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Appendix B Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

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Disclaimer

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Appendix B

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Contents

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Issue (Deficiency) 1: The CBDPP does not fully meet the requirements in DOE Rule 10 CFR 850.

Observable Symptom	Associated Problem	Underlying Cause
Finding BE.1-1 The method for completing the baseline beryllium inventory in Section A and appendix B of the LLNL CBDPP does not include the initial completion of all the methods for determining locations of potential beryllium contamination identified in 10 CFR 850.20.	In writing the CBDPP, the intent was to not repeat the Rule. The intent was to present how the Rule is implemented. The original version included a copy of the Rule in an appendix and it was later removed. The author of the CBDPP thought that all of the Rule and NLVF items were addressed and thought the CBDPP was sufficiently comprehensive to meet the intent of the Rule. The original and each of the yearly updates of the CBDPP was reviewed and approved by LSO. The ARO reviewed the CBDPP against the Rule in 2005. Their comments were incorporated in the next revision. Although the Rule has not changed, each LSO reviewer of the CBDPP identified different changes.	The author responding to LSO's feedback, after reviewing the early versions of the CBDPP, that the CBDPP was too long. The CBDPP author missed requirements or didn't recognize gaps in the CBDPP. LLNL relied on the LSO review and approval as an independent assessment and validation that the CDBPP met requirements. There is some ambiguity in the writing of the CBDPP.
Finding BE.1-2 Section B, *Hazard Assessment*, of the CBDPP does not require the performance of a beryllium hazard assessment for as many as 162 facilities that have been identified with a potential of legacy beryllium per the baseline inventory as required by 10 CFR 850.21(a).		
Finding BE.1-3 Section M, *Medical Surveillance*, of the LLNL CBDPP does not include explicit requirements for systematically analyzing medical surveillance data and using the results of this analysis to adjust the medical surveillance program as required by 850.34(h)(1)(2).		

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Observable Symptom	Associated Problem	Underlying Cause
Finding BE.1-4 Section S, *Performance Feedback*, of the LLNL CBDPP does not include explicit requirements for the analyses and dissemination of overall program performance data to all required personnel per 10 CFR 850.40		
Finding BE.1-5 LLNL did not incorporate the formal guidance and recommendations from the NNSA regarding lessons learned from the final report of the investigation of the beryllium exposure cases discovered at the North Las Vegas Facility into their CBDPP.	LLNL reviewed the lessons learned from the NLVF report, submitted a corrective action plan to address the lesson learned on 7/30/04. This plan was approved by LSO on November 18, 2004 and implemented by LLNL.	DOE's changing expectations were not incorporated into the 10 CFR 850 Rule. LLNL failed to fully understand LSO's changing expectations and to respond effectively.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective actions
Observation BE.3-2: LLNS should remove or clarify the intent of the shaded text to ensure that workers clearly understand the risk from potential exposure to unknown legacy beryllium until all the methods of determining the magnitude of the potential beryllium hazard (employee interviews, review of historical documents, and comprehensive sampling) have been completed.	

Issue (Deficiency) 2: Finding BE.5-1 LLNS has **not implemented effective interim controls** to mitigate the risk of exposure to the legacy beryllium hazard for routine operations or activities performed in legacy beryllium facilities as required by 10CFR 850.11.

Observable Symptom	Associated Problem	Underlying Cause
[For the deliberate operations]… there was little or no follow up to determine how these required actions were being implemented across all required work organizations. Pg 69 (Obs. BE.5-1) LLNS did not identify any follow on actions to determine the effectiveness of these interim actions, and have not established any criteria or requirement for a conducting a formal evaluation prior to relaxing, modifying, or removing any controls. Pg 69 (Obs. BE.5-1)	Department head was focused on getting the message out quickly when he sent the March 6 e-mail. The deliberate operations expectation and directions were not rigorous enough to address the Be weaknesses. The e-mail was taken as performance-oriented guidance	Directorates believe that the Hazards Control department head does not have authority to direct the actions of other directorates. This was a unique situation. Previous actions similar to this one included follow-up actions and meetings to track progress and status.
Self-assessments of IWSs under existing guidance have not resulted in adequate IWSs.	Multiple self-assessments have been conducted but the managers who are reviewing the IWS are accepting of broad project-level IWS not taking a critical look at the task-level within these IWSs.	When conducting self-assessments, most IWSs are reviewed by managers who have previously reviewed the same IWSs; so IWSs are not being reviewed by independent parties with experience in other areas of LLNL.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.5-1 LLNS needs to improve the formality of the identification, implementation, change control, and periodic verification of the effectiveness of interim controls and compensatory measures in order to minimize the risk to workers from an unprotected exposure to legacy beryllium.	
Observation BE.5-6 LLNS should consider developing a beryllium checklist (or permit) to augment existing work control and industrial hygiene processes to ensure a standard set of questions is asked and a standard set of data is reviewed (based on type of activity and location) prior to releasing the work in a legacy beryllium area or facility. The use of a beryllium permit has been effectively used at other NNSA sites to minimize the exposure risk of legacy beryllium until work control processes and baseline hazard analysis results have been updated to affectively address this hazard.	
Observation BE.5-7 LLNS should ensure that an appropriate interim control is identified for performing work on carpets that may have the potential for generating beryllium dust from legacy beryllium in the carpet (e.g., cleaning, vacuuming, disposal, etc).	
Observation BE.5-2 LLNS needs to develop guidance for conducting an IWS review and completing a task level HAW when the IWS does not identify the task level activities and hazards. This interim guidance should be identified as a formal compensatory measure until task level ISM permits are completed per the planned new institutional work control process.	

