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**ACTION PLAN FOR PROMPTLY ASSESSING
HANFORD'S NUCLEAR MATERIAL HOLDINGS**

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ACTION PLAN FOR PROMPTLY ASSESSING
HANFORD'S NUCLEAR MATERIAL HOLDINGS

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SUMMARY

The purpose of this discussion is to provide an action plan in the event of a threat in which nuclear material is declared to have been diverted or stolen. This procedure provides the framework by which the Atomic Energy Commission, Richland Operations Office (AEC-RL) will notify its contractors of a threat and direct required action and response to the AEC-RL.

INTRODUCTION

This paper describes a method for obtaining, in a timely fashion, the information necessary to assure that stated quantities of nuclear materials are in fact present at the Hanford Complex and that there is no evidence a diversion has occurred.

Before implementation, however, an evaluation must have already been made regarding the credibility of the threat, the likelihood that the threat actually involves nuclear material obtained from the Hanford Complex, the seriousness of the threat, etc. In the event of a credible threat where a person claims possession of nuclear materials which were

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or might have been obtained from the Hanford Complex, a quick response mechanism is needed in order to evaluate the Hanford holdings. The most important mechanism to have in place in advance of such a threat is an effective action plan. That is, how will the assessment be made, by whom, and how rapidly can it be performed?

This procedure provides an action plan for a general threat. The assessment of a given threat will, however, be based on the actual details of the threat including the type of material implied or described; i.e., nuclear bomb threat, contamination threat, sabotage threat, etc. If the threat involves only plutonium, an accounting of the uranium may not be necessary. Further, the threat itself may specifically define the action required; e.g., the location of where the material was removed such as the room number, item identification number, storage location number, etc.

This procedure does not consider low-level radiological or biological threats such as gram quantities of material since the present system is not capable of this degree of sensitivity unless a discrete item is diverted.

In general, the materials to be considered are plutonium and uranium enriched to greater than 20 percent. Other nuclear materials including irradiated fuel would not be considered unless the threat so states.

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MISSING MATERIAL

This procedure does not address the required response once nuclear material is determined to be missing from its location. If material is missing and cannot be located, AEC-RL shall be immediately notified and the reporting mechanism of AECM 7401-C, Part VI, "Reporting of Apparent Losses of Nuclear Material," shall be implemented.

Material absent from its stated location is not an absolute indication that a diverter has obtained the material. For example, there is at least one diverter strategy which should be considered. It might be possible for an employee to remove material from its location and hide it within the facility. Thus, the individual would not be required to attempt a breach of the facility's physical security techniques. However, the material would appear to be missing and, therefore, would increase the credibility of the threat.

STRATIFICATION OF THE ASSESSMENT

The response time and depth of the assessment will be dependent on the credibility of the threat, the time allowed for response, etc. For example, if a threat specifies the exact location of theft (room number, item number, etc.), then the appropriate response is quite different than a general threat where only the fact of possession of material is claimed in the threat. Thus, the assessment activity needs to be stratified in some manner based on the time and effort judged to be warranted by the actual threat.

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The three levels of response action described below are intended to stratify the response to a general threat. The nature and the extent of the assessment activity for each level is defined in Appendix A.

Response to each alert level should be as rapid as possible. Estimates of the time required to accomplish these tasks associated with each alert level are included in the descriptions below. If a contractor is unable to respond within the allowable maximum time, he should immediately notify the AEC as soon as he becomes aware of it, and request a specific extension of time.

As a practical matter, the time when a threat is received will have an effect on the minimum response time, especially for Alert Level I. For example, if the action plan were initiated at noon on Christmas Day, the time for responding would undoubtedly be longer than if it were initiated at noon on a normal working day.

● Alert Level I

This is a quick response assessment of the material holding which should be completed in less than three hours after the Manager of the Field Office determines the action is warranted. It is a very minimum commitment of the contractor's resources in assessing the nuclear material holdings.

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- Alert Level II

This is a somewhat more detailed assessment of the material holdings which should be completed in less than 24 hours after the Manager of the Field Office determines the action is warranted. It is a major commitment of the contractor's resources in assessing the nuclear material holdings.

