Draft Report, Richland estimated that the 25-mile restriction will add $46 million over the next 8 years to the cost of sample analyses for Hanford.

We recommended that the Department (1) notify the appropriate parties that characterization of the high level radioactive waste tanks will be accomplished in the most effective and least costly method to achieve characterization objectives, and (2) renegotiate the requirement to have 80 percent of the

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sample analyses performed within 25 miles of Hanford. We also recommended that management perform economic analyses of alternatives before making decisions as to how program objectives will be accomplished in the future. Management concurred with the finding and recommendations and initiated corrective measures.

John C. Layton
Inspector General

Attachment

cc: Deputy Secretary
Under Secretary
Assistant Secretary, Environmental Management
Manager, Richland Operations Office

U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL

AUDIT OF THE RICHLAND OPERATIONS OFFICE SITE CHARACTERIZATION PROGRAM

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AUDIT OF THE RICHLAND OPERATIONS OFFICE SITE CHARACTERIZATION PROGRAM

TABLE OF CONTENTS

		Page
	SUMMARY	1
PART I	— APPROACH AND OVERVIEW	3
	Introduction	3
	Scope and Methodology	3
	Background	4
	Observations and Conclusions	4
PART II	— FINDING AND RECOMMENDATIONS	7
	Site Characterization Activities	7
PART III	— MANAGEMENT AND AUDITOR COMMENTS	13

U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
OFFICE OF AUDIT SERVICES

AUDIT OF THE RICHLAND OPERATIONS OFFICE SITE CHARACTERIZATION PROGRAM

SUMMARY

In 1989 the Secretary of Energy changed the mission of the Richland Operations Office (Richland) from supporting weapons production to environmental restoration and waste management. Richland's new mission required close coordination with Federal and State Environmental Regulatory Agencies. On May 15, 1989, Richland, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency negotiated and signed the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). Through this agreement, Richland was required to survey Hanford for contaminants, analyze samples, and determine the most cost-effective method to clean up the waste identified. The objective of this audit was to determine if the Department of Energy (Department) and Richland had evaluated alternatives to accomplish certain site characterization activities in a cost-effective manner.

Our audit showed that neither the Department nor Richland evaluated alternatives to ensure that two site characterization activities were accomplished in a cost-effective manner. First, the Department accelerated the core sampling program for high-level radioactive waste tanks from 6 to 3 years. The Department made this decision in response to a Defense Nuclear Facilities Safety Board (Safety Board) recommendation without first determining if the method chosen (core sampling) was the most efficient and economical method to satisfy the Safety Board's concerns. Based on Richland's 1994 Implementation Plan, this 3-year acceleration would cost over $71 million with little increase in benefits. Second, Richland agreed to a Tri-Party Agreement Amendment to require low-level waste samples be analyzed within 25 miles of Hanford. Richland estimated in their June 1994 response to this report that the 25-mile restriction will require an additional $46 million over an 8-year period. Again, the amendment was accepted and implemented without first determining the additional costs involved and comparing these costs to the anticipated benefits.

We recommended that the Department (1) notify the appropriate parties that characterization of the high-level radioactive waste tanks will be completed in the most cost-effective method to achieve program objectives, and (2) negotiate

to remove the requirement to perform 80 percent of low-level waste sample analyses within 25 miles of Hanford. We also recommended that management perform economic analyses of alternatives before making decisions as to how program objectives will be accomplished. Management concurred with the finding and recommendations and initiated corrective measures.

Office of Inspector General

PART I

APPROACH AND OVERVIEW

INTRODUCTION

The primary mission of the Richland Operations Office (Richland) is environmental restoration and waste management. Our audit assessed the effectiveness of Richland's management of certain site characterization activities in support of its environmental restoration and waste management mission. The specific audit objective was to determine if the Department and Richland had evaluated alternatives to accomplish certain site characterization activities in a cost-effective manner.

SCOPE AND METHODOLOGY

We conducted this audit at Richland and Westinghouse Hanford Company (Westinghouse), the Hanford Site Management and Operating contractor, between August 1993 and July 1994.