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.5-3 LLNS needs to ensure that legacy beryllium hazard identification evaluation hold point is formally included into work planning processes for work performed by sub-contractors similar to the hold point included in the F&I work request software.	

Issue 3: LLNL's communication on the status of legacy Be does not meet the assessment team's expectations

Observable Symptom	Associated Problem	Underlying Cause
…employees voiced concerns regarding their ability to access such information and how this information impacted their daily activities. Pg 61 (Obs BE.3-4)	Results of beryllium baseline sampling are delivered to facility managers, with copies distributed to many other interested people. The facility managers communicate the results to building inhabitants. This communication may be handled differently in each building. The web site provides access to every memo-report.	The web page has provided insufficient information about facility characterization for Be. Resources for updating the web page have not been readily available.
…the team consistently noted that the scope of the potential legacy beryllium contamination, the potential exposure risk, and the methods of identifying and evaluating the risk had not been effectively communicated to all affected employees. Pg 74 (Obs BE.5-4)	The baseline inventory is a compilation of several sources of information in various stages of completion or not yet started that have been compiled over the course of several years, complicates the contractor's ability to adequately communicate the complete status of the baseline inventory to employees, supervisors, managers, work planners, medical, and safety and health professionals. Pg 60 (Obs BE.3-3)	Facility managers have been responding to the sampling results provided by the Be subject-matter-expert. However, there response may not have been consistent because the facility managers do not have a central point for communicating Lab-wide facility-related hazard information or for sharing lessons learned. Because of time constraints, the industrial hygienists have not been sharing the lessons learned from one project or location to another one during their weekly meetings.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.3-3: LLNS needs to develop and implement actions to effectively communicate the current status of the baseline inventory (which includes both the original baseline inventory and the results of the enhanced baseline surveys) to all affected workers.	
Observation BE.3-4: LLNS needs to effectively communicate the results of beryllium clean-up (decontamination) efforts and post beryllium clean-up survey results to affected personnel.	
Observation BE.5-4: LLNS needs to effectively communicate to all affected employees the scope of the potential legacy beryllium contamination, the potential exposure risk, and the methods of identifying, evaluating, and preventing the risk of exposure.	

Issue (Deficiency) 4: Finding BE.2-1: LLNS did not identify the need to analyze each case of beryllium sensitization (BeS) per 10 CFR 850.34 (h) (1) & (2) and did not identify and evaluate the increasing trend in the number of beryllium workers and BeS per 10 CFR 850.40 in order to determine whether the overall performance objectives of 10 CFR 850.11(b) (3) were being met.

Observable Symptom	Associated Problem	Underlying Cause
The team was not provided evidence that the requirements in the ES&H manual document 14.4 identified above, such as a documented analysis meeting the requirements of 850.34 for each individual case of BeS, or a documented analysis to determine the cause or apparent cause of the increases in the number of designated beryllium workers and the number of diagnosed BeS cases identified by the team, were being implemented. Pg 53 5 3(Finding BE.2-1)	LLNL did evaluate each case of beryllium sensitization and did evaluate the increasing trend in the number of BeS. The increasing trend in the number of beryllium workers and BeS began in late 2007 so was just emerging at the time of this assessment. The results of the individual evaluations have been presented to LLNL management over the course of implementing the CBDPP. The evaluations were not collated, analyzed in total or documented in a published report so LSO and others were would be aware of the analysis. The assessment team may not have been aware of LLNL's analyses because they did not interview the LLNL Beryllium subject matter expert. Although, the assessment team met with the LLNL medical director, he was not aware that the team wanted this information.	There is no document describing how the epidemiological analysis process is to be conducted and by whom. The analysis process that was implemented did not provide for feedback into improving the CBDPP. *The team did not identify any implementing documents or process descriptions that fully described how these elements of the program (850.34 (h) (1) & (2) in section 4. 6, Health Services Department, of section 4, Responsibilities; and some of the requirements of 850.40, section 3.8.12, Feedback and Improvement) were to be implemented. Pg 53 (Finding BE.2-1)*

