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APPENDIX C

SNL ACTIVITY DESCRIPTIONS

**IN SUPPORT OF THE
DIRECTED STOCKPILE WORK RESEARCH AND
DEVELOPMENT – STOCKPILE SYSTEMS AND
STOCKPILE SERVICES
FY 2009 PROGRAM IMPLEMENTATION PLAN**

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Level 2 Milestone (MRT 3165): Issue the Annual Assessment Report and Director's Annual Assessment Letter for the B61.

Due Date: September 2009

Activity Description: This is the NA-121 B61 Level 2 milestone for any FY 2009 activities necessary to issue the Annual Assessment Report and Director's Annual Assessment letter; note that this work is funded at Sandia by NA-122. SNL will ensure coordination on the final LANL version of the Annual Assessment Report and issue the SNL Director's letter consistent with the schedule directed by NA-10. Below is a list of the key activities that support completion of this milestone.

Level 3 Milestones/Grading Criteria:

Description
Submit "Lab," "POG," and "Final" versions of the B61 Annual Assessment Report and prepare and brief the B61 at the SAGSAT review in accordance with cycle 14 instructions, as published in January 2009.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Issue the AAR and the Director's Annual Assessment Letter for the B61.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities to support development of the Annual Assessment Report. The Sandia Laboratory Director has the final responsibility for issuing the Annual Assessment Letter.

Campaign/Interfaces	Deliverable	Date
ENG - ESC (C8)	Component and materials status updates to support AAR	Feb 2009

Risk Identification and Mitigation Strategies: Principle risk is that there is insufficient information to support the Annual Assessment Report and continued confidence in the nuclear safety and reliability of the stockpile.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov

Level 2 Milestone (MRT 3166): Identify and complete continuous activities necessary for supporting current/future assessments for the B61.

Due Date: September 2009

Activity Description: This is the NA-121 B61 Level 2 milestone for any FY 2009 activities to generate the information necessary to understand and evaluate the current technical basis status of the system; note that this work is funded at Sandia by NA-122. Note that much of the work to generate this information is dependent on disassembly/assembly activities at Pantex, as well as components from production sites across the complex; assuming availability of necessary assets, SNL will ensure that the necessary tests and evaluations are planned and conducted. SNL will ensure that the data developed from these activities, as well as that developed from other activities completed in support of strengthening the technical basis, are appropriately documented and is available as appropriate for consideration in Annual Assessment activities.

Level 3 Milestones/Grading Criteria:

Description
1. Provide design information necessary for ASC to develop a system level B61 thermal model.
2. Provide design information necessary for ASC to develop a radar nose model capable of assessing FFG impact fuze margin.
3. Conduct QMU activities on most recent Neutron Generator surveillance data available.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Provide NA-121.31 with a high-level summary of the activities that were performed including a list of completed supporting reports.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities, as well as with Pantex and other production sites to support test and evaluation activities. Sandia will coordinate WR hardware needs with NNSA/NA-122.5 program representatives to allow for timely program impact assessment and hardware release authorizations.

Campaign/Interface	Description	Due Date
SNL Stockpile Evaluation	Provide flight test data to support B61 thermal model development.	September 2009
ASC	Upgrade ASC B61 Thermal model with flight test thermal data.	September 2009
ASC	Update B61 radar nose model to assess FFG margin	September 2009



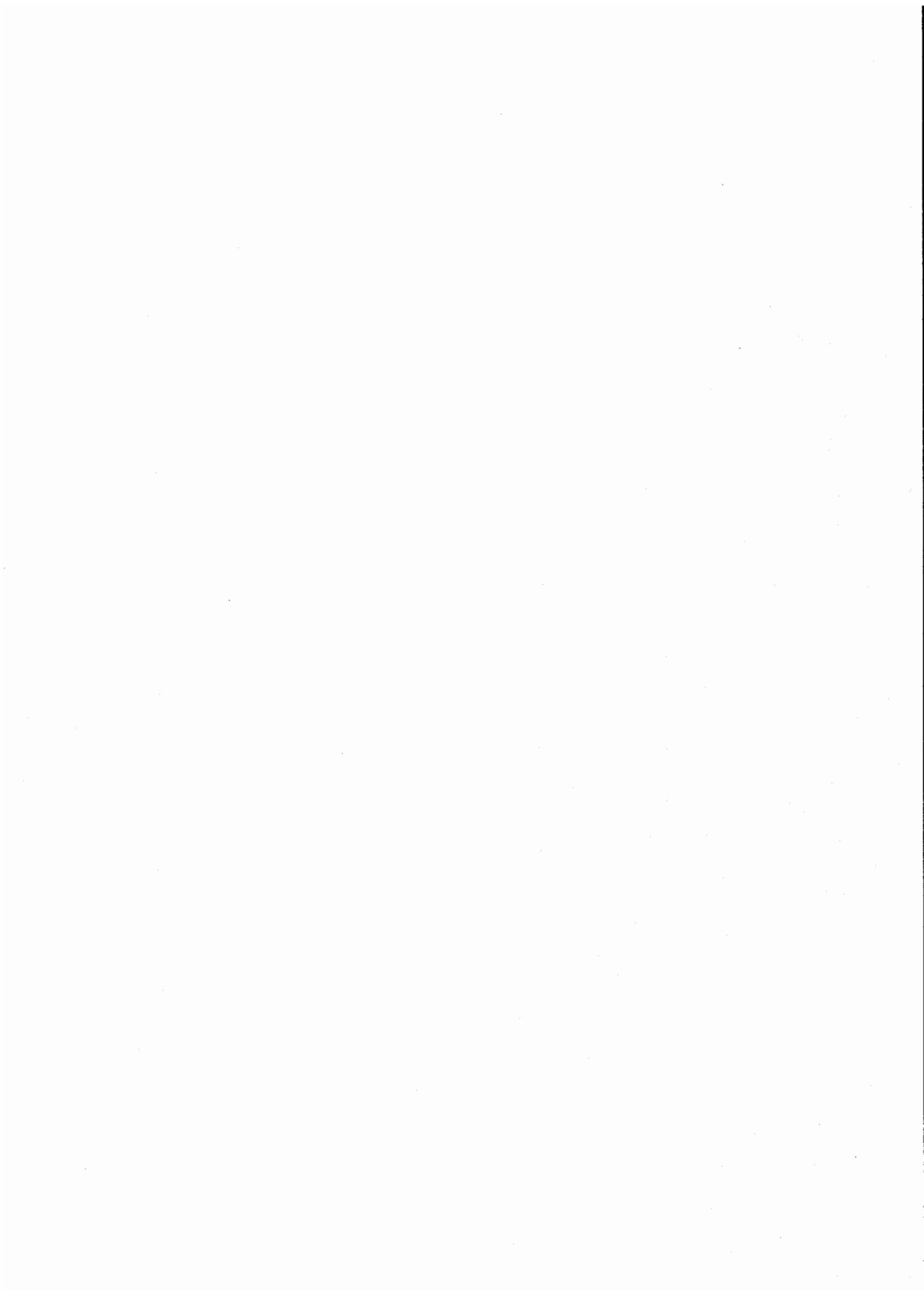
Risk Identification and Mitigation Strategies: Principle risk is that adequate assets and resources are not available to conduct these activities; this could result in a determination that SNL cannot provide an assessment of the system. This risk is managed through budget prioritization processes, independent assessment processes that provide feedback to the systems regarding the adequacy of evaluation data, and sharing of data across systems for like components. Future WR program requirements, such as surveillance rebuilds, may conflict with release of hardware if parts need to be mined from dismantlement. Sandia will coordinate hardware requests with NNSA/NA 122.5.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov





Campaign/Interfaces	Deliverable	Date
/ ESC (C8)	Component and materials status updates to support SRC & AAR	
DSW SNL Component Engineers	Component engineers provide final component reports for FY2009	Sep 2009

Risk Identification and Mitigation Strategies: Principle risk is that adequate assets and resources are not available to conduct these activities; this could result in a determination that SNL cannot provide an assessment of the system. This risk is managed through budget prioritization processes, independent assessment processes that provide feedback to the systems regarding the adequacy of evaluation data, and sharing of data across systems for like components.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov
Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov

Level 2 Milestone (MRT 3169): Issue the Annual Assessment Report and Director’s Annual Assessment Letter for the W78.

