The Work Group convened in the Hampton Inn Cincinnati Airport-North, 755 Petersburg Road, Hebron, Kentucky, at 1:30 p.m. Eastern Time, Josie Beach, Chair, presiding.

PRESENT:

JOSIE BEACH, Chair
BRADLEY P. CLAWSON, Member*
JAMES E. LOCKEY, Member
JOHN POSTON, Member
LORETTA R. VALERIO, Member
ALSO PRESENT:

TED KATZ, Designated Federal Official
BOB BARTON, SC&A*
RON BUCHANAN, SC&A*
GRADY CALHOUN, DCAS*
PETE DARNELL, DCAS
JOE FITZGERALD, SC&A
ROSE GOGLIOTTI, SC&A*
WAYNE KNOX
PAT MCCLOSKEY, ORAU Team

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Adjourn
MR. KATZ: Good afternoon, everyone in the room and on the line. This is the Advisory Board on Radiation Worker Health. It's the Kansas City Plant Work Group.

And we are getting ready for a two-day meeting beginning now.

For folks on the phone the agenda for the meeting and materials that are going to be discussed mostly tomorrow are posted on the NIOSH website under the Board section under meetings, today's date.

So you can go there, click on that date and you'll find the agenda and other materials. And you can follow along with the meeting that way.

Let's get started with roll call. And since we're speaking about a specific site please speak to conflict of interest while we're at it for agency-related officials.

And let's begin with Board Members with the Chair.

(Roll Call)

MR. KATZ: Very good. Okay, then folks on the phone, please keep your phones muted
except when you're addressing the group just for audio quality.

And if you don't have a mute button *6 to mute your phone, *6 to take it off of mute.

And Josie, it's your agenda.

CHAIR BEACH: Okay. Thank you, Ted.

Like Ted said, the agenda is posted.

Today we try to start at 1:30 with no end time listed.

So I'm going to ask up front does anybody have a time that they have to be finished today? Is there anybody that -- okay.

I don't suspect we'll go longer than 5, but if we run a little late I wanted to make sure.

The meeting in January, the last time the Work Group got together, January 20, we ran short of time. Mostly my fault. I had a flight to catch.

And the petitioners didn't really have a chance to discuss their issues.

Wayne Knox had given us a one-page list of issues that we were going to address at that meeting and were unable to.
So I decided at that time and we discussed it then and at the March meeting, the Advisory Board meeting in Idaho last March, that we would have a day for the petitioners to meet.

So, the only topic today will be petitioners' issues. We'll discuss them, try to come to some closure on them. If we can't it will give us something to work on for our next meeting.

[Identifying information redacted], I'm going to ask again are you on the line?

(No response)

CHAIR BEACH: I know [identifying information redacted] had some issues. If he doesn't join us I'll go over those after Wayne has a chance to go through his.

So, did anybody else have any comments? Wayne, I'm going to turn the floor over to you.

MR. KNOX: Well, thank you.

CHAIR BEACH: You're welcome.

MR. KNOX: I'm going to state at the offset I was not aware that I was going to be front and center on this issue.
In the past I have not been permitted
to speak up as a health physicist with experience
concerning the issues.

And I received a copy of the agenda
which says petitioners' issues with responses from
NIOSH.

And it meant that business as usual.
We were not expecting you to say anything.

But now I understand I am supposed to
be the central figure in this discussion. So it
might be a little choppy.

CHAIR BEACH: So, Wayne, let me say I
don't want you to feel like you're on the spot.

But I know that you needed time to go
through issues, and I wanted to make sure you had
that opportunity.

So, don't feel like you're on the spot,
or you have -- I mean, if you want to start with
the list you gave us and let us go through that.

I know SC&A prepared some responses,
not written, just verbal. We can go through those
to start with.

I know you have another form you gave
us that none of us have had a chance to read.

But if you can stick to topics on Kansas City that would be very helpful. And then we can try and work through that and see if we can come to some resolution I'm hoping, or not in some cases.

MR. KNOX: That's fine. First of all --

MR. MCCLOSKEY: Excuse me. Dr. Lockey, do you have that login information? Sorry.

