



Conduct of Engineering Request for Variance or Alternate Method

Assigned by SMPO or SMPOR: [] Alternate Method [X] Variance

Tracking number : VAR- 2011-081

1.0 Affected Document(s)

Form with checkboxes for Engineering Processes, Standards, and Training, and fields for Subordinate document title and revision.

Section/Para NA

Specific Requirement(s) as Written in the Document(s) NA- New information is to be added to the ESM chapter 8 pending a full modification to the ESM

2.0 Request

Brief descriptive title: Limitation of BAS control venders used at LANL

NCR required (work has occurred)? [] Yes [X] No If Yes, NCR Number

TA-Bldg-(Room) and/or Project Affected Site wide System/Component Affected Building Automation Systems

Proposal Currently the LANL standard specification, 25-5000, allows for two building automation systems (BAS) to be used at LANL. This proposal moves this requirement of a limited number of BAS venders to the ESM Chapter 8 requirements and adds one vender to the approved list for specialty applications.

The ESM, chapter 8, Section 5.0 shall effectively be modified by this variance to included the following:

D. Building Automation Systems installed at LANL shall be one of the following control systems:

- 1. Automated Logic Controls, Atlanta , GA
2. Alerton Controls, Redmond, WA

And with specific critical operational needs, as approved in writing by the ESM, chapter 8 POC, the following control system may also be used:

- 3. Allen Bradley Controls, by Rockwell Automation, Milwaukee, WI

Exceptions:

- 1. Facilities with significant BAS systems not conforming to the above standard control system selection may repair, upgrade or expand the existing control system if the following are met:
a. The existing control system currently controls at least 50% of the facility floor space
b. The existing control system is not at its end of life expectancy (it must be currently supported by the vender)
c. Support for servicing of the control system is provided by the facility owner separate from institutional BAS support.
d. The expansion of the existing control system is limited to the facility it is currently installed in.
e. Upgrades are limited to no more than 20% of the existing system hardware point count.

- f. Expansions can incorporate any number of points, but are limited to the facility the non-conforming control system is installed in.
 - g. Written prior approval in the form of a variance is approved by the ESM, Chapter 8 POC.
2. Specific justification provided in the form of a variance request, is submitted and approved by the LANL Chief Engineer and the ESM, Chapter 8 POC. This is considered a variance to the ESM.

Definitions (for purposes of this variance only):

Building Automation System (BAS): A control system that provides temperature control to normally occupied portions of a facility. This may include, but is not limited to: HVAC equipment, power metering equipment, lighting controls, ect. It does not included Safety Significant (ML-2) or Safety Class (ML-1) control systems.

Hardware Point Count: The total number of physical points connected to the system bay hardwired methods. These points are of the analog in, analog out, digital in and a digital out type.

Facility: A single building or structure typically assigned a building number (i.e. TA-3-1400).

Upgrades: Replacing existing, functional, equipment with newer equipment performing the same function.

Repairs: Replacing non-functional equipment with exact replacement parts from the same manufacturer.

Expansion: Adding new equipment to an existing system.

Justification/Compensatory Measures

BAS systems installed at LANL are currently made up of many different and diverse BAS control systems. Although the standard 25-5000 specifications has indicated the requirements for control systems, this had been routinely edited out or ignored resulting in numerous control systems of all type being installed at LANL facilities.

Moving this requirement to the ESM will help emphasize and enforce the need for standardized BAS control systems at LANL. This in turn will help LANL in the following ways:

1. Reduce the amount of training needed for building operators, craft, and engineering as well as building occupants.
2. Help to ensure LANL can meet its DOE mandate to save energy lab wide by assuring consistent application of energy saving control techniques and sequences.
3. Reduce damage to facilities from extreme weather events caused by unmaintainable non-conforming control systems
4. Assure that on-site technical support is available at all times for support of control systems.
5. Reduce the number of unique control systems located on the LANL internal computer networks, thus reducing potential cyber security issues and minimizing support required to support the networks.
6. Reduce the number of BAS servers and software licenses that must be maintained.
7. Ensure that engineering designs and controller databases can be affectively maintained for all BAS systems site wide.
8. Reduce the number and type of BAS spare parts that must be maintained by LANL as critical spares.
9. Reduction of engineering design cost by implementing in common control system implementation.

Duration of Request:		Start Date: Date Approved		End Date:	<input checked="" type="checkbox"/> Lifetime
Requestor Allen Hayward		Z Number 206979	Organization ES-DE	Signature <i>Signature on File</i>	Date 7-6-11
USQD/USID required (Nucl. High/Mod Hazard)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			If Yes, USQD/USID Number		
Design Authority Representative Daniel Steinberg		Z Number 219039	Organization ES-DO	Signature <i>Signature on File</i>	Date 7-6-11
LANL Owing Manager (FOD or Programmatic) NA - Labwide		Z Number	Organization	Signature	Date

3.0 Safety Management Program Owner (SMPO) Representative (SMPOR/POC)

Decline Accept Accept Labwide with Modification:

POC Allen Hayward	Z Number 206979	Signature <i>Signature on File</i>	Date 7-6-11
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4.0 Additional Approval for P341 and APs; P342, ESM, Code, and Regulation Matters; and P343

Accepted Accepted with comments Declined

Comments:

Safety or Security Management Program Owner
Daniel Steinberg

Z Number
219039

Signature
Signature on File

Date
7-6-11