Due Date: September 2009

Activity Description: This is the NA-121 W78 Level 2 milestone for any FY 2009 activities necessary to issue the Annual Assessment Report and Director's Annual Assessment letter; note that this work is funded at Sandia by NA-122. SNL will ensure coordination on the final LANL version of the Annual Assessment Report and issue SNL Director's letter consistent with the schedule directed by NA-10. Below is a list of the key activities that support completion of this milestone.

Level 3 Milestones/Grading Criteria:

Description
Submit "Lab," "POG," and "Final" versions of the W78 Annual Assessment Report and prepare and brief the W78 at the SAGSAT review in accordance with cycle 14 instructions, as published in January 2009.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Issue the AAR and the Director’s Annual Assessment Letter for the W78.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities to support development of the Annual Assessment Report. The Sandia Laboratory Director has the final responsibility for issuing the Annual Assessment Letter.

Campaign/Interfaces	Deliverable	Date
ENG - ESC (C8)	Component and materials status updates to support AAR	Feb 2009

Risk Identification and Mitigation Strategies: Principle risk is that there is insufficient information to support the Annual Assessment Report and continued confidence in the nuclear safety and reliability of the stockpile.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



Level 2 Milestone (MRT 3170): Identify and complete continuous activities necessary for supporting current and future assessments for the W78.

Due Date: September 2009

Activity Description: This is the NA-121 W78 Level 2 milestone for any FY 2009 activities to generate the information necessary to understand and evaluate the current technical basis status of the system; note that this work is funded at Sandia by NA-122. Note that much of the work to generate this information is dependent on disassembly/assembly activities at Pantex, as well as components from production sites across the complex; assuming availability of necessary assets, SNL will ensure that the necessary tests and evaluations are planned and conducted, and will ensure that the data developed from these activities is appropriately documented and is available as appropriate for consideration in Annual Assessment activities.

Level 3 Milestones/Grading Criteria:

Description
1. Continue evaluation of margin for the LAC, stronglink, and weaklink "subsystem" over temperature ranges.
2. Continue Stronglink-Weaklink Thermal Race assessment with high-fidelity abnormal thermal model.
3. Support initial implementation of new WETL Tester.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Provide NA-121.31 with a high-level summary of the activities that were performed including a list of completed supporting reports for the actions that were completed during FY 2009.	September 2009

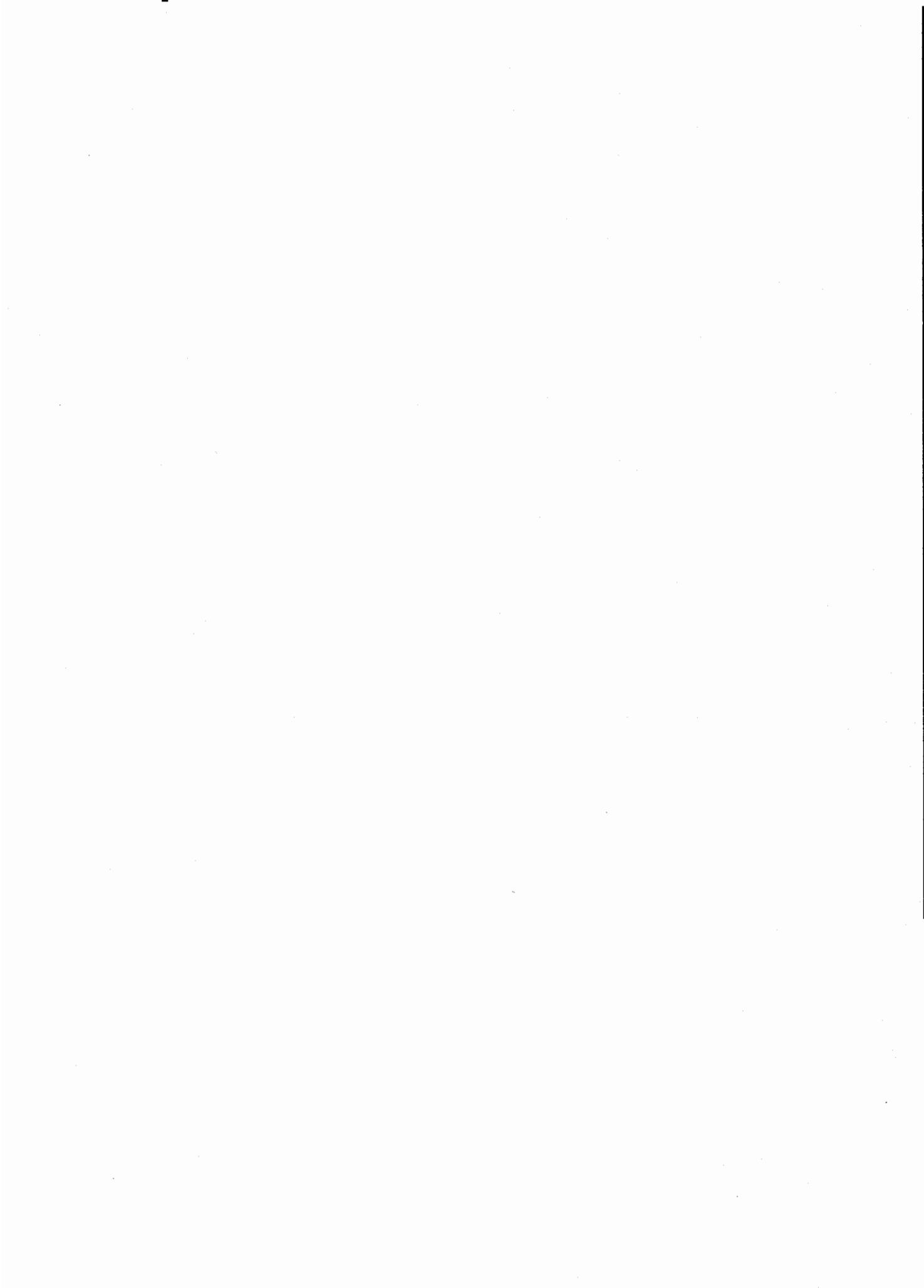
Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities, as well as with Pantex and other production sites to support test and evaluation activities.

Component/Interface	Deliverable	Date
ASC	Support for high-fidelity thermal model	September 2009
ESC	Completion of WETL Tester	September 2009
DSW	Provide W78 Abnormal Thermal Model (12300 NSafE Model) to perform a series of thermal analyses to identify environments and configurations for further analysis with a higher resolution model.	March 2009

Risk Identification and Mitigation Strategies: Principle risk is that adequate assets and resources are not available to conduct these activities; this could result in a determination that SNL cannot provide an assessment of the system. This risk is managed through budget prioritization processes, independent assessment processes that provide feedback to the systems regarding the adequacy of evaluation data, and sharing of data across systems for like components.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov
Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



production sites to support test and evaluation activities. In addition to integration within the complex, there is synergy with other weapon systems (materials data), and deliverables required from other campaigns.

Campaign	Deliverable	Date
ASC	Update W80 mechanical model to reflect current mod-0/1 to support system safety margin assessments	June 2009

Risk Identification and Mitigation Strategies: Principle risk is that adequate assets and resources are not available to conduct these activities; this could result in a determination that SNL cannot provide an assessment of the system. This risk is managed through budget prioritization processes, independent assessment processes that provide feedback to the systems regarding the adequacy of evaluation data, and sharing of data across systems for like components.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov
Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



Level 2 Milestone (MRT 3173): Issue the Annual Assessment Report and Director's Annual Assessment Letter for the B83.