To accomplish the audit objective we:

- reviewed applicable Federal regulations, Department Orders, and local implementing procedures;
- interviewed Richland and Westinghouse Environmental Restoration and Waste Management personnel;
- analyzed waste sampling requirements, extraction techniques and extraction timetables, processing effectiveness and cost;
- reviewed safety concerns related to waste retrieval and analysis procedures; and,
- compared alternative methods to accomplish project activities to those selected by the Department and Richland.

The audit was made according to generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the objective of the audit. We assessed the significant internal controls with respect to the Department's and Richland's project management decisions for characterizing high-level radioactive waste and procuring sample analysis capabilities. Our assessment (1) identified the Department's key internal control procedures for these areas, (2) tested the operation of those procedures, and

(3) identified any needed improvements. We did not rely on any computer-processed data in developing this audit report. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit.

An exit conference was held with Richland's Director, Characterization Division, and a representative from Headquarter's, Office of Hanford Waste Management Operations (EM-36), on February 14 and 16, 1995, respectively.

BACKGROUND

Richland is responsible for environmental restoration and waste management at Hanford. Richland's responsibilities include the characterization and cleanup of Hanford's 177 high-level radioactive waste tanks and the identification, assessment, remediation, and restoration of over 1,000 contaminated waste sites.

A number of regulatory organizations outside the Department have oversight authority over cleanup actions at Hanford. These organizations include the U.S. Environmental Protection Agency and the Washington State Department of Ecology. These two organizations, together with Richland, negotiated the Tri-Party Agreement which serves as the underlying blueprint for most cleanup activities at Hanford. The agreement contains provisions governing hazardous waste activities, delineates authorities and enforcement provisions (including fines), and provides a dispute-resolution process. The agreement also includes an action plan which contains enforceable milestones covering deadlines, methods, procedures, and plans for waste site restoration and remediation.

An additional organization having oversight responsibility over Department activities is the Defense Nuclear Facilities Safety Board. The Safety Board's primary responsibility is to review facilities and operations of the Department's defense related activities and advise on safety issues. The Safety Board, through its recommendations, identifies safety concerns and recommends courses of corrective action. However, since the Safety Board's recommendations are advisory to the Department, they may be rejected.

OBSERVATIONS AND CONCLUSIONS

Richland's mission has recently transitioned from supporting nuclear weapons production to environmental restoration and waste management. In response to its new mission, Richland has taken a number of initiatives to expedite and improve the management of cleanup activities at Hanford. For example, Richland developed

the Hanford Past Practice Strategy which has dramatically reduced the number of samples required for site characterization. This strategy, which is a model for revising the Hanford Remediation Investigation/Feasibility Study process (RI/FS), uses field screening techniques and concurrent characterization. The RI/FS also reviews documentation on past practices to focus the remedial investigation process on probable contaminants. Another initiative established the Hanford Analytical Services Management organization which has improved communication between Richland and commercial laboratories. This organization was instrumental in reducing sample analyses completion time to an average of 71 days, thereby complying with the Tri-Party Agreement limit of 75 days.

Although such initiatives helped reduce costs and achieve site characterization objectives, the Department will spend over $117 million on two characterization activities with little increase in benefits. First, based on a recommendation by the Safety Board to accelerate safety screening, the Department directed Richland to complete core sampling of high-level radioactive waste tanks by 1996, rather than by 1999 as required by the Tri-Party Agreement. The Department made the decision to accelerate core sampling, without performing economic analyses of alternatives to identify and implement the most cost-effective approach. Based on documentation available to us, we estimated the decision to accelerate core sampling will increase characterization costs by over $71 million.

Second, in 1993 Richland renegotiated a Tri-Party Agreement milestone to require that 80 percent of Hanford's low-level waste sample analyses be performed within 25 miles of Hanford. However, Richland did not know the additional costs associated with this decision because it did not perform economic analyses of the available procurement alternatives. In its response to an earlier draft report, Richland estimated that the 25-mile restriction will add $46 million over the next 8 years to the cost of sample analyses for Hanford.

Neither the Department nor Richland evaluated alternatives before deciding on more costly methods to complete characterization objectives. Furthermore, neither of these more costly methods will significantly enhance the cleanup efforts at Hanford.