MR. KATZ: Go ahead, Wayne.

MR. KNOX: First of all, I do not think people have an understanding of what happened in the good old days.

These large contractors were provided a hold harmless indemnification for establishing the nuclear weapons program.

But they used the cover of that hold harmless indemnification and all of the government facilities and workers in order to develop other applications of radiation and radioactive materials.

That included propulsion systems,
nuclear medicine, and many other industrial applications.

And Bendix was one of the key players in discovering new applications and different applications for radiation and radioactive material.

They were a member of this large committee of companies.

They used every resource available from the government under the cover of the Atomic Energy Act for corporate profits and developing all of these technologies.

So, the facility that we are dealing with, and you said stick with the facility.

The Kansas City Plant was not designed, staffed, sited for performing hazardous work with radioactive material.

It was located in the city of Kansas City. There was a daycare center right by it. And they had no provisions for surveying in and out of the facility.

They had two cafeterias and people walked between each one of these cafeterias.
Now, the people from the GSA side were not permitted to go to the cafeteria on the contaminated side of the building.

However, the contaminated people were allowed to go into the other cafeteria, the GSA cafeteria, without any surveys.

The question is have you seen any kind of exit surveys in that facility.

MR. MCCLOSKEY: You're talking about like a person who was working with radioactive material and then would need to survey out of the area to go to lunch sort of thing?

MR. KNOX: Yes.

CHAIR BEACH: Can you tell us time period-specific that you're talking about for this incident?

MR. KNOX: It was a continuum.

CHAIR BEACH: Can you give me time periods? Like from '63 to?

MR. KNOX: From 1949 until. I don't know if they are doing it today. I don't know.

And that's what I would expect you to have done is to get the exit surveys and determine
that.

So, did you get any exit surveys?

CHAIR BEACH: So, that would be a question for NIOSH.

MR. KNOX: Yes.

MR. MCCLOSKEY: I'm trying to think here now. We did routine contamination surveys during our period of radiological work, our greatest period of radiological work which has been the DU machine from '58 until '71.

And so we have routine contamination surveys of areas, not people.

Typically when people survey themselves out of an area those are not documented.

The only documented indications of -- I'm sorry.

MR. KNOX: The question is did they have provisions for exit surveys.

MR. MCCLOSKEY: Procedures and --

MR. KNOX: And equipment.

MR. MCCLOSKEY: Yes. They had provisions for that. But I'm not prepared to -- I don't have that information in front of me. I
didn't know this was something we were going to talk about today. I'm sorry.

CHAIR BEACH: So you'll make note of that? I'm making note of it as well.

MR. MCCLOSKEY: I'm going to go look and see what I can get for you procedure-wise.

MR. KNOX: And while we're on that subject, what about equipment sales?

They sold equipment. And we did it at Hanford. And we did it all around these facilities. We sold equipment in public sales.

Were those pieces of equipment surveyed? Do you have surveys of the equipment that was sold to businesses and the public?

And I understand in talking to the GSA people they went into the other side of the building and brought contaminated equipment out of that building to be sold to the public.

MR. MCCLOSKEY: We have examples of machinery, like lathes and mills and things like that being decontaminated.

MR. KNOX: And you have decontamination records?
MR. MCCLOSKEY: Yes. Yes.

MR. KNOX: And the survey -- okay.

MR. MCCLOSKEY: Yes, we have some of those records.

MR. KNOX: Okay.

MR. MCCLOSKEY: That's actually one of our issues that we've been talking about most recently. We call it our lower capital D&D efforts of areas and equipment.

MR. KNOX: Okay.

MR. MCCLOSKEY: Informal cleanups.

CHAIR BEACH: So what will satisfy you on that? Knowing that NIOSH has them? Or is there something more specific you're looking for in regards to those records?

MR. KNOX: I'm looking for any time we performed a survey, a release survey on the equipment with the name of the person who did it and the contamination levels. And there were limits that we had.

And most of that equipment that we had was not worth decontaminating because it was difficult to survey.
If you look at a piece of equipment and you try to survey, you can't get into all of these crevices. You just can't.

CHAIR BEACH: Sometimes it just gets thrown away.

So what are you looking for then in regards to those records?

MR. KNOX: What I'm looking for are release surveys.

CHAIR BEACH: So you want copies of release surveys?

MR. KNOX: A copy of the release surveys.

CHAIR BEACH: Okay. And I don't know if we can -- how does that work, Ted? I'll have to --

MR. KATZ: Well, I mean, with any DOE records, whether they can be released to the public is a DOE question, not a NIOSH question.

CHAIR BEACH: Right.

MR. MCCLOSKEY: Here's an example of something maybe that -- this speaks to our issues that we'll probably be talking about tomorrow.
It's a letter that the subject is "Cleaning of Equipment Contaminated with Beryllium or Radioactive Material."

And so, one of the people that we interviewed in March at the site talked about an episode where he was involved with this sort of a decon of equipment. So I pulled this out to talk to that tomorrow.

But here's an example of -- and you can take a look at this when we have a break or something.

MR. KNOX: Okay.

MR. MCCLOSKEY: But it talks about the wet cleaning methods they used for machines.

And here's the decon levels that they had to achieve to release the equipment.

So. I mean, I didn't know we were going to talk about this now.

MR. KNOX: But I'd like to get into the nitty-gritty of it. Show me the release surveys.

MR. KATZ: Well, so I think you'll have to FOIA DOE to get those surveys.

Because even if NIOSH has some of those
in its records it will have to -- the way FOIA works it has to go to the sort of owning agency to deal with FOIA requests.

And that would certainly fall within the basket of what's covered by FOIA, the agency records like that.

MR. KNOX: Now that we are on the facility that Kansas City Plant has a huge building. I think it's 3 million square feet in the main building.

CHAIR BEACH: The old building.

MR. KNOX: Yes. And that was primarily where the contaminated work was done.

Part of it was GSA. The other part was the Kansas City Plant.

But the Kansas City Plant was not maintained only by the Kansas City Plant people. It was maintained by GSA people. GSA people went into the Kansas City Plant side of the building.

Now, keep in mind this is one huge building. The same common ventilation system.

CHAIR BEACH: We've toured it, empty,
just recently. So we're aware of the contaminated
-- where they've had contaminated areas. We're
aware of what the ventilation looked like in those
areas. So we were able to do that.

MR. KNOX: But the GSA people went in
and out of that facility to do maintenance work on
contaminated equipment.

CHAIR BEACH: But you're also aware
that we can't -- you're looking for GSA people to
be within this Class designation, is that correct?

Because we don't make those
determinations. That's DOL.

So while you're saying they went in and
worked maintenance it's nothing we can do here, is
that correct?

MR. KNOX: The regulation says a
contractor. GSA was a contractor to the Kansas
City Plant.

I have listed here the memorandum of
understanding. They were actually paid, that is,
the Kansas City Plant actually transferred cash to
GSA for those workers going over there doing it.

So, in principle GSA was a contractor.
MR. KATZ: Wayne, I understand what you're saying, and it's perfectly sensible, but legally they're not contractors. They're federal employees.

It doesn't work that way. It's just legally it's not correct that they're contractors to DOE.

And for that reason I think DOL is not covering GSA employees at the Kansas City Plant.

MR. KNOX: But they were exposed during the performance of duty.

MR. KATZ: No one's arguing -- no one's arguing with that.

MR. KNOX: Based upon the statutory law it covers exposures during the performance of duty.

It covers the --

MR. KATZ: Of DOE employees and their contractors. And GSA employees are not contractors.

MR. KNOX: Why not?

CHAIR BEACH: Okay, so, here's the deal.

We can't solve it here. We can't
change the designation.

So, to argue or talk about it here wastes some of your time for other things.

MR. KNOX: Okay.

CHAIR BEACH: That's something you'll have to take up with --

MR. KATZ: Well, you can discuss it with DOL. But I mean, they can't change the law either.

It's statutory.

(Simultaneous speaking)

MR. KNOX: So these people were exposed. They have as many cancers. They have chronic beryllium disease the same as the people in the same building now.