Due Date: September 2009

Activity Description: This is the NA-121 B83 Level 2 milestone for any FY 2009 activities necessary to issue the Annual Assessment Report and Director's Annual Assessment letter; note that this work is funded at Sandia by NA-122. SNL will ensure coordination on the final LLNL version of the Annual Assessment Report and issue SNL Director's letter consistent with the schedule directed by NA-10. Below is a list of the key activities that support completion of this milestone.

Level 3 Milestones/Grading Criteria:

Description
Submit "Lab," "POG," and "Final" versions of the B83 AAR and prepare/brief the B83 AAR at the SAGSAT review in accordance with cycle 14 instructions, which will be published in January 2009.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Issue the AAR and the Director's Annual Assessment Letter for the B83.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities to support development of the Annual Assessment Report. The Sandia Laboratory Director has the final responsibility for issuing the Annual Assessment Letter.

Component/Interface	Deliverable	Date
ENG - ESC (C8)	Component and materials status updates to support AAR	Feb 2009

Risk Identification and Mitigation Strategies: Principle risk is that there is insufficient information to support the Annual Assessment Report and continued confidence in the nuclear safety and reliability of the stockpile.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



Level 2 Milestone (MRT 3174): Identify and complete continuous activities necessary for supporting current and future assessments for the B83.

Due Date: September 2009

Activity Description: This is the NA-121 B83 Level 2 milestone for any FY 2009 activities to generate the information necessary to understand and evaluate the current technical basis status of the system; note that this work is funded at Sandia by NA-122. Note that much of the work to generate this information is dependent on disassembly/assembly activities at Pantex, as well as components from production sites across the complex; assuming availability of necessary assets, SNL will ensure that the necessary tests and evaluations are planned and conducted. SNL will ensure that the data developed from these activities, as well as that developed from other activities completed in support of strengthening the technical basis, are appropriately documented and is available as appropriate for consideration in Annual Assessment activities.

Level 3 Milestones/Grading Criteria:

Description
1. Analyze technical data obtained from System Flight Tests (SFTs) and System Lab Tests (SLTs) for indications of aging and/or performance degradation.
2. Perform Component and Material Evaluation (CME) on <i>B83 Bomb Electrical System (BES) components</i> and quantify margins and uncertainties on selected parameters of interest. – revised criteria negotiated between T. Uhlman (NNSA) and M. Devay (SNL) in January 2009.
3. Provide design information necessary for ASC to develop a system level B83 models.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Provide NA-121.31 with a high-level summary of the activities that were performed including a list of completed supporting reports.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities to support development of the Annual Assessment Report. The Sandia Laboratory Director has the final responsibility for issuing the Annual Assessment Letter.

Risk Identification and Mitigation Strategies: Principle risk is that adequate assets and resources are not available to conduct these activities; this could result in a determination that SNL cannot provide an assessment of the system. To mitigate this risk, SNL is actively working with NNSA, the PAs, component engineers, statisticians and reliability folks to determine component availability, pedigree, and test capability and the related insights into the performance, margin, uncertainty, and reliability. This risk is further managed through budget prioritization processes,

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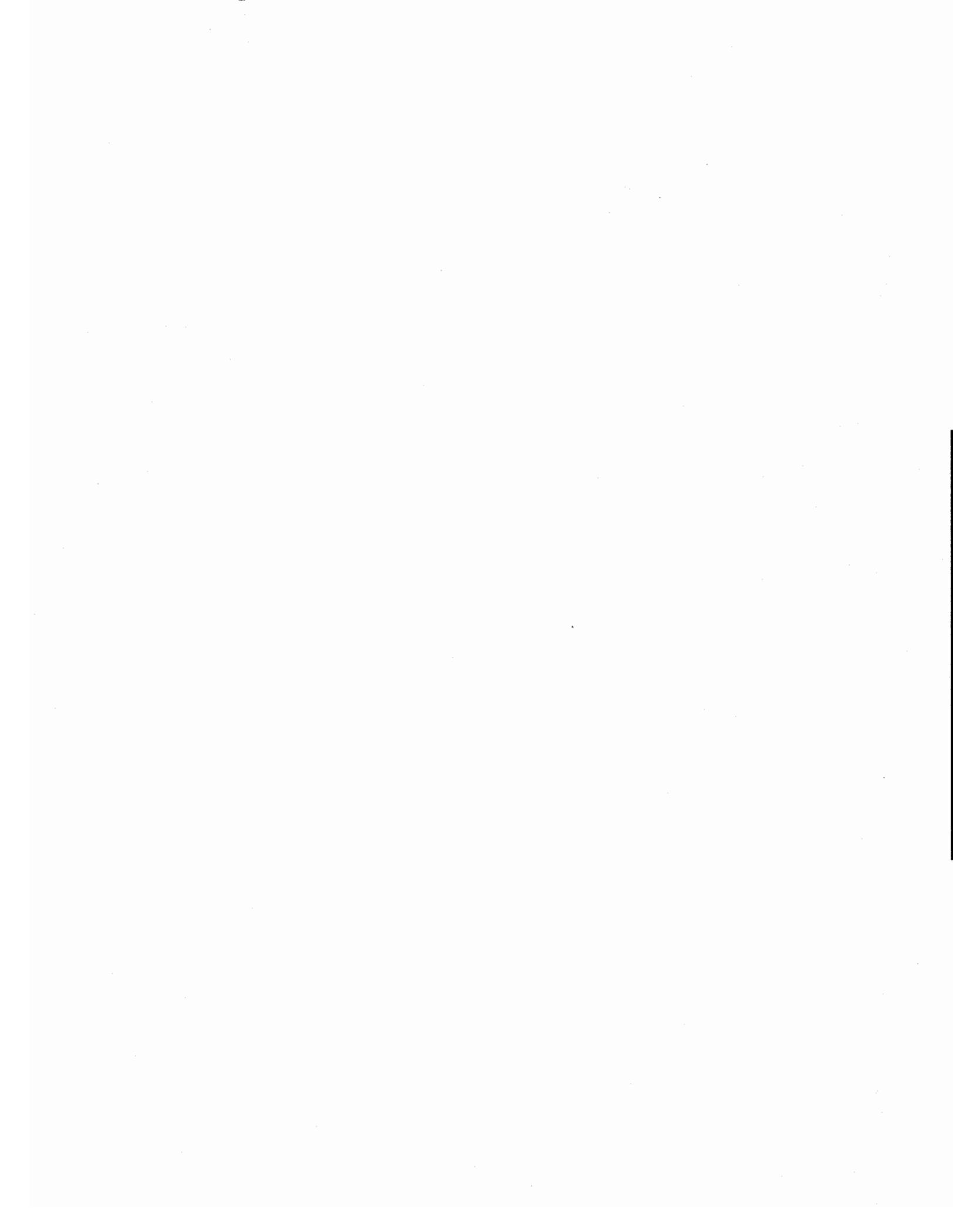
independent assessment processes that provide feedback to the systems regarding the adequacy of evaluation data, and sharing of data across systems for like components.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov

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Level 2 Milestone (MRT 3175): Issue the Annual Assessment Report and Director's Annual Assessment Letter for the W87.

Due Date: September 2009

Activity Description: This is the NA-121 W87 Level 2 milestone for any FY 2009 activities necessary to issue the Annual Assessment Report and Director's Annual Assessment letter; note that this work is funded at Sandia by NA-122. SNL will ensure coordination on the final LLNL version of the Annual Assessment Report and issue SNL Director's letter consistent with the schedule directed by NA-10. Below is a list of the key activities that support completion of this milestone.