- Alert Level III

This is a complete assessment of the contractor's material holdings which should be completed within five days after the Manager of the Field Office determines the action is warranted. It is a total commitment of the contractor's resources in assessing the nuclear material holdings. Therefore, it needs corporate notification to each contractor since all production activities are stopped, a complete inventory performed, including measured verification of the items in storage.

RESPONSE MECHANISM

If a nuclear threat is received which warrants an assessment of the nuclear materials holdings at the Hanford Complex, the Manager of the Field Office should initiate the response network. This procedure, therefore, needs to be in place, field tested, and completely understood by all the parties in advance of implementation.

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In evaluating the threat, the available information will determine the depth and time available for the assessment activity. Thus, the RL Manager needs to determine the Alert Level and initiate the network as shown in Appendix B. The assessment activities for each Alert Level are described in greater detail in Appendix A.

If the RL Manager determines that the threat warrants only Alert Level I action, the requirements of the contractor are minimal. The complete notification network need not be activated since disruption of respective contractor operations is incidental.

However, for Alert Level II, and especially Alert Level III, each contractor organization needs to be notified since a substantial commitment and redirection of the contractor's resources is required.

The assessment activity is coordinated by the RL Safe-guard's Division. The predetermined activities for assessing the threat are shown in Appendix A; however, based on the actual threat, appropriate deviations from these activities may be required. The chain of the response network is shown in Appendix B. The "directive" lines of the network require a response within the predetermined time limit. The "information only" lines of the network are important since the action required to assess the threat may interfere with the operations of the various contractors.

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FIELD TESTING AND IMPLEMENTATION

It is very important to actually test the communication and logistics portions of this proposed procedure in order to demonstrate their workability. The assessment activities needs to be tested in order to also insure their workability; however, this assurance may be achieved by performing the activity on a reduced basis. The testing should involve Alert Levels I and II, and should be performed with sufficient advance notification to plan meaningful observation and evaluation.

It is assumed if acceptable, and after proper evaluation and revision, a shorter version of this proposed procedure would be incorporated in the AEC-RL manual chapter. Also, each contractor needs a procedure in place which details their responsibilities and lists their specific activities based on circumstances, physical characteristics, etc., in order to provide the necessary information.

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APPENDIX A

ASSESSMENT ACTIVITIES FOR ALERT LEVELS

Alert
Levels

I II III

Accountability

↓	↓	↓	1. Review most recent inventory for material control status.
↓	↓	↓	2. Review previous year for trends, shortages in MUF, etc.
↓	↓	↓	3. Perform 100 percent item check (not identity) of inventory.
↓	↓	↓	4. Analyze in-process material control trends.
↓	↓	↓	5. Shut down and clean out all processes and perform complete inventory and MUF calculation.
↓	↓	↓	6. Verify material in storage by NDA measurement (100 percent of product items down to a lesser percent of non-product type items).
↓	↓	↓	7. Review entire records and reports system.

Physical Protection

↓	↓	↓	1. Review system for any recent unusual occurrences.
↓	↓	↓	2. Review list of visitors with access to material areas.
↓	↓	↓	3. Review personnel security for unusual evidence.
↓	↓	↓	4. Test barrier and sensor systems, and SNM monitors for unusual evidence.
↓	↓	↓	5. Provide assistance during accountability activity.

Transportation

↓	↓	↓	1. Review status of all material (S/R's) in transit.
↓	↓	↓	2. Review system for any recent unusual occurrences.

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DEFINITION OF ASSESSMENT ACTIVITIES

The following is intended to describe assessment activities listed in the table. However, the contractor is not limited to either this list of activities or what is described under each activity. The list is intended as a minimum and the judgments of the contractor's professional staff is encouraged.

● Accountability

Review most recent inventory for material control status.

Reexamine each MBA and the total inventory source data submission, and any other appropriate records for both accountancy errors and evidence of anything unusual.

Review previous year for trends, shortages in MUF, etc.

Examine each MBA, MUF charts, computations, etc., during the past 12 months for significant trends or changes in trends. Compare recent MUF's with past MUF experience (or LEMUF where appropriate). Also, review NOL's for unusual evidence.