We recommended that the Department (1) notify the appropriate parties that characterization of the high-level radioactive waste tanks will be accomplished in the most effective and least costly method to achieve characterization objectives, and (2) renegotiate the requirement to have 80 percent of the sample analyses performed within 25 miles of Hanford. We also recommended that management perform economic

analyses before making decisions as to how program objectives will be accomplished. Management concurred with the recommendations and initiated corrective actions.

Our review disclosed material control weaknesses that the Department should consider when preparing its yearend assurance memorandum on internal controls.

PART II

FINDING AND RECOMMENDATIONS

Site Characterization Activities

FINDING

An important project management concept is that managers select the most cost-effective alternatives to achieve program objectives. In two instances, however, the Department and Richland agreed to changes which increased costs without determining increase in benefits. First, rather than complete core sampling of high-level radioactive waste tanks in 6 years as required by the Tri-Party Agreement, the Department directed Richland to complete core sampling in 3 years. Accelerating core sampling will cost the Department over $71 million, based on Richland's 1994 Implementation Plan. Second, Richland agreed to have 80 percent of low-level waste sample analyses performed within 25 miles of Hanford. This agreement will increase the sample analysis costs by about $46 million. Neither the Department nor Richland knew the additional costs associated with these decisions before they implemented the changes because they did not prepare economic analyses of alternatives as required by Department guidance. As a result, the Department may spend over $117 million more than necessary to characterize high-level radioactive waste and analyze samples of low-level waste.

RECOMMENDATIONS

We recommend that:

1. The Assistant Secretary for Environmental Management:

   a. Notify the Safety Board and other parties that the Department will satisfy the requirements of Recommendation 93-5 by using cost-effective, scientifically defensible, technical methods rather than through a heavy reliance on core sampling as proposed in Richland's January 1994 Implementation Plan.

   b. Instruct Richland to develop an Implementation Plan to ensure that characterization objectives are completed efficiently, economically, and are technically defensible.

   c. Establish procedures to ensure that economic analyses are performed before making major program changes as required by Department Order 4700.1 and Department Cost Guide MA-0063, Volume 1.

2. The Manager, Richland Operations Office:

   a. Develop procedures to ensure that economic analyses of all alternatives are completed before changes are made to existing agreements in accordance with Department Order 4700.1 and Department Cost Guide MA-0063, Volume 1.

   b. Propose to the Tri-Party participants under the conditions of the Tri-Party Cost and Management Efficiency Initiative, that the Department (1) request proposals for new sample analyses contracts without the 25-mile restriction, and (2) cancel the contracts that require 80 percent of the low-level waste sample analyses be performed within 25 miles of Hanford, when the new contracts are awarded.

MANAGEMENT REACTION

Management concurred with the finding and recommendations. Detailed management and auditor comments are discussed in Part III of this report.

DETAILS OF FINDING

The Department designated Hanford's environmental restoration and waste management activities as two programs to be managed as Major System Acquisitions. Thus, Hanford's site characterization activities must be managed in accordance with Department Order 4700.1. This Order, along with Department Cost Guide MA-0063, Volume 1, requires that project managers evaluate and select alternatives to ensure project goals are accomplished effectively and economically. Additionally, the Department Cost Guide requires management to perform economic analyses of alternatives and select the alternatives that will accomplish program goals economically and efficiently.

In addition to adhering to Department guidance, management also had to follow the provisions of the Tri-Party Agreement. These provisions include an action plan containing enforceable milestones, methods, procedures, and plans for the remediation and restoration of each waste site. The Tri-Party Agreement also requires all participants to consider cost reduction measures. Under this provision, Richland could submit cost reduction alternatives for completing milestones, including the two milestones discussed in this report: characterization of high-level radioactive waste and low-level waste sample analyses.

Accelerating Characterization of High-Level Radioactive Waste

Richland developed a plan to complete characterization of the 177 high-level radioactive waste storage tanks by 1999 as stipulated in the Tri-Party Agreement. According to the plan, characterization was to be accomplished primarily through the analyses of core samples. The Department later adopted a Safety Board recommendation and directed Richland to accomplish the characterization by 1996. Using the requirements and schedule in Richland's January 1994 Implementation Plan, we determined that accelerating the characterization program and completing all core sampling by 1996 will increase cost by over $71 million as shown in the table below.