Level 3 Milestones/Grading Criteria:

Description
Submit "Lab," "POG," and "Final" versions of the W87 AAR and prepare/brief the W87 AAR at the SAGSAT review in accordance with cycle 14 instructions, which will be published in January 2009.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Issue the AAR and the Director's Annual Assessment Letter for the W87.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities to support development of the Annual Assessment Report. The Sandia Laboratory Director has the final responsibility for issuing the Annual Assessment Letter.

Component/Interface	Deliverable	Date
ENG - ESC (C8)	Component and materials status updates to support AAR	Feb 2009

Risk Identification and Mitigation Strategies: Principle risk is that there is insufficient information to support the Annual Assessment Report and continued confidence in the nuclear safety and reliability of the stockpile.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



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DSW R&D PIP
Appendix C – SNL Activity Descriptions

Revision 3
September 10, 2009

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov

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Level 2 Milestone (MRT 3180): Issue the Annual Assessment Report and Director’s Annual Assessment Letter for the W62.

Due Date: September 2009

Activity Description: This is the NA-121 W62 Level 2 milestone for any FY 2009 activities necessary to issue the Annual Assessment Report and Director's Annual Assessment letter; note that this work is funded at Sandia by NA-122. SNL will ensure coordination on the final LLNL version of the Annual Assessment Report and issue SNL Director's letter consistent with the schedule directed by NA-10. Below is a list of the key activities that support completion of this milestone.

Level 3 Milestones/Grading Criteria:

Description
Submit "Lab," "POG" and "Final" versions of the W62 AAR and prepare/brief the W62 AAR at the SAGSAT review in accordance with cycle 14 instruction, which will be published in January 2009.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Issue the AAR and the Director’s Annual Assessment Letter for the W62.	September 2009

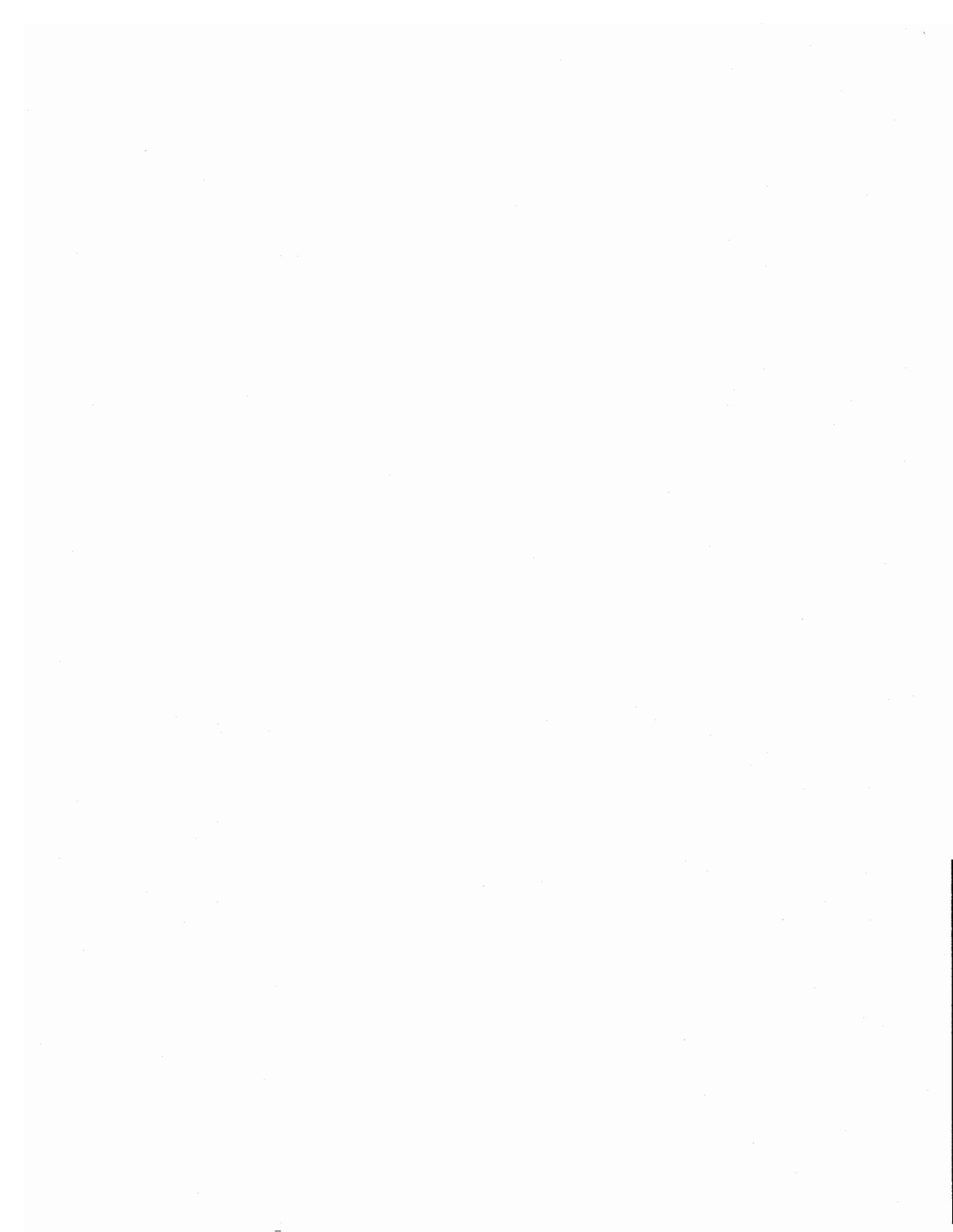
Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities to support development of the Annual Assessment Report. The Sandia Laboratory Director has the final responsibility for issuing the Annual Assessment Letter.

Risk Identification and Mitigation Strategies: Principle risk is that there is insufficient information to support the Annual Assessment Report and continued confidence in the nuclear safety and reliability of the stockpile.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



Level 2 Milestone (MRT 3181): Complete annual safety assessment for the W84.
Due Date: September 2009

Activity Description: This is the NA-121 W84 Level 2 milestone for any FY 2009 activities necessary to assess the safety of the W84 in its current status (note that this work is funded at Sandia by NA-122). SNL will ensure coordination on any report issued on this matter. Below is a list of the key activities that support completion of this milestone.

Level 3 Milestones/Grading Criteria:

Description
1. Provide system input to LLNL for the safety assessment of the W84.
2. Coordinate on any report issued with respect to the continued safety of the W84 in its current status.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Issue Annual Safety Assessment Report for the W84.	September 2009

Integration/Interfaces: Integration and interfacing are required with the physics labs, surveillance, nuclear safety, and component design communities.

Risk Identification and Mitigation Strategies: Principle risk is that there is insufficient information to support the safety assessment.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



Level 2 Milestone (MRT 3182): Submit Refurbishment Options Discussions and Tables for the FY 2010 Technical Basis for Stockpile Transformation Planning (TBSTP) Document.

Due Date: June 16, 2009

Activity Description: This activity supports NNSA's stockpile planning through collection of the LEO Drivers and Component Description Document (CDD) from the Design Agencies to provide NNSA the planning information necessary to support the system and component replacement programs to maintain a viable stockpile. The CDD describes which parts or assemblies are modified or manufactured for the LEO. The CDD also includes look-alike parts to help the production plants estimate the impacts and costs associated with each option.

Level 3 Milestones/Grading Criteria:

Description
1. Support the efforts to identify needed changes in content and format that may be required to support the expanded uses of the document.
2. Identify refurbishment options (ROs) in accordance with the scope of the TBSTP document, as developed and agreed by NA-121.3 and the design and production agencies.
3. Support TBSTP planning and technical meetings.
4. Submit for review and comment a draft of required input to the TBSTP document in accordance with the agreements between NA-121.3, NA-122.2, and the design and production agencies by May 15, 2009.
5. Support revisions to the FY 2008 document as required by publication of the Production and Planning Document (P&PD) for FY 2009.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Submit required input to the TBSTP document in accordance with the agreements between NA-121.3, NA-122.2, and the design and production agencies by June 16, 2009.	June 16, 2009

Integration/Interfaces: Sandia's Weapon Systems organizations own the source information that is used by the SNL SITS, NWSMU and DSW Program Offices to create the LEO and CDD documents. The systems groups will engage, as appropriate, with the DA component engineers, the NNSA, and the physics labs to identify subsystem and component replacements.