MR. KATZ: We understand.

CHAIR BEACH: We understand.

MR. KNOX: And yet --

CHAIR BEACH: Our hands are tied. We can't change the law. So, we understand, but we can't -- there's nothing we can do about it here.

MR. KNOX: Okay.

MEMBER LOCKEY: It has to be through an
act of Congress.

CHAIR BEACH: Is there anything on this list that I gave you a copy of that you wanted to try to get through today? Or some of these you've already come to closure on?

MEMBER LOCKEY: Can I ask a question? The exit surveys, what -- how does that apply? Does that apply to GSA? The exit survey is in relationship to GSA issues?

MR. KNOX: It applies not just to GSA, it applies to the workers.

MEMBER LOCKEY: Okay.

MR. KNOX: They were not allowed to change clothes. They took all these clothes to the cafeteria, home.

So in principle they were exposed not just at work. They were exposed when they went home. Contamination was tracked home.

And some of the surveys show that, that contamination was found in the homes of workers.

MR. MCCLOSKEY: That's the promethium-147 incident.

MR. KNOX: Yes, true, but the only
reason we know that promethium was there because
we specifically looked for it. We didn't look for
the other contaminants in people's home. So if you
don't look, it's not there.

MR. MCCLOSKEY: Since you brought this
up I started thinking about it. And I do have a
procedure that you might be interested in. And
it's dated August 17, 1951. So this would have
been in place very early in your site's operations.

It's addressed by the SRDB number
128346.

And so this is --

CHAIR BEACH: Did you say 346?

MR. MCCLOSKEY: Yes, 128346. And so
this is one of those procedures that governs the
radioactive work, the controls that would have been
applied, the PPU acquired.

And on the second page, so it's in
Section 1.01 TAC E, Tolerance Level for Clothing
talks about clothing shall not be worn when
contamination exceeds 500 counts per minute.

So it specifies the actual surveying of
the PPE that you're allowed to wear, how
contaminated it's allowed to be.

Shoes will not be worn when the contamination exceeds a certain value there.

And so there's also contamination limits for the area. It talks about the dosimetry and what kind of personal monitoring for medical surveillance like urinalysis and things like that.

So, early on, this would have been during the natural uranium machining operations that we discovered there, they had this in place.

And we have examples of this throughout the site's history, procedures like this.

So, that's one part of the thing you asked about. You asked about are there procedures in place and do they have instrumentation. And then you asked for documentation of the surveys that were performed. So this is the procedure part of that.

MR. KNOX: Okay.

MR. MCCLOSKEY: I can show you many examples.

MEMBER LOCKEY: And you can get the actual surveys.
MR. MCCLOSKEY: We have surveys of equipment. But people, no.

MEMBER LOCKEY: No, no surveys of people.

MR. MCCLOSKEY: No. When you leave --

CHAIR BEACH: Hand and foot.

MR. MCCLOSKEY: Yes.

CHAIR BEACH: It's usually a hand and foot out.

MR. MCCLOSKEY: Yes, there's a PCM 2 or something you walk into. It surveys you. You leave.

When there's a discovery of contamination on a person that gets documented.

CHAIR BEACH: And there's room survey records.

MR. MCCLOSKEY: Yes.

CHAIR BEACH: All kinds of them.

MR. MCCLOSKEY: Equipment and areas.

MR. DARNELL: But DOE did not eventually do surveys to say this person was clean. They only did it if this person was dirty.

MEMBER LOCKEY: So they surveyed when
they left the site.

MR. MCCLOSKEY: There was a boundary to the work area and a locker room where they would shower. And so they'd change from their coveralls that they wore in the work area and surveyed before they took off their coveralls and showered.

MEMBER LOCKEY: What I was trying to do is make sure I understood what you were asking for.

The exit surveys meaning before the employees went home they went through some kind of screening.

MR. KNOX: Yes. They went through screening. When they went to lunch they surveyed out.

And it turns out that in reality if you are surveying it is very difficult to do because you have tucks in your clothing.

