

Vivian Campbell

From: Vivian Campbell
Sent: Friday, July 18, 2008 4:26 PM
To: 'Richard Kayser'; Art Howell
Subject: RE: Tracks 1 and 2
Attachments: Information needed to be submitted by NIST.doc

Importance: High

Rich,

Tim and I discussed the fact that NUREG 1556 Vol 18 was very general and addresses information required for a broad range of service providers. We have distilled the guidance from NUREG 1556 Vol 18 and NUREG 1757 to identify information that is needed in order for NRC to review and approve your stabilization plan, and decontamination and decommissioning plan. Use the attached document to ensure that you have addressed key elements in your submittal.

Vivian

From: Richard Kayser [mailto:kayser@nist.gov]
Sent: Thursday, July 17, 2008 7:56 PM
To: Art Howell; Vivian Campbell
Subject: Tracks 1 and 2
Importance: High

Art, Vivian –

We continue to iterate Track 1: Stabilization Plan. Our goal is to include in the plan as many specifics as possible given the information we currently have in hand or could work out based on that information. I hope to get you something close to a final product this weekend.

We also continue to work the LANL plan. Right now, pursuant to discussions with Tim and Vivian, we are mapping it into Appendices C and D of NUREG 1556. We understand from talking with Tim that that will move the plan in the right direction and is worth pursuing aggressively now.

I also understand from Tim that over the next couple of days some folks at the NRC will be pulling together the relevant guidance from different NUREGs to help us understand more clearly what the NRC needs, so that we can provide it more efficiently and effectively. Speaking on my own behalf and on that of my colleagues, we really appreciate that, and once we receive this new guidance, we'll work hard to map the plan into it, filling in gaps as necessary.

I think that we all agree that both Track 1 and Track 2 – especially Track 2 – will significantly reduce the risk of the contamination spreading in response to unforeseen events and will position us well for the final decontamination in Track 3. I certainly feel strongly in that regard.

Thanks again for your help and guidance.

Best regards,

Rich

INFORMATION NEEDED TO BE SUBMITTED BY NIST AS A LICENSE AMENDMENT REQUEST

NIST needs to submit a letter requesting a license amendment for work to be performed under two separate and distinct actions: 1) stabilization phase, and 2) decontamination and decommissioning (D&D) phase. The information submitted to the NRC needs to clearly stipulate what type of work will be conducted under "stabilization" and under "D&D". No D&D work will be approved during the "stabilization" phase. This letter will have to be signed by the highest authority in NIST.

The information that needs to be provided by NIST in support of both "stabilization" and "decontamination" phases needs to be coordinated with LANL because it is LANL that will be conducting work on both phases. The information needed by the NRC is described below.

SCOPE OF WORK (STABILIZATION)

1. Describe in detail and be specific when describing the type of work that is going to perform under the stabilization phase. No decontamination work (for example damp-cloth decontamination) will be approved during the stabilization phase. The stabilization authorization will be limited to entry to the contaminated area to perform further assessment and to turn off necessary machinery/equipment, install/replace the filter in the fume hood or similar work not involving decontamination.
2. Provide operating and emergency procedures for the work that is going to be performed under the stabilization phase. Clearly stipulate the sequence of events in the operating and emergency procedures. Provide all preliminary steps of work that are required prior to any activity that is to be conducted. Provide a checklist that all activities are required as set forth in the procedures. Key aspects needed in O&E procedures are described in the section "Operating and Emergency Procedures".
3. Provide training and experience (T&E) documentation of the individuals that are going to work in the stabilization phase. Key aspects needed in T&E documentation are described in the section "Training and Experience".

SCOPE OF WORK (DECONTAMINATION AND DECOMMISSIONING – "D&D")

1. Describe in detail and be specific when describing the type of work that LANL is going to perform under the D&D phase.
2. Provide operating and emergency procedures for the work that is going to be performed under the D&D phase. Clearly stipulate the sequence of events in the operating and emergency procedures. Provide all preliminary steps of work that are required prior to any activity that is to be conducted. Provide a checklist that all activities are required as set forth in the procedures. Key aspects needed in O&E procedures are described in the section "Operating and Emergency Procedures".
3. Provide training and experience (T&E) documentation of the individuals that are going to work in the D&D phase. Key aspects needed in T&E documentation are described in the section "Training and Experience".