Risk Identification and Mitigation Strategies: It is expected that the direction provided by NNSA will be somewhat equivalent to the direction provided by NNSA in prior years thus the risk that Sandia will not provide/transmit draft LEO tables, consistent with NNSA direction is minimal.

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DSW R&D PIP
Appendix C – SNL Activity Descriptions

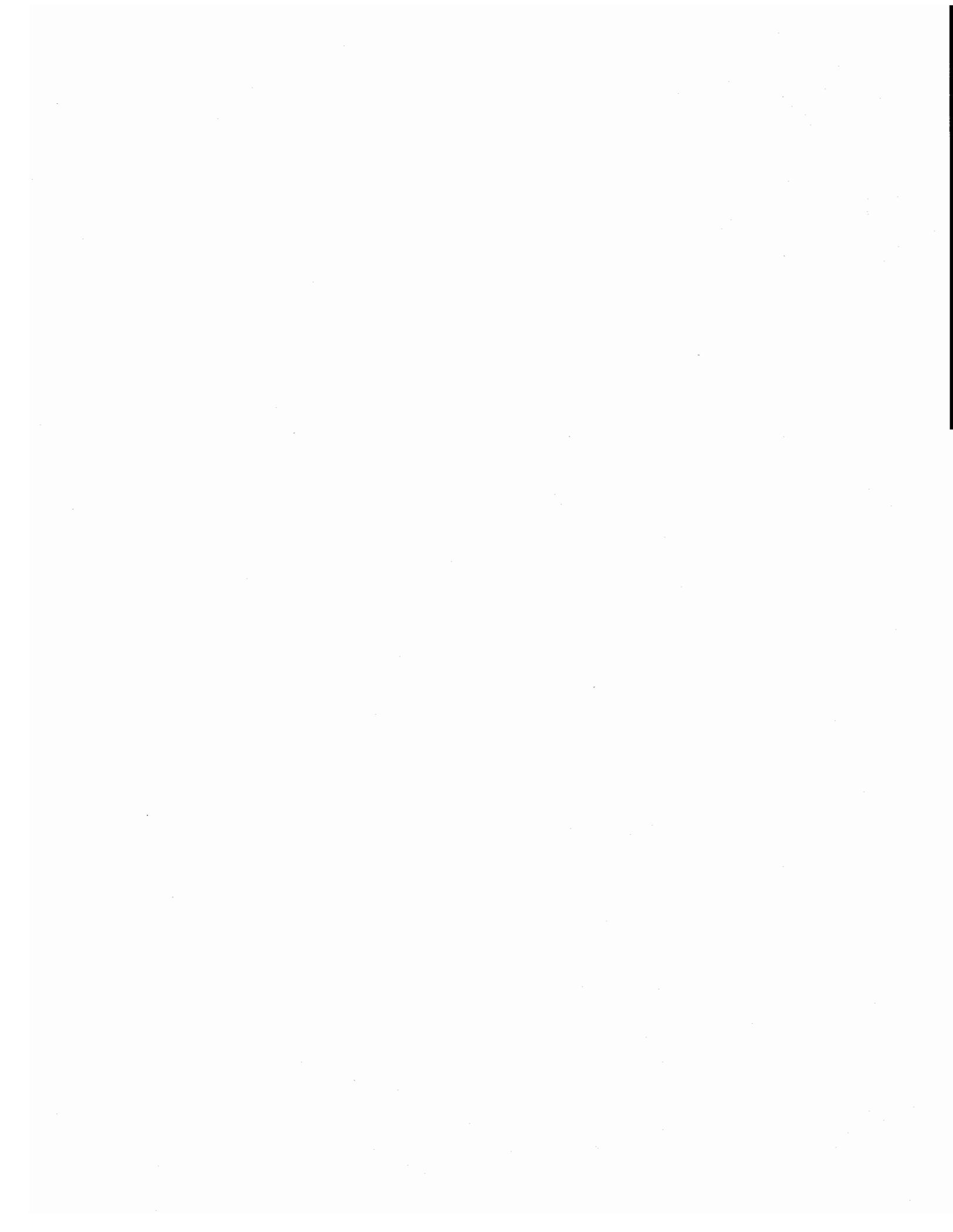
Revision 3
September 10, 2009

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov

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Risk Identification and Mitigation Strategies: The main risk is that elements of the work defined in the plan for FY09 may be down scoped or may not be performed due to lack of funding.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov

Level 2 Milestone (MRT 3184): Analyze, evaluate, assess, and closeout high priority SFIs IAW the currently approved baseline closure plans.

Due Date: September 2009

Activity Description: This is the NA-121 Level 2 milestone for FY 2008 activities to evaluate and closeout High Priority SFIs in accordance with the currently approved baseline closure plans. Activities conducted to meet this milestone will be documented in quarterly SFI reports. The intent of these efforts is to close out SFIs in accordance with the closure plan published in Quarterly SFI reports.

Level 3 Milestones/Grading Criteria:

Description
1. Provide SFI Opening Reports.
2. Provide SFI Update Reports as appropriate.
3. Prepare and submit closure plan for high-priority SFIs that have been designated as high-priority for more than 12 months.
4. Obtain approval for high-priority closure plans.
5. Submit requests for extension and notify NNSA of changes to closure plans as changes occur.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Provide Closeout Reports for high priority SFIs documenting the analyses and assessments in accordance with the approved baseline closure plans.	September 2009

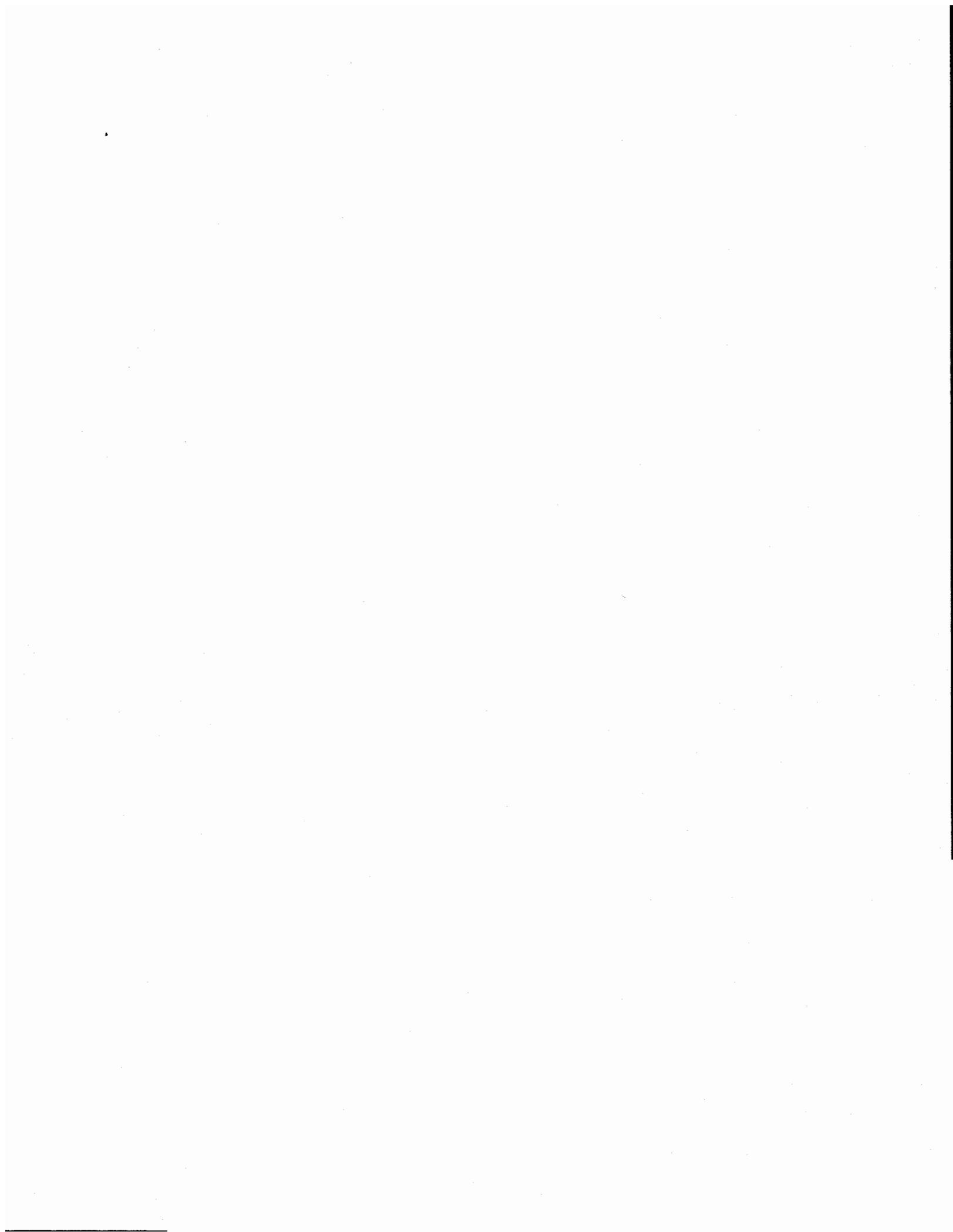
Integration/Interfaces: Integration and interfacing are required with the physics labs, reliability and nuclear safety assessment, weapon evaluation, military liaison, nuclear safety, and component design communities, as well as with Pantex and the production sites to support evaluation and assessment activities.

