From: Hardin, Kimberly
Sent: Monday, May 17, 2010 2:31 PM
To: Soto, Soly
Subject: FW: ES-3100 Neutron Absorber Spacers

-----Original Message-----
From: Shuler, James [mailto:James.Shuler@em.doe.gov]
Sent: Thursday, October 15, 2009 4:22 PM
To: Hardin, Kimberly; Liu, Yung Y.; Bud Fabian; Feldman, Matthew R.
Cc: O'Connor, Stephen; Bennett, Marvin; Willaford, Dana M; Sampson, Michele; Einziger, Robert
Subject: RE: ES-3100 Neutron Absorber Spacers

M2E801580A026
If your SARP is like mine it is on Page 1-175.
The equipment specs are on page 1-87
The reference to the drawing and equipment spec is on page 3 of your CoC.
On page 1-22 of the SARP, go to 1.2.3.4 shipping configuration it states that the spacers are ss.
Your CoC does not reference the SARP.

Jim Shuler
Manager, DOE Packaging Certification Program

U.S. Department of Energy
Office of Packaging and Transportation
EM-45, CLOV-2047
1000 Independence Ave., SW
Washington, DC 20585
301-903-5513
301-903-9770 (fax)
James.Shuler@em.doe.gov
http://rampac.energy.doe

-----Original Message-----
From: Hardin, Kimberly [mailto:Kimberly.Hardin@nrc.gov]
Sent: Thursday, October 15, 2009 4:09 PM
To: Shuler, James; Liu, Yung Y.; Bud Fabian; Feldman, Matthew R.
Cc: O'Connor, Stephen; Bennett, Marvin; Willaford, Dana M; Sampson, Michele; Einziger, Robert
Subject: RE: ES-3100 Neutron Absorber Spacers

Jim,

Which drawing are you referring to regarding the specification of carbon steel? If you know it
would save me time looking it up. If the drawings call for carbon steel, it is a requirement and
stainless steel would not be authorized, regardless of what the SARP says.

Thanks,
Kim

From: Shuler, James [mailto:James.Shuler@em.doe.gov]

Sent: Thursday, October 15, 2009 11:28 AM
To: Liu, Yung Y.; Bud Fabian; Feldman, Matthew R.
Cc: O'Connor, Stephen; Bennett, Marvin; Willaford, Dana M; Hardin, Kimberly; Sampson,
Michele
Subject: FW: ES-3100 Neutron Absorber Spacers

This was just brought to my attention minutes ago by the e-mail traffic below concerning the
neutron absorber spacers rusting in the ES-3100 package.

It seems there are some questions concerning the ES-3100 that PCP need to investigate. I
believe the SARP states that these absorber cans should be stainless steel, not carbon steel.
However, the drawings call for carbon steel. This is an inconsistency in the SARP. I don't know
how that got by the previous reviewers. We need to take a look at this, since it is obviously a
problem for SRS and maybe others.

Let me be clear, I do not want a rusting problem with a packaging that PCP approves. Rust
tends to pick up and hold radioactive contamination that can flake off during handling potentially
spreading contamination.
I do not want rust in PCP approved containers.

Please keep me informed on this matter so that I can keep NRC apprised of the potential
problem. I am not sure if they have been notified by the Packaging Design Authority or not, or if
they are aware and do not see it as a problem.

Jim Shuler
Manager, DOE Packaging Certification Program

U.S. Department of Energy
Office of Packaging and Transportation
EM-45, CLOV-2047
1000 Independence Ave., SW
Washington, DC 20585
301-903-5513
301-903-9770 (fax)
James.Shuler@em.doe.gov<mailto:James.Shuler@em.doe.gov>
http://rampac.energy.doe

----- Forwarded by Erich Opperman/SRNS/Srs on 09/30/2009 02:47 PM -----
"Arbital, Jeffrey G
(AIJ)" <arbitaljg@y12.doe.gov>

09/30/2009 01:49 PM

To

"'erich.opperman@srs.gov'" <erich.opperman@srs.gov>

cc

Subject

RE: ES3100 Question

Erich,

Looks nasty. But for a more technical explanation.... the cans are carbon steel and the neutron absorber is a concrete-type matrix that is mixed with water and cast into the can while wet. The material is allowed to cure for one week and then the lid is placed on the can. The material has inherently entrained moisture, which is needed for neutron thermalization and capture. The moisture is starting to rust these carbon steel cans. We didn't anticipate this happening so fast, but we have designed a stainless steel can and will be replacing these carbon steel cans in the next FY. The "grease" appearance is moisture seeping through the rusted pin holes and mixing with the iron oxide causing sludge. But there is no grease on the cans.