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
None	

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Issue 5: LLNL is not effectively controlling **current** beryllium work to the assessment teams expectations

Observable Symptom	Associated Problem	Underlying Cause
... team does not agree with the designation of parts used in this brazing operation as a beryllium article. Pg 65 (Obs BE.4-2) *... technician that he was not completing the Step 2 post-operational swiping of the part as required by the Beryllium Control portion of the IWS. Pg 65 (Obs BE.4-2)*	The IWS is misusing the term "articles." Brazing is done in a vacuum chamber. Workers only recieve articles that have been swiped for Be and the work is done at temperatures below vaporization. Since the work includes changing the parts by brazing, it does not meet the definition of an article and the term "article" needs to be removed from the IWS.	The RI, AI and ES&H Team reviewers for the IWS were not using the term "article" correctly. There has not been a review or training to ensure consistency.
... an operation in B695 involving beryllium that was not specifically identified in the IWS and as a result a task specific HAW and HAC if necessary was not completed for the activity Pg 73(Obs BE.4-1) *... the above e-mails did not include as an attachment or reference an IWS or Hazards Assessment and Control (HAC) form for the second phase of the operation. Pg 65 (Obs BE.4-1)*	The B695 IWS allows the workers to do "treatment studies." The B-695 study is of soluble compounds on surfaces and testing for swipes. Although 10 CFR 851 does not address soluble Be, ES&H Manual Document 14.4 has included soluble Be since August 2001.	The RIs and AIs are writing and approving overly broad IWSs/ work permits/ HACs. When the IWS is written very broadly, it is too difficult for the IH to conduct the review of the task specific hazards. They do not have sufficient details. The layout/ composition of the IWS does not support a job hazard analysis. The layout does not link the task-hazard-control-personnel.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.4-1: LLNS needs to conduct an activity specific hazard analysis for the beryllium study being conducted in Building 695.	
Observation BE.4-2: LLNS needs to evaluate the IWS for brazing of beryllium parts in B 231 to ensure that it contains the appropriate level of beryllium hazard controls per 10CFR 850.20.	

Issue 6: The process used to identify the beryllium worker does not meet the assessment teams expectations.

Observable Symptom	Associated Problem	Underlying Cause
The requirement for medical to forward the completed questionnaire to the OHS section of the HCD (and ultimately to the CBDPP Coordinator as noted above) or to the ES&H IH for review and the requirement for the questionnaire to be returned to HSD (aka Medical) inserts a step that may be inadvertently screening workers from being subsequently tested if the form is not promptly returned to Medical. Pg 54 (Obs BE.2-1)	The process for identifying beryllium workers may be overly complex. It is believed that workers are receiving the protection required under the 10 CFR 850. LLNL does believe that they included this greater population.	The industrial hygienist (Be SME) is familiar with the workplace and contributes valuable information to the evaluation process. LLNL did not diagram or otherwise analyze the workflow to determine the most efficient process for managing this information.
The LLNL CBDPP includes a threshold of 10 days for an individual to meet the definition in the Rule of "regularly employed" in a DOE Beryllium Activity in order to be designated a Beryllium Worker. ....This interpretation may not meet the full intent of the Rule since workers who are actively involved in a beryllium activity may not be identified as Beryllium workers if they do not meet the 10 day threshold. Pg 48 (Obs BE.1-1) *... some personnel who completed the*	Medical surveillance is offered to all beryllium-associated workers. The group beryllium-associated workers includes beryllium-workers, former beryllium workers and infrequent workers, workers with signs and symptoms and workers in the medical removal program. Beryllium workers are further divided into two groups: BeW-1 and BeW-2 depending on whether they are regularly exposed to beryllium. The Rule does not define the term	LLNL tried to bring clarity when implementing the Rule. LLNL and LSO thought, at the time, that the interpretation was reasonable. In the definition of a Be-worker, LLNL thought they were addressing a larger population than required in the Rule. The DOE Rule requires exposure to airborne beryllium and LLNL included exposure to surface contamination in the definition of a Be-worker. This expanded definition was adopted to address the beryllium