4. Information previously submitted to the NRC indicated that the proposed decontamination plan is based on the premise that "the material chemistry of PuSO₄-4H₂O causes it to fix well to a surface, but it is readily removed with damp cleaning." It seems contradictory that something can "fix well" but be removed by "damp cleaning." Provide any reference for ease of removal of this compound with damp cleaning (i.e. a published data, journal article, institutional experience, etc.)? Provide procedures for removal of PuSO₄-4H₂O.

MANAGEMENT ORGANIZATION

1. Provide a description of management interfaces between NIST and LANL team members and the oversight responsibilities and authority between the licensee (NIST) and contractor support (LANL).
2. Provide a commitment that the contractor will comply with all NRC radiation safety and license requirements at the NIST facility.
3. Provide a description of the reporting hierarchy within the licensee management organization for the stabilization and D&D activities.
4. Provide a description of the responsibility and authority of the licensee management organization for the stabilization and D&D authority to ensure that activities are conducted in a safe manner and in accordance with approved procedures, including both stop-work authority for each unit and contractor support team and the manner in which concerns about safety issues are managed within the overall stabilization and D&D project management.
5. Provide a commitment that if circumstances change or schedules change during the stabilization and D&D activities, then the NRC will be notified. In addition, the licensee will provide an updated schedule of the activity to the NRC. Once NRC approves the stabilization and D&D plan by license amendment, further changes to the plan will require NRC approval by means of subsequent license amendments.

RADIOACTIVE MATERIAL

1. For sealed sources, identify each radionuclide that will be used in each sealed source/device. List the activity per radionuclide source/device and the total activity per radionuclide. Identify the manufacturer and model number of each sealed source/device. Confirm that each sealed source/device combination is listed and approved in the Sealed Source and Device (SDD) registry for the purpose intended. Confirm that the activity per source/maximum activity per device specified in the SSD registration certificate will not be allowed. Identify the material as byproduct material, source material or special nuclear material.
2. For each radionuclide that will be used in each sealed source/device specify whether it is an exempt quantity or not as described in 10 CFR 30.18, 10 CFR 30.15 and 10 CFR 30.71, Schedule B.

3. For unsealed or uncontained material, identify each radionuclide's chemical or physical form (gas, liquid, solid, other). Specify the total activity requested per radionuclide. Identify the material as byproduct material, source material or special nuclear material.
4. NIST should maintain drawings and records important to decommissioning and provide these records to NRC.
5. Describe the purpose for which each sealed source and unsealed material will be used (i.e., radiation surveys, leak test analysis, environmental sample analysis, instrument or dosimeter calibration, storage only, contamination, packaging, decontamination, decommissioning, site characterization, radiation protection or health physics training, etc.).

TRAINING AND EXPERIENCE

1. Training and experience documentation of the individual who will lead the stabilization and D&D effort. Training and experience documentation of the individuals who will perform the stabilization and D&D work. Provide a description of the radiation safety training program, including topics covered, group of workers, assessment of training, qualifications of instructors, and the method and frequency of training.
2. Provide the resumes for each member of the team and their job responsibilities during the stabilization and D&D activities.
3. Provide a description of the radiation safety training that the licensee will provide to each employee, periodic training and specialized training to comply with 10 CFR Part 19.
4. Provide a description of any daily worker "jobsite" or "tailgate" training that will be provided at the beginning of each work day or job task to familiarize workers with job-specific procedures or safety requirements.
5. Provide a description of the documentation that will be maintained to demonstrate that training commitments are being met.

FACILITIES AND EQUIPMENT

(Drawings, sketches or diagrams should indicate the scale or include dimensions on each drawing or sketch.)