Risk Identification and Mitigation Strategies: Principle risk is that assets and resources are not available to conduct SFI evaluation activities in a timely and conclusive manner. This risk is managed through maintenance of a core team of knowledgeable scientists and engineers and test capabilities; however, management of this risk also requires the ability to reprioritize other work within the complex that is dependent on the same resources needed to pursue SFI resolution.

Points of Contact:

Primary: Gary Sanders, Program Director, 505-844-6675, gasande@sandia.gov

Secondary: Doug Mangum, Deputy Prog. Director, 505-844-5283, jdmangu@sandia.gov



Level 2 Milestone (MRT 3192): Implement Neutron Generator Modeling & Simulation (M&S) Plan.

Due Date: September 2009

Activity Description: We will continue to mature the Aleph 3D neutron tube performance model, starting to exercise the code for realistic problems and geometries.

Level 3 Milestones/Grading Criteria:

Description
1. Working with our partners in the M&S organizations & ASC, demonstrate the first use of the Aleph code in its current state to model the effect of a tolerance change on the performance of a neutron tube.
2. Implement a prototype standard work to govern conduct of M&S work in support of Center 2700 portfolio, including evaluation of results and a “do/simulate” analysis analogous to a “make/buy” analysis.
3. Review the annual portfolio to identify missed opportunities for M&S.

Level 3 Milestones/Exit Criteria:

Description	Due Date
1. Report on Aleph simulation results, including implications for manufacturing tolerances, documented, and available to NA-121.3 through SNL WebFileShare.	September 2009
2. Document describing prototype standard work for M&S, available to NA-121.3 through SNL WebFileShare.	

Integration/Interfaces:

This project interfaces with the ASC program. This project also interfaces with the production support activities to provide additional customer pull for the capability being developed.

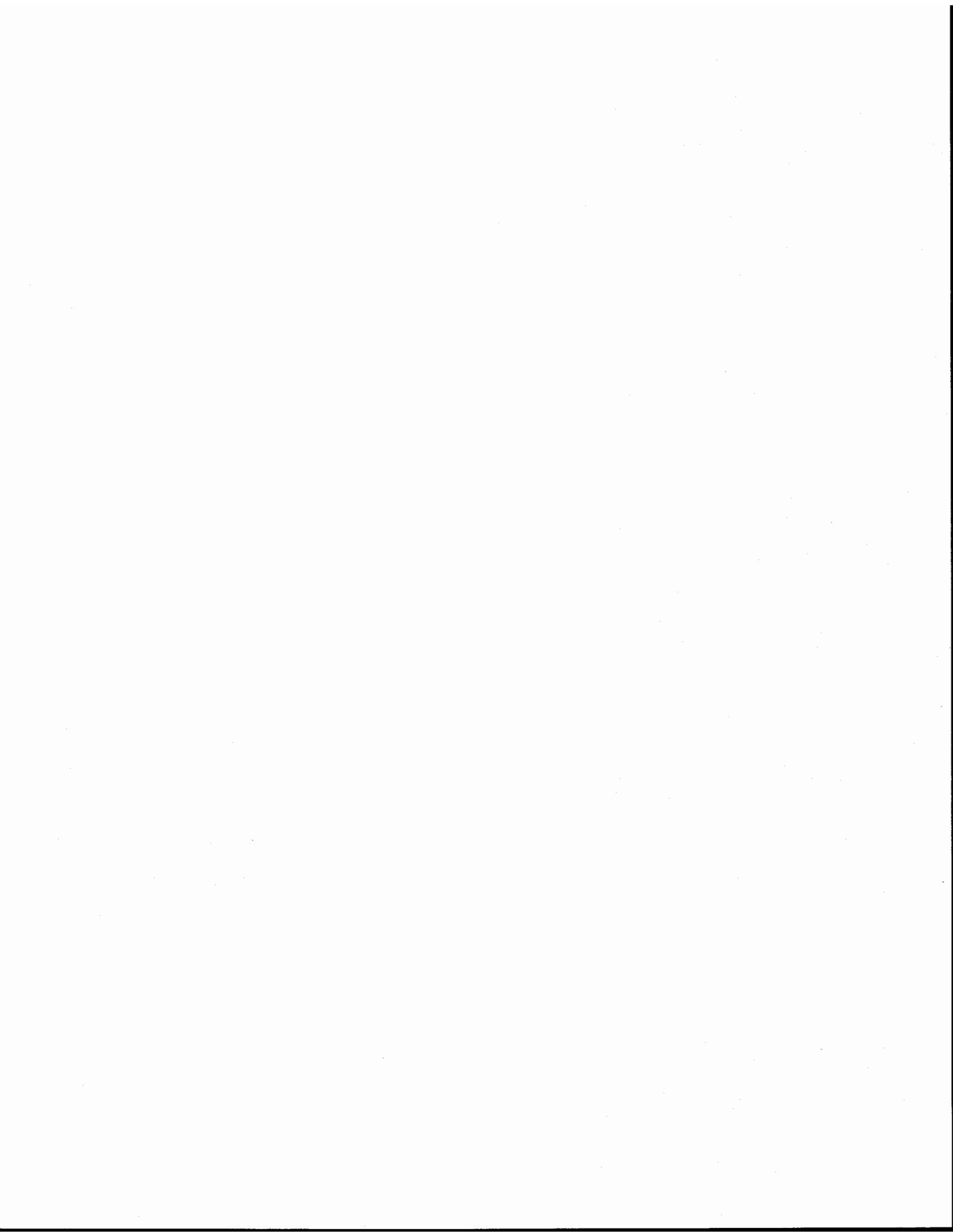
Risk Identification and Mitigation Strategies:

This project could fail if resources are unavailable to assist with the meshing activities and operation of the code. If resources are not available, this milestone will need to be renegotiated.