Observable Symptom	Associated Problem	Underlying Cause
questionnaires were not notified of the results of the questionnaire (i.e. whether they were identified as BEW-1 or BEW-2) and were not subsequently offered medical surveillance. This indicates a potential weakness in the use of the questionnaire for determining whether personnel should be offered medical surveillance. Pg 55 (Obs BE.2-2)	"regularly exposed" so LLNL looked to the OSHA definition or "regular," which is based on 30-days of work with metal of concern. LLNL adopted the 10-days to be more conservative. The 10-day definition is used only to define the frequency of medical examination.	potential for sensitization.
... the questionnaire did not have any reference to legacy beryllium hazards such as surface dusts containing beryllium or dust producing activities which may re-suspend airborne beryllium. Pg 55 (Obs BE.2-2)	LLNL thought that the general question to address the employees work history included dust producing activities in Be contaminated areas.	The existing feedback on the questionnaire did not identify this concern.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.1-1: LLNS needs to review the basis for designating Beryllium Workers and resubmit to LSO for review.	
Observation BE.2-1: LLNS needs to develop a formal process for the evaluation and use of the Beryllium Occupational History Questionnaire to include, 1) roles and responsibilities between HSD (Medical) and the CBDPP Coordinator, 2) expected timelines for completing the evaluation and returning the form to HSD	

Corrective action recommended in assessment report	LLNL Possible Corrective action
regardless of the results of the evaluation, and 3) consideration that HSD keeps the original (to use for analysis) and sends a copy for review by the CBDPP Coordinator	
Observation BE.2-2: LLNL needs to revise the Beryllium Occupational History Questionnaire to include questions related to legacy beryllium hazards such as surface dusts containing beryllium or dust producing activities which may re-suspend airborne beryllium.	

Issue 7: The conduct of industrial hygiene for beryllium does not meet the assessment team's expectations.

Observable Symptom	Associated Problem	Underlying Cause
Training and qualification of industrial hygienists (IH) and IH staffing	10 CFR 851 requires qualified IHs, but provides no definition of "qualified." Appendix B of DOE STD-1138-2007 states, "the preferred means of demonstrating **Expert** level competency is via certification, as a CIH by the ABIH. Currently, all but one of LLNL's 12 staff IH are CIHs.	This DOE STD-1138-2007 applies to DOE IHs
IH PIM is inconsistently applied in the field Note: PIM is Policy Implementing Manual	These processes (PIMs) do not include guidance for how to complete a task based HAW when the Integrated Work Sheet (IWS) does not include task level activities and hazards (see observation BE.5-2) and do not include specific guidance for determining what facility areas and type of activities could be a source of potential beryllium exposure in locations identified as legacy beryllium facilities. Pg 78 (Obs BE.5-5)	The process to ensure that IHs are knowledgeable of the contents of the PIMs is not rigorous (e.g., not tracked) The IH PIMs are in the process of being rewritten.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.6-1: LLNS needs to place a priority on the continued development and effective implementation of all the new and revised IH PIMs in order to ensure that the IH organization moves from an expert based approach to an approach that relies on the use of formal processes by an experienced and qualified technical staff.	
Observation BE.6-3: LLNS should conduct a thorough evaluation of the training, qualification, and staffing of the IH program based on both institutional and best practice requirements and take appropriate actions as necessary.	
Observation BE.6-2: LLNS needs to identify corrective actions to address overall organizational R2A2 deficiencies and validate the effectiveness of recently completed corrective actions to address specific CBDPP R2A2 deficiencies	

Issue 8: Implementation of the CBDPP in the area of **sampling for legacy beryllium** does not meet the assessment team's expectations.