1. Submit a drawing or sketch of the facility identifying the areas where radioactive material, including radioactive wastes, will be used or stored. Submit a drawing indicating where contamination has been identified and what steps has been taken so far to control spread of contamination and what additional steps will be taken.
2. Show in the drawings the relationship and distance between restricted areas and adjacent unrestricted areas.
3. Specify in drawings shielding material and means for securing radioactive materials from unauthorized removal. Describe how individuals are prevented from entering contaminated areas; describe security aspects to prevent entry to contaminated areas.

4. Describe engineering safety systems (area monitors, interlocks, key cards, alarms, etc.).
5. Describe all the equipment to be made available in support of the stabilization and D&D phases. Provide procedures for the instrumentation program. This should include as a minimum:
 - A. Description of the instruments to be used, calibration and maintenance, including onsite facilities used for laboratory analyses of samples collected during surveys or whether the samples are sent to an offsite laboratory. Please describe.
 - B. Description of the calibration and quality assurance procedures.
 - C. Sensitivity, operational checks, sensitivity for each media and radionuclide.
 - D. Description of how the samples will be collected, controlled and handled.
 - E. Description of air sampling calibration procedures or a statement that the instruments will be calibrated by an accredited laboratory.
6. Describe the areas assigned for the receipt, storage, security, preparation, handling, waste storage and measurement of radioactive material.
7. Submit a diagram, sketch, or drawing that identifies areas where radioactive materials may become airborne. The diagram should contain descriptions of the ventilation system, with pertinent airflow rates, filtration equipment, sample collection points, and monitoring systems.
8. Submit a diagram of radioactive waste handling equipment that includes compactors, solidification equipment, hold-up tanks, sample collection points, etc., as applicable.
9. Describe proposed laundry facilities, if applicable, used for contaminated protective equipment and clothing. Specify how the contaminated waste water from laundry machines or sinks is disposed. Operating and emergency procedures should address decontamination of the laundry area and equipment. If no laundry facilities will be used, describe how contaminated wastes are going to be processed and disposed of.
10. Describe protective clothing (such as rubber gloves, coveralls, respirators, and face shields), auxiliary shielding, absorbent materials, secondary containers for waste water storage for decontamination purposes, plastic bags for storing contaminated items, etc., that will be available.
11. Identify specialized handling tools, facility interlocks designed to prevent operation of systems in the event that operations of the system could result in accidental exposure or release of material (e.g., HEPA filters, ventilations systems, etc.) or equipment.

RADIATION SAFETY PROGRAM

1. Describe the development and implementation of ALARA program.

2. Describe equipment and facilities adequate to protect personnel, the public and the environment during the proposed work.
3. Confirmation that licensed activities are conducted only by individuals qualified by training and experience.
4. Development and maintenance of written operating and emergency procedures for stabilization and D&D.
5. Implementation of an audit program to ensure that, at least annually, the radiation safety program is reviewed.
6. Description of the organization structure and individuals responsible for ensuring day-to-day oversight of the radiation safety program.
7. Establishment and management of a radiation safety and decommissioning records system.
8. Methods and procedures for preventing the release of contaminated material and equipment.
9. Methods or procedures for preventing personnel contamination. Radiation safety procedures and the authorized users responsibilities unique to each type of service operation requested (stabilization and D&D).
10. Radiation safety procedures for each type of service requested. Description of equipment, techniques, and corresponding radiation safety procedures associated with providing D&D services involving either sealed sources or unsealed material.
11. Description of radiation monitoring instruments and equipment, and procedures for ensuring that instruments and equipment will be used during licensed activities and confirmation that proper calibration and calibration frequency will be performed.
12. Description from cradle to grave of what type and how much radioactive material is being brought to NIST for the purpose of stabilization and D&D and what type and how much is expected to be shipped out of the facility. Submit procedure to ensure material accountability of sealed sources as well as unsealed sources.
13. Describe the occupational dosimetry program and how occupational exposed individuals will be monitored during the stabilization and D&D phases.
14. Provide a description of the bioassay program when using unsealed radioactive materials. You can refer to NRC Regulatory Guide 8.20 or other nationally recognized guidance. The bioassay program must include what the applicant considers an acceptable interval or schedule for conducting bioassays, identify action levels or guidelines, and describe specific actions to be taken when action levels are exceeded. If bioassay services are contracted, provide a commitment that each vendor is licensed or otherwise authorized by NRC or an Agreement State to provide the required bioassay services.