There is no violation of the SAR or CoC that I can think of. This is not liquid HEU or hydrogenous material with a H2 atom density greater than that of water.

We are discarding the worst of the cans and continue to do so as they rust. The cans pictured here are ready to be discarded. You can either discard at SRS or send back here for disposal.

Once we have SS cans in place, the problem should be solved.

Hope this helps.

BTW...has your site implemented Rev 9 of the NRC CoC?

Thanks,

Jeff

From: erich.opperman@srs.gov [mailto:erich.opperman@srs.gov]
Sent: Wednesday, September 30, 2009 12:10 PM
To: Arbital, Jeffrey G (AIJ)
Subject: Fw: ES3100 Question

Jeff - your thoughts?

Erich
----- Forwarded by Erich Opperman/SRNS/Srs on 09/30/2009 12:09 PM -----
Bill Clifton/SRNS/Srs

09/30/2009 11:54 AM

To

Robert Watkins/SRNL/Srs@Srs, Erich Opperman/SRNS/Srs@Srs

cc

Virginia Magoulas/SRNS/Srs@Srs, Glynn Dyer/WSRC/Srs@Srs

Subject

ES3100 Question

Attached are two pictures of the neutron absorber can for an ES3100 drum we received today.
The can has some type of grease on the side. Does this violate the ES3100 SARP?

Thanks,
Bill
Beth Hackney/SRNS/Srs

10/14/2009 02:20 PM

To

Erich Opperman/SRNS/Srs@Srs

cc

Subject

Re: Fw: Additional information on rustLink<Notes://notem05/85256918007D7382/38D46BF5E8F08834852564B500129B2C/8BD4C1DCEA5079628525764F005AA6FB>

Our concern now is that the rust causing neutron absorber will eventually cause rusting of the
product can. H-area already found superficial rust on the Uranium can. The diameter of this
product can is credited by the NCSE. Who will say that the product can maintain its geometry in
the event of rust caused by the neutron absorber material?
They say that it is just superficial at this time, but the rust H-Area found occurred in a relatively

short time. Have they even looked at things from a more long term perspective? It may not be an
issue for transportation, but it is a problem for storage in KAC.

Beth

Erich Opperman/SRNS/Srs

10/14/2009 12:34 PM

To

Arthur Greer/SRNS/Srs@Srs, Mark Kokovich/SRNS/Srs@Srs, Bill Clifton/SRNS/Srs@Srs, Beth
Hackney/SRNS/Srs@Srs, Christopher Crawford/SRNS/Srs@Srs

cc

Subject

Fw: Additional information on rust

FYI -
----- Forwarded by Erich Opperman/SRNS/Srs on 10/14/2009 12:30 PM -----
"Arbital, Jeffrey G
(AIJ)" <arbitaljg@y12.doe.gov>

10/14/2009 12:28 PM

To

"'erich.opperman@srs.gov'" <erich.opperman@srs.gov>

cc

"Goins, Monty L (MLG)" <goinsml@y12.doe.gov>, "Blakey, David K (BD9)" <blakeydk@y12.doe.gov>

Subject

Additional information on rust

Erich,

The Y-12 Packaging Engineering group looked further into the issue of rust on spacer cans
interacting with the stainless of the CV and possible violations of

10CFR71.43(d). They found
that the rust is stable and thus not a concern to the CV inner wall.
The regulation is concerned
with significant rust. In this case, the appearance of rust is 1)
isolated and not a normal
operational mode, and 2) is not significant.

On this basis, it is the opinion of Engineering that this case is not a
regulatory concern. Y-12 will
not be contacting the NRC for guidance.

If you have any other questions, please don't hesitate to contact me.

Thanks
Jeff

E-mail Properties
Mail Envelope Properties (E3D0DF334F617344BE38EB00C881B1B30A8AE393D9)

Subject: FW: ES-3100 Neutron Absorber Spacers
Sent Date: 5/17/2010 2:48:26 PM
Received Date: 5/17/2010 2:31:09 PM
From: Hardin, Kimberly

Created By: Kimberly.Hardin@nrc.gov

Recipients:
Soly.Soto@nrc.gov (Soto, Soly)
Tracking Status: None

Post Office:
HQCLSTR01.nrc.gov

Files	Size	Date & Time
MESSAGE	16334	5/17/2010

Options
Expiration Date:
Priority: olImportanceNormal
ReplyRequested: False
Return Notification: False

Sensitivity: olNormal
Recipients received: