



Conduct of Engineering Request for Variance or Alternate Method

To display the *VAR Request Metadata* pane for this document, click **File > Info > Properties > Show Document Panel.**

1.0 General

1.1 Document Number: VAR-10149	1.2 Revision: 0				
1.3 Brief Descriptive Title: Short circuit calculation method in ESM					
1.4 Affected Program: Engineering Standards	1.5 Request Type: Alternate Method				
1.6a Affected Tech Area 99	1.6b Affected Buildings Sitewide				
1.7 Requestor: Stromberg, Eric R Organization: ES-EPD					
1.8 Revision History					
<table border="1"> <thead> <tr> <th>Revision Number</th> <th>Changes and Comments</th> </tr> </thead> <tbody> <tr> <td>Rev. 0</td> <td>Initial Issue</td> </tr> </tbody> </table>		Revision Number	Changes and Comments	Rev. 0	Initial Issue
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Rev. 0	Initial Issue				

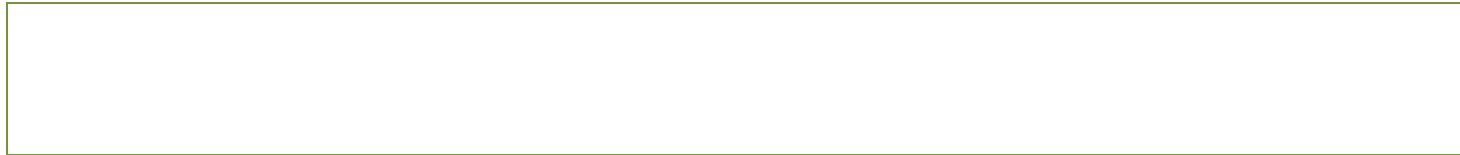
2.0 Affected Conduct of Engineering Program/Documents

2.1 Affected "P" Document: P342 Engineering Standards	2.2 Subordinate or related document(s) [AP, master spec, LANL ESM chapter & section; or code, Order, standard, etc.]: Document Title/No.: STD-342-100 Chapter 7 Electrical D5000 Revision Rev. 7, 9/29/14
If against the P document itself, revision (or N/A): N/A	
2.3 Section/Paragraph: 4.2 Calculations C fault current calculations 2. Low voltage systems	
2.4 Specific Requirement(s) as Written in the Document(s): C. Perform fault current calculations using procedures outlined in IEEE Std 141™ and IEEE Std 242™	
2. For low voltage systems:	
<ul style="list-style-type: none"> • For low-voltage equipment selections, base fault current calculations on an infinite bus medium-voltage utility source. • For coordination studies and arc flash hazard calculations, base fault current calculations on actual utility system fault duty information obtained from the LANL electrical utility distribution engineer. 	
2.5 Contractual, preference, or other basis for requirement: Preference	

2.6 Type of VAR from ESM Chap 1, Z10 [<i>Applies only to standards variances</i>] Type 2	2.7 Discipline Electrical

3.0 Request Information & Comments

3.1 NCR required (work has occurred)? No If Yes, NCR Number: Enter text.		
3.2 System/Component Affected OpSystem Acronym & Name [Select OpSysAcronymAndName] System Number or Name [Select SystemNumberOrName]	3.3 Highest ML Level ML-4	
3.4 Proposal with Justification/Compensatory Measures: Use the actual fault current that is available from the utility, instead of using the infinite bus assumption. Currently, two calculations are required: an infinite bus calculation which gives very conservative fault current numbers for the selection of equipment; and a calculation using actual utility contribution, for the arc flash incident energy calculations. Infinite bus was a very convenient, and very conservative, method to ensure that equipment would be able to withstand the theoretical maximum fault that could occur. Because the arc flash calculations require the actual utility contribution, these values have now become available and it makes engineering sense to use the actual instead of a theoretical maximum.		
3.5 Attachments Document Title or Description Enter text...		
3.6a Project ID [ProjectIdentifier]	3.6b: Project Name Click here to enter text.	
3.7 Duration: Lifetime	3.8a Finite Period Start Date: Click to enter a date.	3.8b End Date: Click to enter a date
3.8c When finite life, provide the PFITS number for tracking removal/correction: [PFITSNum]		
3.9 USQD/USID required (Nuclear, High/Mod Hazard)? Choose an item. If Yes, USQD/USID Number Click here to enter text.		
3.10 QA Review for process change matters potentially affecting LANL's NQA-1 implementation Is a QPA Determination required?: Choose an item. If Yes , then: Choose an item. QPA Comments: Enter text..		
3.11 POC Determination: Accept POC Comments: Enter text..		
3.12 Management Program Owner's (SMPO) Approval for P341 and APs; P342, ESM, ML-1 and -2, and Contract Matters; and P343 SMPO Determination: Accept Comments: Enter text..		



4.0 Participant Signatures **NOTE:** DO NOT ADD NAMES FROM WITHIN WORD! Save and close the form first, then do 1-4 below:

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- 2. In the small dialog click the **ellipsis** again
- 3. Click **Edit Properties** and check out the document if prompted to Enter names using the controls provided, then **Save**

4.1 POC (Management Program Owner's Representative): Stromberg, Eric R	Organization ES-EPD	Signature
4.2 Facility Design Authority Representative [FDARName] FDAR signature not required <input checked="" type="checkbox"/>	Organization Enter text..	Signature
4.3 LANL Owning Manager (FOD or R&D/Program) [FODorPrgmMgrName] FOD or Program Manager signature not required <input checked="" type="checkbox"/>	Organization Enter text..	Signature
4.4 Quality Reviewer's Name: [QPAName] QPA review/signature not required <input checked="" type="checkbox"/>	Organization Enter text.	Signature
4.5 Safety or Security Management Program Owner's Approval for P341 and APs; P342, ESM and Contract Matters; and P343 Goen, Lawrence Kenneth SMPO signature not required (Type 1 variance) <input type="checkbox"/>	Organization ES-DO	Signature

<p>4.6 Additional Signer 1</p> <p>[AdditionalSigner1]</p> <p>Role: Enter text.</p>	<p>Organization</p> <p>Enter text.</p>	<p>Signature</p>
<p>4.7 Additional Signer 2</p> <p>[AdditionalSigner2]</p> <p>Role: Enter text.</p>	<p>Organization</p> <p>Enter text.</p>	<p>Signature</p>

<p>4.8 CoE Administrator Signature</p> <p>Salazar-Barnes, Christina L</p> <p>NOTE: The CoE Admin is always the last signature placed on this document. The date of that signing is the date of this document.</p>	<p>Signature</p>
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