OPERATING AND EMERGENCY PROCEDURES (O&E)

1. Describe how occupational workers, members of the public and the environment will be protected when conducting the stabilization and D&D phases.
2. Procedure for obtaining an agreement with customers outlining the responsibilities of both the customer (NIST) and service provider (LANL), when performing service operations at a customer's facility.
3. Instructions for handling and using sealed and unsealed licensed materials.
4. Instructions for maintaining security during storage and transportation.
5. Instructions to keep licensed material under control and immediate surveillance during use. Describe steps to maintain accountability during use.
6. Steps to take to keep radiation exposures ALARA.
7. Steps to control access to work sites.
8. Steps to take and whom to contact when an emergency occurs.
9. Instructions for using appropriate tools and methods when conducting D&D.
10. Methods and occasions for conducting radiation surveys, including surveys for detecting contamination.
11. Procedures to minimize personnel exposure during routine use and in the event of an accident, including exposures from inhalation and ingestion of licensed unsealed materials.
12. Methods and occasions for locking and securing stored licensed materials.
13. Procedures for the implementation and adherence to good health physics practices while performing service operations:
 - A. Minimization of distances to areas, to the extent practicable, where licensed materials are used and stored
 - B. Maximization of survey frequency, within reason, to enhance detection of contamination
 - C. Segregation of radioactive material in waste storage areas
 - D. Segregation of sealed sources and unsealed materials to prevent cross-contamination
 - E. Separation of radioactive material from explosives, corrosive materials, and other hazardous materials

F. Separation of potentially contaminated areas from clean areas by barriers or other controls

14. Personnel monitoring, including bioassays, and the use of personnel monitoring equipment
15. Transportation of licensed materials to temporary job sites, packaging of licensed materials for transport in vehicles, placarding of vehicles when needed, and physically securing licensed materials in transport vehicles during transportation to prevent accidental loss, tampering, or unauthorized removal.
16. Procedures for picking up, receiving and opening packages containing licensed material, if applicable.
17. Instructions for maintaining records in accordance with the regulations and license conditions.
18. Instructions for the proper storage and disposal of radioactive waste.
19. Procedures to be followed in the event of uncontrolled release of radioactive unsealed licensed material outside the contained areas within the facility.
20. Procedures to be followed in the event of uncontrolled release of radioactive unsealed licensed material to the environment, including notification to the NRC and other Federal and state agencies.
21. Procedures for identifying and reporting to the NRC defects and noncompliance according to table 8.4 (page 8-43) of NUREG-1556, Volume 18.
22. Submit description of methodology for demonstrating how to evaluate a radiological hazard during the conduct of radiation surveys. Describe releasable criteria.
23. Provide procedures for in-process radiation surveys during stabilization and D&D, equipment to be used, use of PPE, use of direct scanning, use of air monitoring, dosimetry, analysis for workers, etc.
24. Provide procedures for post-decontamination surveys during stabilization and D&D to be used when the workers exit the contaminated area. This will determine the effectiveness of decontamination and will prevent spread of contamination.
25. Provide procedures and actions to be taken during decontamination efforts to prevent further spread of contamination and minimize inhalation and ingestion of licensed materials and actions to obtain suitable radiation survey instruments
26. Provide the types of reassessment surveys that will be performed. If swipes are taken, then how will the swipes be processed and how long will it take to receive the results? Will NIST/LANL stop work until the results are received?
27. Provide leak test procedures for sample collection and analysis if performing leak tests on sealed sources.