Review all source data and related documents which contribute to the MUF equation.

Perform 100 percent item check (not identify) of inventory.

Compare the number of items on the MBA inventory listing with the number of items physically observed during the item check.

Analyze in-process material control trends.

From past inventory to present, conduct process engineering review of material control status for anything unusual (yields, holdups, production, etc.)

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Shut down and cleanout all processes, and perform complete inventory and MUF calculations.

Stop all plant activities except for safeguards, safety, and emergency related items. Clean out the processes and equipment, perform as quickly as possible a complete physical inventory of all nuclear materials in process and storage. Determine the MUF and compare it to the LEMUF.

For those items in storage, this would include a check of the item identity number for each item on the storage inventory. Verify material in storage by NDA measurement.

Perform NDA measurements to within ± 15 percent in all product type items in storage. This includes strategically attractive material such as pure metal, oxide, and solutions. Scrap and discrete items such as fuel pins need not be measured unless specifically directed.

For those items between product and scrap, a judgment regarding material attractiveness is needed. Those items judged to be attractive to a diverter, should be verified similar to product items.

Review entire records and reports system.

The intent of this activity is, in addition to the preceeding, for the contractor to perform all those activities which in his judgment would assist in the analysis of the threat.

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- Physical Protection

Review system for any recent unusual occurrence.

Conduct reviews with physical security staff regarding any unusual events which may have occurred during the past months; e.g., unusual incident reports, verbal reviews, etc. If material was removed from the Hanford site, then the security system must have been breached. Therefore, a review of the events over the past months may, when viewed together, reveal information helpful to establishing the credibility of the threat.

Review list of visitors with access to material areas.

Conduct a review of the list of persons who visited plant facilities during the past months and had access to areas which contained nuclear materials.

Review personnel security for unusual evidence.

Review the list of all contractor and AEC personnel including recent terminations (within three months) for unusual situations. For example, is there any evidence of disgruntled employees terminating or being fired. Or, did any key people such as custodians terminate, especially under unusual circumstances.

Test barrier and sensor systems, and SNM monitors for unusual evidence.

Perform an actual test of the peripheral sensors system, ADT alarms, intrusion alarms, and SNM monitors to verify that they are all operational. Also, examine these systems, monitors, and the physical barrier system

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for any unusual evidence such as tampering.

Provide assistance during accountability activity.

The unique resources within the physical security groups should be available to support the other functions. This includes both personnel and technical assistance such as couriers for vault inventory taking, radio-communication, etc.

● Transportation

Review status of all material (S/R's) in Transit

The status of all shipments to and from Hanford should be reviewed to insure that material in transit is not missing or unaccounted for within the transportation system.

Review system for any recent unusual occurrences.

The activities within the transportation system should be reviewed for the past three (3) months for unusual occurrences during the in-transit period and during holding at Hanford. The individual activities, as they occurred, may not have seemed unusual. However, if a threat occurs, a review of these same activities may indicate something of an unusual nature.

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COMMUNICATIONS INTERFACE

The interface between the various Hanford contractors and the AEC Field Office is shown in the diagram. It is assumed that any threat involving the Hanford Complex would be first brought to the attention of the local Field Office of the AEC. Also, the Field Office is the local group responsible for coordinating intra-agency government activities.

The Manager, AEC-RL, therefore, is designated as the person responsible for the assessment activity at the Hanford Complex. The Director of the Safeguards Division at the AEC-RL is designated as the central office responsible for implementing this action plan and coordinating the response. This includes the final evaluation to the Manager of the AEC-RL regarding the status of the Hanford Complex.

The heavy lines in the figure are those direct communication lines which involve action and a response. The dashed lines are those communication lines which involve information only, i.e., no positive action or response is necessary, but complete cooperation and support is necessary. One of the key elements in this action plan is short, direct and quick communication links between the AEC Safeguards Division Director and the various contractor SS representatives. These communications need to be informal and rapid telephone discussions, not formal or through the normal chain of command. The same responsiveness is needed for the physical security and transportation activities.

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