Additional Resources Needed To Accelerate Core Sampling and Their Related Cost

	Cost in millions
Upgrade/Use of Off-Site Labs	$29.8
Additional Core Sampling Crews (5)	26.3
Additional Sampling Trucks (2)	10.2
Additional Specialty Sampling Crews (3)	4.5
Design and Procurement of Casks	0.6
Total Additional Costs of Accelerating Characterization	$71.4

The Department made the decision to accelerate high-level radioactive waste characterization without determining the additional cost and weighing that cost against the benefits to be achieved from an accelerated effort. In its response to the draft of this report, the Department stated that its estimate for acceleration was $23.4 million. The Department pointed out that the increased cost was justified based on the benefits to its policy of making waste tank safety issues a high priority and the benefits of allowing early selection of pre-treatment methods and related technologies. Although there may be benefits from accelerated characterization, accelerating core sampling is not needed to resolve safety issues nor will it significantly impact selection of pre-treatment methods and related technologies.

Accelerated Core Sampling Not Needed to Satisfy Safety Issues. Core sampling all 177 tanks for safety reasons is not necessary. According to Richland and Westinghouse characterization officials, the 177 high-level radioactive waste tanks can be safety screened by October 1, 1996, using less costly methods such as auger, liquid grab, and vapor sampling. According to characterization officials, safety issues primarily concern a

tank's explosive potential. This explosive potential exists because some tanks contain ferrocyanide and organic compounds and because some tanks vent flammable gases. By using the sampling technologies described above, tank conditions that could cause explosions will be known and can be controlled by adjusting tank ventilation, adding water, or by mixing the waste to release gases.

Additionally, an accelerated core sampling program was not required by the Safety Board in its Recommendation 93-5. The Safety Board recommended that all 177 tanks be safety screened by October 1, 1996, and that the Department accelerate its characterization program. However, the Safety Board did not recommend completing core sampling by October 1996. In fact, in its recommendation, the Safety Board stated that the Department should not let its tank characterization schedule interfere with the safety screening of tanks. Moreover, using a level of effort of two core samples per tank is not scientifically or technically defensible for waste tank characterization.

Accelerated Core Sampling Not Required In The Selection of Retrieval and Pre-Treatment Methods. In its response to our draft report, management stated that without the data obtained through accelerated characterization, waste retrieval would be more costly. Management reasoned that without accelerated characterization, the most robust and costly retrieval technology would have to be used to ensure waste retrievals were successful. However, also included in management's response is a study that shows that the least costly retrieval method was successfully used to retrieve waste from 53 tanks during the 1950s and 1960s.

Furthermore, the composition of the waste has continually changed since first being put into the tanks. Therefore, if the Department completes the accelerated characterization, the waste composition will change during the time period characterization is completed in October 1996 and the time for retrieval, which is scheduled to start in 2003, and will continue until vitrification is completed in 2028. According to characterization officials, the best characterization strategy is to carry out much of the pre-treatment characterization process after the waste is retrieved from the tanks, not while the waste is in storage.

Procuring Low-Level Waste Sample Analyses

Under the Tri-Party Agreement, Richland had planned to procure low-level waste sample analyses competitively from off-site laboratories. During the January 1993 Tri-Party milestone renegotiations, however, Richland agreed to change to a new sample analyses procurement strategy. This new strategy required that 80 percent of all low-level waste sample analyses be performed within 25 miles of Hanford. Richland management

changed to this new procurement strategy because it believed the change would be more acceptable to the other Tri-Party Agreement participants. However, there were no existing laboratories within the 25-mile restriction. In order to comply with the 25-mile restriction, therefore, bidders had to obtain or construct laboratory facilities. As a result, the costs increased substantially. We calculated the lowest responsive bid, without the 25-mile restriction, was $194 million; whereas, the low bid with the 25-mile restriction was $240 million for the same analytical capabilities. Therefore, the decision to require that 80 percent of all low-level waste samples be analyzed within 25 miles of Hanford will cost the Department $46 million more over the next 8 years.

Lack of Economic Analyses

Although the cleanup of Hanford is controlled by many forces, such as the Tri-Party Agreement, the Department and Richland are responsible for overall project management. Project management activities are guided by the Cost Guide which requires project managers to fully evaluate alternatives to ensure those selected are the most cost-effective methods to achieve project goals.