Observable Symptom	Associated Problem	Underlying Cause
Finding BE.7-1: LLNS did not adjust their baseline sampling plans to incorporate carpet samples in response to information that clearly indicated that residual dust in carpet was a potential source of legacy beryllium	Completion of the surface swipes samples was given a higher priority than the carpet sampling effort when carpet sampling was added to the plan in 2008.	The special sampling vacuum needed to be purchased and did not arrive on-site until mid-2008. There is no approved standard for analyzing carpet dust and for determining compliance or acceptability of the results. The ASTM sampling method is not specific to carpet or to beryllium.
The retired supervisor (when contacted by LSO) confirmed in July 2008 that Building 311 had been used for many years by his division and that laboratories involved with beryllium research had been located there. However, when the review team questioned the contractor regarding recent work activity that had occurred in Building 311 during April 2008 the contractor stated in an e-mail, 2 October 2008, that there had not been any beryllium related operations based on a review of "30 – 35" years of Building 311 facility and operations archived data. Pg 57 *(Obs BE.3-1)*	B-311 was already on the list of legacy Be facilities based upon operating history and historic samples. Interviews were not likely to have provided additional information. The CBDPP did explicitly require that all of the four criteria to be used in determining the legacy contamination in each facility in 2000. The words describing interviewing were revised and put into a lower tier document in 2003 and were not adequately addressed.	Two people were hired in 1998 to conduct interviews and to address the other three criteria. While efforts were made to collect historical information through employees interviews, this effort was not comprehensive and was not documented adequately.

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Observable Symptom	Associated Problem	Underlying Cause
In some legacy beryllium facilities that have been colored coded as "Green" little or no sampling of the floor strata occurred because all the flooring was covered by carpet. Pg 58 *(Obs BE.3-1)* Controls appeared to have been removed for facilities that are identified as Green (indicating that the baseline sampling has been completed) without fully understanding the nature and location of potential beryllium contamination in these facilities. Pg 70 *(Obs BE.5-1)*	LLNL failed to identify carpet sampling as a best management practice to implement the CBDPP. The sampling plan submitted to LSO in 2007 was within the requirements of 10 CFR 850. It included surface, air, bulk and sampling. LLNL continued to follow the LSO-approved sampling plan.	Up until the NLVF event, no one in the DOE Complex had considered carpets to be a problem in locations where swipe samples of adjacent surfaces indicated contamination below limits. Carpet sampling is still not a standard practice across the DOE Complex. LLNL has operated under the assumption that swipe sampling, including floors but focusing on the equipment level, and elevated strata level, was effective in determining the level of facility legacy Be contamination.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.3-1 LLNS needs to conduct a thorough and comprehensive review of all available data including historical data as part of the baseline inventory. This review needs to include a review of enhanced sampling data to include results of carpet sampling; interviews with facility operations and maintenance personnel; interviews with current and former employees; and interviews with other site employees such as federal employees and subcontractors to develop as complete a picture as possible of the scope of legacy beryllium operations and potential contamination and to ensure all facilities with a potential for beryllium contamination are identified and placed into the baseline beryllium inventory. This information should also be used as a key input when developing the scope and density of the enhanced baseline sampling plans.	
Observation BE.5-5 LLNS needs to establish a documented method for consistently identifying whether there was a potential for beryllium contamination in a particular area of a legacy beryllium facility, what actions should be taken to reasonably confirm that no contamination exists (such as a review of sampling data or performance of additional sampling), and if contamination exists, whether there is a potential for exposure. This includes ensuring employees are made aware of beryllium “hot spots”, clean-up efforts and post clean-up results.	

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation BE.7-1: LLNS needs to incorporate the use of the best management practice of 95%-95% UTL for the "clean decision" for enhanced baseline sampling plans of facilities completed after the initial pilot study.	
Observation BE.7-2: LLNS needs to revise the sampling plan density for all remaining legacy facilities conducted after the pilot study to the density identified in the pilot study or provide technical justification for a reduced sampling density within the sampling plan for each facility to be characterized.	
Observation BE.7-3: LLNL needs to validate all beryllium sampling report conclusions which were justified solely on the basis of comparative data are statistically valid and accomplished accurately. Additionally, the conclusions reached within each report need to include an analysis of results from legacy beryllium facility characterization surveys or other information such as past beryllium events, beryllium decontamination efforts, lessons learned, or known cases of sensitization or disease. These additional factors should be determined and included in the revisions of each building's category	

Appendix B

Symptom-Problem-Cause Analysis of the Final Report of the NNSA Independent Review of the LLNL Chronic Beryllium Disease Prevention Program

Issue 9: Observation ER.6-1: The NNSA independent team results do not support the overall conclusion by the CERT that the CBDPP is compliant and being effectively implemented.

