

ARCHIVE: Doc#2015-149B, Amendment by Board Member Daniel J. Santos
to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP

Justification:

To clarify aspects of the technical report. Specifically, this amendment:

- 1) clarifies that the design philosophy described in the technical report is based on the hierarchy of controls principles outline in DOE directives.
- 2) clarifies the intend of the design philosophy described in the technical report, as it may not be realistic to eliminate the pipeline plugging hazards.
- 3) clarifies flow conditions (i.e., "low flow" condition has been added) that may lead to plugging and subsequent pump explosions.

AFFIRMATION OF BOARD VOTING RECORD

SUBJECT: Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP

Doc Control#2015-149B

The Board, with Board Member(s) Joyce L. Connery, Jessie H. Roberson, Daniel J. Santos, *approving*, Board Member(s) Sean Sullivan *disapproving*, Board Member(s) Bruce Hamilton *abstaining*, and Board Member(s) none *recusing*, have voted to approve the above document on January 7, 2016.

The votes were recorded as:

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIPATING*	COMMENT	DATE
Joyce L. Connery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	01/07/16
Jessie H. Roberson	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	01/07/16
Sean Sullivan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	01/07/16
Daniel J. Santos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	01/07/16
Bruce Hamilton	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	01/07/16

*Reason for Not Participating:

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Board Members.



Executive Secretary to the Board

Attachments:

- 1. Voting Summary
- 2. Board Member Vote Sheets

cc: Board Members
OGC
OGM Records Officer
OTD

DEFENSE NUCLEAR FACILITIES SAFETY BOARD
NOTATIONAL VOTE RESPONSE SHEET

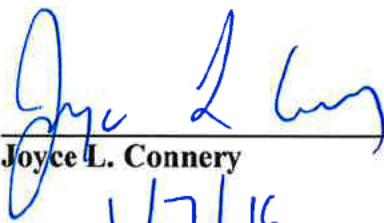
FROM: Joyce L. Connery

SUBJECT: Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP

Doc Control#2015-149B

Approved Disapproved Abstain
Recusal – Not Participating

COMMENTS: Below Attached None



Joyce L. Connery
1/7/16

Date

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

NOTATIONAL VOTE RESPONSE SHEET


FROM: Jessie H. Roberson

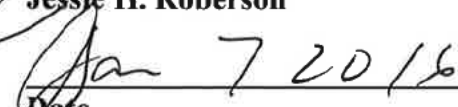
SUBJECT: Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP

Doc Control#2015-149B

Approved Disapproved _____ Abstain _____
Recusal - Not Participating _____

COMMENTS: Below _____ Attached _____ None



Jessie H. Roberson


Date

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

NOTATIONAL VOTE RESPONSE SHEET

FROM: Sean Sullivan

SUBJECT: Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP

Doc Control#2015-149B

Approved _____ Disapproved X Abstain _____

Recusal – Not Participating _____

COMMENTS: Below X Attached _____ None _____

The amendment would make worse a staff report that I already find defective.

The staff report on plugging and wear of process piping at WTP, presented as a *technical* safety report, advises DOE to establish design criteria to eliminate the mere possibility of pipe plugging if feasible to do so, even though technically sound options exist using a combination of less stringent design flow criteria and hazard controls. The staff report provides no technical reason to support the preference stated. For sure, eliminating the mere possibility of plugging is safe, and might even be operationally desirable assuming the manner of obtaining sufficient flow doesn't produce offsetting consequences. But strictly as a nuclear safety matter, less stringent design flow criteria combined with adequate hazard controls appears to me to be a perfectly acceptable technical solution.

The amendment would revise the staff report to state that the suggested approach (design criteria eliminating the possibility of plugging) is "consistent with the hierarchy of controls principles outlined in DOE directives." However, DOE directives make no mention of this approach. Nothing in DOE directives even suggests that potential problems should be eliminated completely through design if it is technically feasible to do so. DOE directives only address the order of preference for the type of control selected once analysis reveals that a problem could exist. See DOE-STD-1189-2008, "Safety Design Guiding Principles" at page vii. See also DOE-STD-3009-2014, Section A.8.

The difference is significant. Suppose, for example, that designers were to determine that pipe plugging could be eliminated by placing a booster pump in series with a main pump in order to achieve sufficient turbulent flow. Such a design would be technically feasible. But by having two pumps instead of one it would double the probability of pump failure, thereby doubling that potential operational problem. Designers should weigh that approach against one that provides lower flow along with adequate controls to prevent hazards should the onset of plugging occur. Both approaches would be acceptable for nuclear safety, and the latter approach would be entirely consistent with DOE directives so long as the type of controls selected conformed to the

DOE preference guidelines. The determining factor between the two approaches might be cost, and not technical, considerations.

Thus the amendment revises a report – a report that unnecessarily and without technical justification advises design criteria completely eliminating the possibility of pipe plugging – and makes it worse by adding language implying that support for the approach can be found in DOE’s own directives. No such support exists.



Sean Sullivan

1/7/16

Date

Shelby Qualls

From: Daniel J. Santos
Sent: Thursday, January 07, 2016 11:47 AM
To: Shelby Qualls; Lotus Smith
Subject: Re: Notational Vote: Doc#2015-149B, Revised Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP - BLUE FOLDER

Approved without comments.

From: Shelby Qualls
Sent: Thursday, January 7, 2016 11:23 AM
To: Bruce Hamilton; Daniel J. Santos; Jessie Roberson; Joyce Connery; Sean Sullivan
Cc: Lotus Smith; Shelby Qualls; James Biggins
Subject: Notational Vote: Doc#2015-149B, Revised Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP - BLUE FOLDER

This email is an electronic record of Notational Vote. Voting ballot will follow shortly. Also, accepting electronic votes.

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD
NOTATIONAL VOTE RESPONSE SHEET**

FROM: Members of the Board
☐ **Revised Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP**

15-149B

ectors have provided their input.

red _____

Not Participating _____

NTS:

None _____

Shelby Qualls
Assistant Executive Secretary

DEFENSE NUCLEAR FACILITIES SAFETY BOARD
NOTATIONAL VOTE RESPONSE SHEET

FROM: Bruce Hamilton

SUBJECT: Amendment by Board Member Daniel J. Santos to YELLOW FOLDER Doc#2015-149, Tech Report - Plugging and Wear of Process Piping at WTP

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Approved _____ Disapproved _____ Abstain _____
Recusal - Not Participating _____

COMMENTS: Below _____ Attached _____ None _____

The changes do not appear to add substantial value to the letter, and I am concerned that the statement regarding "hierarchy of controls principles in DOE directives," may be imprecise. That said, the proposed changes do not invalidate the intent of the letter.


Bruce Hamilton

7 JAN 2015
Date