Neither the Department nor Richland, however, performed an economic analysis to weigh the costs against the benefits to be realized from (1) characterizing the high-level radioactive waste in 3 rather than 6 years, and (2) procuring sample analyses within 25 miles of Hanford. Management stated that economic analyses were not performed because such analyses were not required for ongoing Department programs. Department guidance, however, states that project managers should perform economic analyses to ensure rational and cost-effective decision making.

Although management did not think that economic analyses were necessary for ongoing programs, it stated that discussions of the work scope with Westinghouse are continuing. Once a consensus is reached, a full life cycle cost analysis will be performed to estimate the total cost of accelerating the schedule. While we agree that a full life cycle cost analysis should be performed, the intent of the Department guidance is to perform economic analyses before decisions are made, not after.

Potential Savings

By not accelerating the core sampling schedule and by removing the 25-mile restriction for the analyses of low-level waste, the Department and Richland could potentially save over $117 million. First, the Department could save over $71 million by retaining the characterization schedule of 6 years mandated by the Tri-Party Agreement, and satisfy safety concerns through

safety screening and by continuing to monitor the high-level radioactive waste. Second, based on proposals received by Westinghouse, off-site sample analyses are significantly less costly and at least as effective as subcontracting within 25 miles of Hanford. If Richland stayed with its competitive procurement strategy for sample analyses rather than restricting the performance of sample analyses to within 25 miles of Hanford, it could avoid spending at least $46 million. Furthermore, we believe the 25-mile restriction is a less than desirable precedent that the Department should avoid not only at Hanford but at other Department sites as well. To do otherwise could result in increased costs throughout the Department.

PART III

MANAGEMENT AND AUDITOR COMMENTS

The Department agreed to perform economic analyses when evaluating major program changes and to re-bid the low-level sample analyses contract once Tri-Party concurrence is obtained to eliminate the near-site restriction. Additionally, because of technical difficulties, the Department notified the Safety Board that the Department plans to satisfy the requirements of Recommendation 93-5 by safety screening high-level radioactive waste tanks rather than through a heavy reliance on core sampling as originally proposed in Richland's January 1994 Implementation Plan. The Department disagreed with our estimate of the savings which will occur if its January 1994 Implementation Plan is not implemented. A summary of management and auditor comments follow.

Recommendation 1.a. Notify the Safety Board and other parties that the Department will satisfy the requirements of Recommendation 93-5 by using cost-effective, scientifically defensible, technical methods rather than through a heavy reliance on core sampling as proposed in Richland's January 1994 Implementation Plan.

Management Comments. On January 19, 1995, the Department discussed with the Safety Board, a new Department strategy to satisfy the requirements of Recommendation 93-5. This new strategy anticipates satisfying the requirements of 93-5 by safety screening high-level radioactive waste tanks, without a heavy reliance on core sampling as originally proposed in Richland's January 1994 Implementation Plan.

Recommendation 1.b. Instruct Richland to develop an Implementation Plan to ensure that characterization objectives are completed efficiently, economically, and are technically defensible.

Management Comments. The Department has directed Richland to develop an implementation plan to satisfy the requirements of the Safety Board's Recommendation 93-5 that is cost-effective and scientifically defensible and that does not place a heavy reliance on core sampling as originally proposed in Richland's January 1994 Implementation Plan.

Auditor Comments Recommendations 1.a. and 1.b. Recommendations 1.a. and 1.b. are somewhat different than those in our Official Draft Report. We contacted the Department and Richland and obtained concurrence with our revisions. Management agreed with the intent of our recommendations and no longer plans to accelerate the core sampling schedule and has informed the

Safety Board of its plan. Although we have not fully reviewed Richland's revised plan to satisfy Recommendation 93-5, we consider management's actions to be responsive to our concerns related to evaluating the costs and benefits of alternatives.

Recommendation 1.c. Establish procedures to ensure that economic analyses are performed before making major program changes as required by Department Order 4700.1 and Department Cost Guide MA-0063, Volume 1.

Management Comments. Management concurred and stated that it will take the necessary steps to ensure economic analyses are performed before making major program changes.