You cannot perform an adequate survey of people --

CHAIR BEACH: But when they've been surveying, we survey every day out of areas. There's TACs that you're trained how to discover that contamination in the folds and stuff.
MR. KNOX: But you had industrial -- you did not have health physicists here at the plant.

MR. DARNELL: That's true.

CHAIR BEACH: That's true.

MR. DARNELL: They had basically a health protection program which included health physics, industrial hygiene, environmental safety, all rolled into one type of technician and one type of professional. They put it under the industrial hygiene program.

We reviewed it. We've been through it. We see procedures from it. We see procedures that had they been called health physics procedures they would have been perfectly adequate.

So it does not matter that they weren't called health physicists in the early days, nor does it matter that there was no health physicists there. The program was there to cover the people.

MR. KNOX: Did you take a look at some of the investigative reports following the promethium-147 spill?

They said that they had purchased the
They said that the instruments were not designed for detecting this.

MR. DARNELL: Which instruments are you referring to?

MR. KNOX: The instruments for detecting promethium. Based upon the reports that I provided to you from the auditors they said that they --

MR. DARNELL: From your memory, what does promethium give off? What type of radiation does it give off?

MR. KNOX: It gives off a beta.

MR. DARNELL: Okay. The site had instrumentation for beta gamma.

MR. KNOX: Did you read the report which stated that the instrumentation was inadequate for detecting the radiation?

MR. DARNELL: I don't remember that report.

MR. MCCLOSKEY: One of the findings that Mr. Knox is referring to was, you know, a DOE
group came in and said that you have these sources that you were treating as sealed sources and you shouldn't have been.

A long time ago when they were bought, the promethium-147 sources were bought, the engineers that purchased them knew they were not sealed sources, meeting the definition of a sealed source by the agency and NRC and others.

Because with the beta they couldn't totally seal them. The beta had to be able to come out to do its job, its backscatter work.

And so over time they lost track of the fact that it was not a sealed source.

And they were doing their routine source leak checks with an ion chamber instead of a pancake probe like you would expect, like any good HP would expect.

And so that's what he's talking about not having the proper instrumentation for the required routine source checks.

MR. KNOX: And they also indicated that they had purchased equipment. They did not purchase the detector. They only purchased the
instrument package.

MR. DARNELL: In any regard -- I understand that you're not happy with the promethium incident. Nobody that's a health physicist is happy that that incident occurred.

The simple fact of the matter is that somebody at the plant did find the contamination regardless that it was after the fact or not.

An incident investigation was reviewed, performed, completed, not only by onsite personnel, but by offsite personnel.

They even hired a professional health physicist from the local university to come in to look at the entirety of the program.

What I fail to see is where you're going with this.

CHAIR BEACH: And I was going to jump in too, Pete.

So that is a well-documented incident. And I think what you're looking for is the recovery from that incident so that they had the correct equipment afterwards so that that would not occur again.
Is that what you're looking for? Because we can't change the fact that they had an incident. People took it home. People got cleaned up. They had reports written, yes, we messed up here. We found our holes in our system.

But they fixed those, my understanding. So then you move onto what the rest of the program is.

Every DOE site has incidents. Hanford has incidents. I mean, you're well aware of them.

So, we can't go back and make that so it didn't happen. They had problems. So they moved forward, changed their processes, bought the right equipment based on those findings.

So what more can we do with that promethium?

I mean, it's very well documented. We're all aware that it occurred.

MR. KNOX: The problem was it was not just promethium. They reported that it was just promethium, but then if you look into the inspection reports they identify a lot of other radioactive materials that were leaking. And it
wasn't just promethium.

CHAIR BEACH: Okay, so those reports are also out there which means once they're documented they had to do something about it, correct? They would have had to have --

MR. KNOX: Yes.

CHAIR BEACH: And I know there was a time period -- I don't know the year -- that all those sources were gathered up and a lot of them were shipped out.

Isn't that's correct? A lot of them were turned into waste.

MR. DARNELL: Well, some of them were turned into waste. Some of them were returned to the manufacturer.

CHAIR BEACH: Manufacturer, correct.