Observable Symptom	Associated Problem	Underlying Cause
Observation ER.1-1 The scope of corrective actions were not explicitly identified for the CERT, the CERT did not conduct a sample of verification of completion of actions, and the ER was conducted before all Beryllium related corrective actions have been completed.	Observation ER.2-2 A written plan was not developed to guide the scope and conduct of the CERT as described in section 6 of document 4.7 of the LLNL ES&H manual. Observation ER.4-2 The appropriate team composition and expertise for conducting the effectiveness review should have been based on an approved review plan that includes the appropriate breath, depth, and methods for conducting the review	The manager requesting the evaluation of the effectiveness of the CBDPP did not intend for the review to be an Effectiveness Review as it is defined by DOE and LLNL and therefore did not arrange for the review to meet the requirements and expectations of an Effectiveness Review. The manager was responding to the statement that the "CBDPP was not effective." The effectiveness review was thought of as an interim status review and the terminology was not used properly.
Observation ER.2-1 The conduct of the ER and the CERT report did not demonstrate that a logical evaluation was conducted to support the overall conclusions of the report.	Observation ER.1-2 The breath and depth of the ER was not explicitly defined and therefore the broad conclusions related to the overall effectiveness of the CBDPP are not supportable.	Observation ER.4-1 The ER team composition should have included additional personnel with experience in conducting criteria based assessments and leading effectiveness reviews in additional to the two certified industrial hygienists.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
None	

Issue 10: Observation CA.1-1 The BRECAT review was not conducted with the necessary scope, method, and rigor to provide a high level of assurance that all the underlying causes of poor implementation of the CBDPP have been identified for corrective action.

Observable Symptom	Associated Problem	Underlying Cause
The BRECAT review only looked at the previous events and not the whole program.	The team was asked to look at commonality of the five events	The ESH&Q Directorate was finding it difficult to get balance between prescribing the process and criteria for the BRECAT versus allowing the team independence in evaluating the topic.
Finding CA.5-1: LLNS did not identify the BRECAT report conclusions and recommendations as meeting the definition of an Issue and subsequently enter them into the Issue Tracking System within 60 days as required by ES&H Manual Document 4.2	LLNL was planning to develop on CAP in response to both the BRECAT (7/1/08) and the CERT (8/27/08). The recommendations from the reports were redundant with each other.	LLNL saw the approach of one CAP for all reports as being a better approach to coordinating the corrective actions, ensuring accurate and consistent status reporting, and having increased efficiency.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
None	

Issue 11: The way that LLNL reported PEC #112 does not meet the assessment teams expectations.

Observable Symptom	Associated Problem	Underlying Cause
PEC #112 was reported as a Category 'B' condition. Pg 36 (Obs CAS.1-2) LLNL did not provide any evidence that they conducted an evaluation that the characterization of the broader CBDPP non-compliance reported in Pre-Existing Condition (PEC) #112 as a category 'B' condition Pg 35 (Obs CAS.1-2)	Based upon preliminary review, LLNS considered current Be controls adequate, but had growing concerns that legacy Be activities may have been performed prior to completing the baseline samples. Based upon these concerns and as allowed in Clause I-108 of Contract No. DE-AC52-07NA27344, a Pre-existing Condition (PEC 112) was established to identify the potential liability that could result for Be activities performed prior to October 1, 2007. Once the potential issue (liability) had been identified, LLNS developed a process for addressing the concerns, which included the sampling of Be legacy facilities to better define the extent of the condition. The sampling is scheduled for completion by March 1, 2009.	As more information became available after LLNS assumption of LLNL operations, LLNS' concerns grew that some Be activities performed prior to October 1, 2007, may have lacked adequate controls and potentially contaminated areas within a number of LLNL buildings. Additional information was needed to determine the validity and extent of the concerns. A compensatory measure was in place in one building, in that the remodeling work in B321 had been stopped.
The scope of the NTS report and the PEC were the same but the way that the NTS report was written may not have clearly stated that they were.	The NTS report was a programmatic noncompliance and not related to any event. The text describing the noncompliance provided a substantial amount of information about how the noncompliance was revealed by a review of activities in Building 321-C.	This NTS report for a programmatic noncompliance was discussed with the LSO enforcement coordinator and the LSO senior advisor. LLNL's action was consistent with their direction.

Possible corrective actions:

Corrective action recommended in assessment report	LLNL Possible Corrective action
Observation CAS.1-1: LLNL should submit a separate NTS report which should result in a formal evaluation of the adequacy of controls to prevent further uncontrolled exposures in the 160 + facilities from the condition identified in the PEC #112.	
Observation CAS.1-2: LLNL should resubmit PEC #112 as a category 'A' condition and take necessary actions commensurate with the significance of this condition.	