Auditor Comments. The proposed action is responsive to our recommendation.

Recommendation 2.a. Develop procedures to ensure that economic analyses of all alternatives are completed before changes are made to existing agreements in accordance with Department Order 4700.1 and Department Cost Guide MA-0063, Volume 1.

Management Comments. Management concurred and stated it will take the necessary steps to ensure economic analyses of alternatives are performed before making changes to existing agreements.

Auditor Comments. The proposed action is responsive to our recommendation.

Recommendation 2.b. Propose to the Tri-Party participants under the conditions of the Tri-Party Cost and Management Efficiency Initiative, that the Department (1) request proposals for new sample analyses contracts without the 25-mile restriction, and (2) cancel the contracts that require 80 percent of the low-level waste sample analyses be performed within 25 miles of Hanford, when the new contracts are awarded.

Management Comments. Management concurred and stated that it will re-bid the present contract once the 25-mile requirement is eliminated.

Auditor Comments. The proposed action is responsive to our recommendation.

Additional Management Comments.

Management Comments. Management stated that our estimate of the increased cost to complete characterization in 3 rather than 6 years was too high. Management stated that the cost associated with acceleration is $23.4 million.

Auditor Comments. We estimated the increased cost associated with accelerating the characterization program from 1999 to 1996 to be over $71 million. Management's estimate was $23.4 million. The cause of the variance is that each estimate was based on a different start and completion date. Our estimate of $71 million was based on Richland's January 1994 Implementation Plan which is based on characterizing an average of two core samples from each of the 177 high-level waste tanks by October 1996. However, management's estimate of $23.4 million was based on completing characterization of the core samples by April 1998, 18 months later than the 1994 Implementation Plan. To compare the two costs is therefore misleading and it is incorrect to do so.

Through discussions with Richland and Westinghouse officials and a review of management's comments to our draft report, we determined that management's estimate of $23.4 million was not based on Richland's 1994 plan, but was based on a later Integrated Sampling Schedule. To compare the cost of acceleration under the integrated schedule to the 1994 schedule is invalid because each has a different start date and a different completion date. For example, the 1994 plan was to begin in April 1994, with completion on October 1, 1996. On the other hand, the integrated plan had a start date of February 1995 and a completion date of April 1, 1998. Under the integrated schedule, Richland only accelerated characterization by 18 months (from October 1999 to April 1998) as opposed to 36 months (from October 1999 to October 1996) under the 1994 plan. Also, the integrated sampling schedule contemplated the use of one off-site laboratory while the January 1994 Implementation Plan showed use of two off-site laboratories.

Management Comments. Management stated that additional laboratory support was needed whether or not the core sampling schedule was accelerated. As support for additional back-up laboratory services, management stated that one of Hanford's two laboratories was taken out of service and has been out of service for more than 6 months. According to management, this shutdown would have materially impacted any characterization schedule.

Auditor Comments. We confirmed that a Hanford laboratory had been shutdown. However, the laboratory was shutdown by Richland not for technical reasons, but for poor radiation control procedures. The laboratory remains closed because of recertification problems. This shutdown did not impact characterization activities as there were other laboratory resources on-site. Richland officials stated that had the laboratory been critical to operations or had the recertification problems been foreseen, the laboratory probably would not have been closed.

Finally, the shutdown laboratory presently has only one hot cell available for the extrusion of samples, and therefore its availability would not significantly impact any characterization effort. However, if Richland's primary laboratory, which has nine hot cells, was shutdown, Richland would not have the ability to extrude sufficient core samples for shipment to off-site laboratories for analysis. Therefore, back-up off-site laboratory capability would be unusable for Hanford environmental support.

Management Comments. Management stated that the proposed strategy to eliminate core sampling for most safety screening has not been fully approved, that a cost versus benefit evaluation has yet to be performed, and that a technical basis for the strategy has yet to be developed.

Auditor's Comments. While the above statement is true, it is certainly not a basis for not pursuing the new safety screening strategy. Completing core sampling by 1996 is not technically feasible and Richland officials believe the new strategy can meet the requirements of the Safety Board's recommendation. It is true that the technical basis for the new strategy must be developed but the technical basis for core sampling had yet to be developed, a year after it was first proposed.

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