MR. DARNELL: Some of them stayed in service.

CHAIR BEACH: Because I know there was a time period where they really did a cleanup to get rid of all the sources that they had.

MR. DARNELL: Like a lot of sites that are comparable to the Kansas City the radioactive
material use at Kansas City went up and down depending upon the type of job.

CHAIR BEACH: Right.

MR. DARNELL: The actual footprint of the radioactive material use in the site as we noticed when we did the walk-through this past winter was extremely small.

I mean, even to get into those areas, you had to go out of your way to get into those areas.

So, you've got monitoring programs. We've got times when sealed sources were used and then disposed of.

We've got times when different types of radioactive material projects were used and then stopped over the history of the site.

So, this is not a general walking the place, it's dirty everywhere type of site.

MR. KNOX: How can you say that the footprint was small when this happened over a period of 12 years based upon the documentation.

It was found at Sandia. It was found at Oak Ridge --
MR. DARNELL: Okay, we have to limit our talk to Kansas City.

MR. KNOX: Wait --

(Simultaneous speaking)

MR. KATZ: One person at a time, please.

MR. DARNELL: Kansas City. That's what we're concerned with. I don't care what happened at Sandia. I don't care what happened at Oak Ridge. It is Kansas City only.

MR. KNOX: You're saying that the footprint was small, and I am saying that it happened over a 12-year period.

You have it found in the homes of five workers, on their carpet, on their toilet. And the janitors cleaned those facilities and spread it all around.

Now, how can you say the footprint --

(Simultaneous speaking)

MR. KNOX: And may I finish, please? It was located in Sandia.

MR. DARNELL: I don't care.

MR. KNOX: It was located in Mound.
MR. DARNELL: I do not care.

MR. KNOX: But it was spread --

MR. DARNELL: I do not care about these sites.

MR. KNOX: The argument is whether the footprint is small --

MR. DARNELL: You're wasting your time for your presentation by talking about the other sites.

MR. KNOX: No, I --

CHAIR BEACH: Okay, wait, I want to make sure --

MR. KNOX: -- talking about the size of the footprint.

CHAIR BEACH: I want to make sure I understand. When you're talking about Sandia, was that contamination that came from Kansas City and was found at Sandia?

MR. KNOX: It came from --

MR. DARNELL: It was ascertained --

MR. KNOX: It came from Kansas City and was shipped to Sandia. They shipped things to Mound. They even shipped things to Amersham,
England that were most likely contaminated.

CHAIR BEACH: I'm aware --

MR. KNOX: So, the footprint was not small.

MR. DARNELL: -- documentation.

MR. KNOX: Huh?

MR. DARNELL: As we've asked for you in the past, every time we've addressed this topic with you in the past we've asked for some type of documentation.

MR. KNOX: I've provided that to you.

MR. DARNELL: You've never given us anything that has documented that the promethium incident was spread to Amersham, England, was spread to any of the other sites.

None of the documents that you have ever given us has shown us that.

MR. KNOX: Not true. I have.

MR. DARNELL: Well, we have a difference of opinion.

And as far as the footprint of radioactive material use at the site I was speaking of the specific projects. Not promethium. I'm
talking about the projects versus the size of the entire site.

The footprint of radioactive material use for those projects at the Kansas City site is very small.

We're not talking about a place that is dirty all over.

We have a promethium incident where, as unfortunate as it is that it happened it was discovered, it was reviewed --

MR. KNOX: Twelve years.

MR. DARNELL: -- it was -- it doesn't matter. It was discovered. It was reviewed. It was investigated. Dose was assigned and the site moved on.

Talk about 12 years all you want. Talk about Mound. Talk about Oak Ridge. Talk about anywhere in the world all you want. It doesn't matter.

MR. KNOX: Why doesn't it?

MR. DARNELL: Because it's not the Kansas City Plant. We're here for the Kansas City Plant.
If that contamination were sent to a different place and it was found to be the similar type of incident in a different place it becomes an incident on that site, part of their exposure history.

MR. KNOX: But it went out of this spot right here. Over a 12-year period it was spread most likely throughout that plant.