Points of Contact:

Primary: Corey Knapp, Program Director, 925-294-2083, clknapp@sandia.gov

Secondary: Brett Remund, Deputy Prog. Director, 505-844-1767, blremun@sandia.gov



Level 2 Milestone (MRT 3193): Complete development of a miniaturized Data Acquisition System (MicroDAS) to TRL-6 for Joint Test Assembly (JTA) applications.

Due Date: September 2009

Activity Description: The MicroDAS design will be updated and tested functionally and environmentally in order to demonstrate a Technology Readiness Level of 6. Design and evaluation data will be recorded into WebFileshare.

Level 3 Milestones/Grading Criteria:

Description
1. Evaluate Prototype functional test results.
2. Test Unit build and check-out complete.
3. Environmental Testing completed.
4. Complete Development Report and release docs/dwgs into Image.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Demonstrate the packaged MicroDAS unit in a lab environmental test chamber for functionality. Issue documentation of the results of the tests into WFS, and provide document to NA-121.3.	September 2009

Integration/Interfaces:

This project does not have any interfaces external to the SNL/CA telemetry organizations.

Risk Identification and Mitigation Strategies:

Risk: If a failure is experienced in qualification testing, there is no budget or schedule for the implementation of a recovery plan. Likelihood is low, impact is high.

Mitigation strategy: There is no mitigation strategy for this risk. A recovery plan can be drafted and proposed, with cost estimates, at the time of discovery.

Risk: If the environmental facilities are not available, due to priority conflicts, we will have to skip tests or delay to FY10. Likelihood is low, impact is high.

Mitigation strategy: We are preparing test plans and fixturing as early as possible in order to have the best information for optimizing our test schedule. We are working with SNL/CA and SNL/NM labs to find best mesh of testing schedules. We will have to confront priority issues as they appear.

Points of Contact:

Primary: Corey Knapp, Program Director, 925-294-2083, clknapp@sandia.gov

Secondary: Brett Remund, Deputy Prog. Director, 505-844-1767, blremun@sandia.gov



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Level 2 Milestone (MRT 3194): Achieve TRL 4 for the multi-program Electronic Neutron Generator (ELNG) capability maturation project for the B61/B83.

Due Date: September 2009

Activity Description: B83 and B61 systems are driving the ELNG PRT to carry dual options; Drop-In Replacement option for the B83 LLCE and the Small ELNG option for the B61 LEP. The focus in FY09 is to mature the Drop-In Replacement option as required to support a B83 ELNG FPU of no later than Jan 2014 while providing a feasibility assessment on the Small ELNG option in support of the B61 Phase 6.2/2A study.

Level 3 Milestones/Grading Criteria:

Description
1. Compile data to demonstrate TRL 4 for the low risk option.
2. Complete circuit model for power supply and timer.
3. Develop a higher fidelity shock and materials models with predictive capability at subcompact level.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Summary report documenting evidence that low risk ELNG performance meets TRL 4 criteria. Documented and available to NA-121.3 through SNL WebFileShare.	September 2009

Integration/Interfaces: The programmatic interfaces include the B83 LLCE, B61 LEP and Readiness Campaign.

Risk Identification and Mitigation Strategies: If the TRL 4 (key elements demonstrated in a lab environment) is demonstrated without thorough understanding of system integration issues, then we are at risk of encountering significant rework in achieving TRL 5 and beyond. Risk mitigation includes design characterization, tube interface characterization and circuit modeling.

Points of Contact:

Primary: Corey Knapp, Program Director, 925-294-2083, clknapp@sandia.gov

Secondary: Brett Remund, Deputy Prog. Director, 505-844-1767, blremun@sandia.gov

Level 2 Milestone (MRT 3195): Develop a plan to replace current neutron generator in W87/Mk21 Warhead with Small Ferro-Electric Neutron Generator (SFENG) in support of a March 2012 FPU.

Due Date: September 2009

Activity Description: This milestone includes activities for FY09 that support delivering a Small Ferroelectric Neutron Generator supporting the W87 Limited Life Component Exchange requirements.

Level 3 Milestones/Grading Criteria:

Description
<ol style="list-style-type: none"> 1. Formation of a Project Team by March 31, 2009. 2. Finalize Project Plan with NNSA to include revised cost, scope, and schedule by July 31, 2009. This plan will incorporate Phase Gates at a level negotiated between Sandia and NNSA by April 30, 2009. 3. Accomplish the following critical path activities by September 30, 2009, to include explosive component redesign and hostile environment assessment for W87 requirements. <ol style="list-style-type: none"> a. Analyze 1D Worst Case Assumed Path (WCAP) dose for x-ray to estimate the magnitude of thermal-mechanical responses, except for neutron tube. b. Release the RFQ for the CL-20 based detonator. c. Based on 1-D WCAP, calculate and summarize the thermal-mechanical responses including preliminary margins and uncertainties where material properties are available, excluding the neutron tube. d. Procure the lot of prototype timer/drivers. e. Complete combined NG and W87 neutronics models.

Level 3 Milestones/Exit Criteria:

Description	Due Date
1. Summarize the completion of critical path activities in a memo to NNSA by September 30, 2009.	September 2009
2. Document the Project Plan, and present the plan to the SFENG Project Team and W87 Program Team by July 31, 2009.	

Integration/Interfaces: Deliverables depend upon Ensign Bickford delivering timer/drivers. We are counting on funding from the readiness campaign to better characterize the production processing for CL-20, ASC campaign for appropriate material model for active braze for the neutron tube, maintenance of the NuGET code, and C7 for materials properties of braze material.



Risk Identification and Mitigation Strategies: There is risk in the restart of explosive operations (time and resources required to resume operations after the explosive standdown) and many tasks have been downscoped to meet the budget constraints for the year. There is a risk that we will not be able to complete the environmental conditioning, testing, and analysis of the next lot of baseline configuration FENGs this fiscal year. There will be delays in the timer design portion, design support, and a portion of the CI-20 based, detonator design activities.

Points of Contact:

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Level 2 Milestone (MRT 3196): Apply the Common Adaptable System Architecture (CASA) to an air delivered system architecture.

Due Date: September 2009

Activity Description: The CASA team will derive type-specific (second-tier) functional architectures for the Air-delivered System Transformation (AST) (or B61 LEP) and the Reentry Systems Transformation (RST) projects from the Super Functional Architecture developed in FY08. This possible specific functional architecture applies a specific set of requirements, constraints, and trades to result in a functional representation.

Level 3 Milestones/Grading Criteria:

Description
1. Consistent with the FY09 air delivered system development objectives, assess the requirements and design space for compatibility with CASA features and principles.
2. Create a conceptual plan consistent with the system development objectives for how CASA would be applied to the air delivered system.

Level 3 Milestones/Exit Criteria:

Description	Due Date
1. Document the results of the conceptual plan in a presentation to be stored in WFS, and provide document to NA-121.3.	September 2009