28. Provide procedures for waste management (waste collection, storage and disposal). Describe the types of wastes that are intended to be generated during the decommissioning activities. The information provided should be sufficient to allow the NRC to fully understand the types, volumes and activities of solid radioactive waste generated during the operation.
- A. Discuss free release of equipment. The plan should be limited to solid materials where surface contamination can be safely released with no further regulatory control. If the equipment has potential internal contamination or components which are inaccessible, or the equipment may potentially be volumetrically contaminated, then the NRC has not provided guidance like Regulatory Guide 1.86. NIST would need to specifically identify the piece(s) of equipment and NRC would have to evaluate them on a case-by-case basis in coordination with NRC Headquarters. For example, NRC has released volumetrically contaminated material under 10 CFR 20.2002 (with a dose to a member of the public < 1 millirem).
 - B. The plan should specify where the waste containers will be stored.
 - C. Previously submitted draft document stated that the intent is to remove and cap the sink trap. Is this the pipe? Will it be placed in the Type A 55 gallon drum or the type R container or steel drum? Please address.
 - D. Previously submitted draft document stated that the vial and undamaged samples will be collected and placed in the Type A 55 gallon drum and then the waste containers will be sealed. Minimal repackaging was briefly described. NRC needs additional information regarding when the characterization will be performed, how the vial will be controlled, so that the Type A 55 gallon drum will not be required to be reopened. Please address.

ADDITIONAL ASPECTS TO INCLUDE IN THE O&E PROCEDURES

1. Describe the manner in which the stabilization and D&D tasks are managed, such as through the use of Radiation Work Permits (RWP) or procedures. Provide step by step radiation protection procedures or RWPs for each activity. The document(s) should include as a minimum, the following:
 - A. Description of the step-off pads and exit monitoring and control measures that will be employed in each room.
 - B. Describe the monitoring that is performed on the HEPA filter? On a previously submitted draft document NIST has stated that the blower has a radiation monitoring system – provide the specifics, such as what is it calibrated to, what is the sensitivity, does it have an alarm?
 - C. Where is fume hood blower located? It is not clear whether it is installed in room 1-2120. Is the fume hood blower ductless? Provide velocity and turn over rate in the room(s). What are the volumes of the rooms? Describe how the HEPA filter will be tested and what frequency will the HEPA filter be tested.

- D. Further clarify the setup of Entry and Exit points. The entry and exit points should be separated enough so that contamination is not spread. Clearly state whether the set up area is going to be inside room 2120 or whether the interior hallway may be used.
 - E. Describe the controls that will be used to ensure that negative pressure is maintained. How is this going to be monitored? A ribbon on the doorframe is also a good indication.
 - F. Provide any unique safety or remediation issues associated with the each activity.
 - G. Describe pre-job brief and post-job brief and document lessons learned and turnover for the next group that goes in.
 - H. Provide dress out requirements – include layers of surgical gloves so that they may be removed after each swipe collection to avoid cross contamination.
 - I. Provide PPE requirements. Describe the medical screening and fit testing required before workers will use any respirator that is assigned a protection factor.
 - J. Provide written procedures maintained to address all the elements of the respiratory protection program, including, medical tests, fit, training, use, maintenance, and storage of respiratory protection devices.
 - K. Consider communications headset which may be necessary in order to communicate with the two individuals inside the room.
 - L. Description of the controls used to ensure that radiation measuring instrumentation will not become contaminated in the area.
2. Describe the approval of decommissioning procedures or RWP. In addition, if the changes to the plan or RWP are made, then describe the approval for changes to the documents. Describe how individuals performing stabilization and D&D tasks are informed of the changes to the documents. Overall, describe how the documents are issued, maintained, revised, and terminated.
 3. Describe the exposure controls and monitoring that will be used. Provide the criteria established for monitoring. Provide information on the air sampling program for alpha monitoring. On a previously submitted draft document NIST provided criteria for when to conduct 24-hour urine bioassay and then stated that after the job bioassay samples will be completed, but does not specify what type of bioassay sample and the frequency. Will NIST/LANL collect fecal samples for transuranic? Provide a justification for the DAC value - to start monitoring at 125 millirem?
 4. Define the following terms that have been used in previous drafts submitted to the NRC: "significantly" "safe", and "feasible". That is, contingencies need to be defined, what the thresholds for decisions and what are the decisions. Modify table.