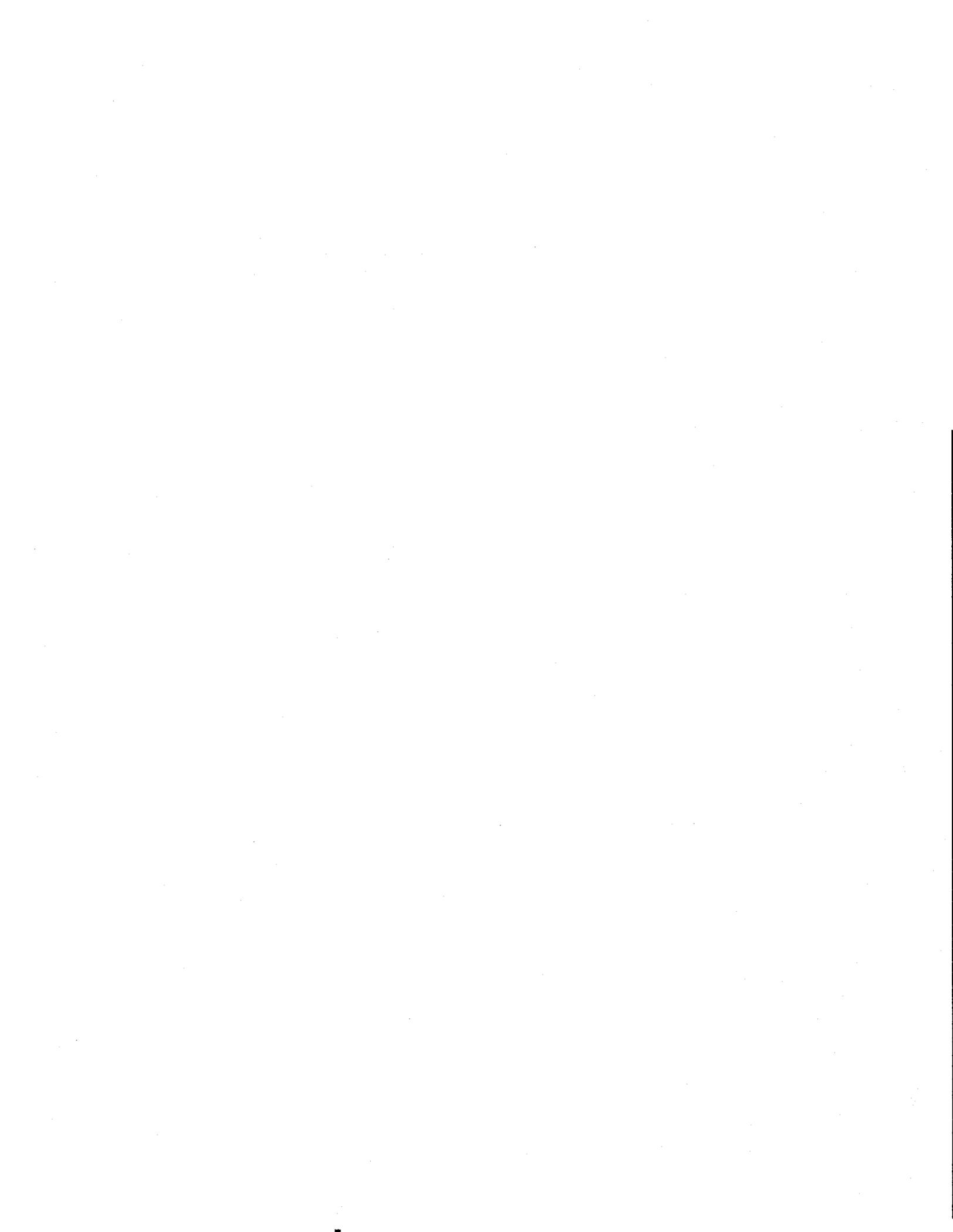
Integration/Interfaces: None external to Sandia.

Risk Identification and Mitigation Strategies: The primary risk is parallel derivation of the type specific architecture with the constraints of the fast moving air delivered system. This risk is mitigated by the integration of CASA team members into the air delivered transformation Product Realization Team which enables them to stay up to date as the project develops.

Points of Contact:

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Level 2 Milestone (MRT 3197): Establish a Technology Maturation Demonstration Project to sustain Systems Engineering capabilities and to focus component technology maturation culminating in technology demonstration vehicles in the future.

Due Date: September 2009

Activity Description: The Technology Maturation Vehicle activities exercise key weapon engineering disciplines to develop technologies and subsystems in realistic system environments, as well as exercising systems engineering skills to ensure their viability in the absence of nuclear weapon system development. The two genetic families of nuclear weapons (Air Delivered and Reentry Systems) represent the broadest set of design requirements, environments and system constraints. Tools and processes required for nuclear weapon development are applied to improve the ability to rapidly respond to changing national defense requirements. Critical core product skills and technologies are also matured to reduce risk associated with insertion of these core products into current or future systems.

Level 3 Milestones/Grading Criteria:

Description
1. Identify requirements and assemble a conceptual Technology Maturation Vehicle design and document in WebFile Share (WFS).
2. Complete Flight/Ground test planning and document in WFS.
3. Conduct preliminary design review of the demonstration vehicle.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Provide summary of design review to NNSA NA-121.3 and document in WFS.	September 2009

Integration/Interfaces: Major interfaces include engaging the Campaigns for modeling and simulation communities support, as well as potentially engaging DoD for flight demonstration platforms.

Risk Identification and Mitigation Strategies: The initial focus of this milestone is on an air delivered technology maturation platform, and the final decision to move forward is dependent upon whether or not the B61 refurbishment is a full non-nuclear LEP. If it is a full LEP, then this air delivered activity will not be needed. Mitigation: switch the milestone to a reentry system tech maturation vehicle.

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Level 2 Milestone (MRT 3198): Institute a portfolio of key CASA non-nuclear component technologies supporting future stockpile development readiness and the Common Adaptable System Architecture objectives and guide the maturation to ensure readiness for insertion opportunities in the future.

Due Date: September 2009

Activity Description: In FY08, Radio Frequency Integrated Circuit (RFIC) based Receiver (Rx) and Transmitter (Tx) Low-temperature Co-fired Ceramic (LTCC) modules were designed and individually tested for their RF performance. In FY09, the Group 1 Rx and Tx modules will be integrated together to form a Radar evaluation subsystem. Sandia will acquire complete Radar performance measurements of this hardware utilizing an S-Band RF delay chassis along with a PC for performing timing and control and digital signal processing (DSP). The digital signal processing architecture being designed is flexible enough to support multiple programs, with the B61 LEP as first user.

Level 3 Milestones/Grading Criteria:

Description
Complete a radar laboratory evaluation of Radio Frequency Integrated Circuit (RFIC) based MCM transmitter and receiver modules incorporation a new high power amplifier and advanced digital signal processing.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Document laboratory evaluation of RFIC based MCM transmitter and issue document into WFS and distribute to NA121.3.	September 2009

Integration/Interfaces: The current interfaces for this project are within Sandia for the design activities and with Honeywell FM&T for fabrication. The RFIC and Radar development teams are mainly in Org 5300 with Component Engineering support in Org. 1700 for the development and testing of RFICs. Org. 2400 provides expertise in the area of packaging. The Kansas City Plant has responsibility for fabricating the LTCCs and assembling the Multi-chip Modules (MCMs).

Risk Identification and Mitigation Strategies: The hardware fabrication for these activities is heavily leveraged with advanced manufacturing development funding at KCP. Future success in this area requires the continuation of these activities. Ongoing coordination and joint campaign proposals continue to be the mitigation strategy.

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Level 2 Milestone (MRT 3200): Develop and Qualify Common Host and Field Processor Software for the Code Management System (CMS).

Due Date: August 2009

Activity Description: This work combines multiple versions of the CMS Host Processor software into one set of Host Processor software that can be used by multiple users and combines multiple versions of the Field Processor (FP) software into one set of FP software that can be used by multiple users. This upgrade reduces software maintenance costs and improves performance by including additional functionality requested by the users.

Level 3 Milestones/Grading Criteria:

Description
1. Revise functional requirements to enhance testability of requirements.
2. Design and code software elements that will allow a common set of software (Host and Field Processor) to all users.
3. Test revised software against revised functional requirements.
4. Update documentation.

Level 3 Milestones/Exit Criteria:

Description	Due Date
Release a Qualification Evaluation Release (QER) for the Host and Field Processor Software.	August 2009

Integration/Interfaces: This project requires integration and interfacing with various organizations at Sandia (Use Control Systems, Surety Technologies, Military Liaison, WETL, and Quality), other organizations within NNSA (Pantex), and the Department of Defense (NWC, DTRA, EUCOM, STRATCOM, NSA).

Risk Identification and Mitigation Strategies: The primary risk is an unforeseen problem arising during product testing or integration testing. The mitigation strategy is to perform comprehensive unit testing prior to the product and integration tests.

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