How did it get into the homes of people?

CHAIR BEACH: Wayne, you're aware of the incident because there was an incident report and you read the incident report, is that correct?

MR. KNOX: Yes. Several of them.

CHAIR BEACH: Okay. So, the incident is well documented. It's out for public.

I guess I want to bring it from out here to what can this Work Group do. What's your question that we can do for this incident so that we can move past that?

MR. KNOX: Number one, the incident footprint as we define it was not small.

CHAIR BEACH: Okay. He was talking about a different footprint, not the promethium
footprint is my understanding. So, I believe you're talking two different issues, right, Pete?

MR. DARNELL: Yes.

CHAIR BEACH: Okay. So, take the footprint out. That was something different.

We understand that this happened. It's well documented. As Pete said, the workers involved have gotten dose assigned to them from this incident.

And that's all we can do on that incident. Because we know the levels. We know who was contaminated, where it was contaminated. All we can do is assign dose, and we have.

So, what more can we do here?

MR. KNOX: You can look at the other radioactive materials that --

CHAIR BEACH: Other sources.

MR. KNOX: Other sources that they said were leaking too.

CHAIR BEACH: Okay, so --

MR. KNOX: You can look at the uranium and other materials that they were dealing with and see that you have contamination in clean areas.
And how did that -- but may I say this. You've already acknowledged that you had contamination in clean areas. And the janitors, people tracked in it.

How can it not be all over the facility?

CHAIR BEACH: Well --

MR. KNOX: It was in the homes of people. How can it not be?

CHAIR BEACH: I can tell you that when we visited the facility in -- when did we go? Was it the March visit?

So, the March visit, when we were there and we toured all the rad areas they had people working as we were there surveying all those rad areas for leftover contamination, hot spots, on the walls, the floors, the joints.

So that report I'm assuming should be ready. We don't have it now. It will be awhile.

MR. DARNELL: It's going to be a long time. What they're performing is survey of the entire site.

CHAIR BEACH: To sell it, because it's for sale, right?
MR. DARNELL: So far they haven't found anything. There's been no spread, okay?

Even with a 2.6-year half-life of promethium, if there was a lot of promethium around they'd still see it. And it's not there.

MR. KNOX: I will make this statement and that I will stand by. The criminal controls the crime scene. What do you expect to get?

They are doing the surveys. They don't want to find anything.

CHAIR BEACH: No, we watched the guy doing the surveys. They're doing a very thorough survey.

I think Pat had something he wanted to add to the discussion.

MR. MCCLOSKEY: Yes, just a couple of things.

You brought up other sources. We had promethium. It's well documented.

And you talk about what about the other sources that were leaking. Well, we have an Issues Work Group that's working on about 21 issues.

And Issue Number 18 is titled
"Accidents, Incidents and Fires."

So we looked at a whole gamut of mishaps that could have happened at the site.

And we looked at a lot of things. I mean, there was some reports of other sources leaking. In May of '90 there's low levels of thallium-204 were found in a source holder case during routine surveys of the waste storage area.

They have these episodes throughout here. We have a bunch listed. There's a 150-page document that we went through to look for anything that would have contributed large exposures that we would need to have found to make sure that we had covered in our methodology.

And we continue to look for and ask the site for records of incidents. And we've not found something that appeared to us to be such a large extraordinary dose that we could not bound for this SEC.

So that's -- I just wanted to remind us that we have that issue where we've looked at all these things.

CHAIR BEACH: I was going to bring that
up.

MR. MCCLOSKEY: And as far as the promethium getting to homes, in our ER we talked about it getting to one home offsite and they deconned that home for that employee.

I'm not aware of promethium-147 going anywhere else offsite other than one person's house.

MR. KNOX: I believe the report said they surveyed five homes --

MR. MCCLOSKEY: Oh, they surveyed.

CHAIR BEACH: They did survey.

MR. KNOX: And contamination was found --

MR. DARNELL: In one.

MR. KNOX: No.

CHAIR BEACH: Okay. But let's not argue.

MR. KNOX: I can show you that. It was found in other people's homes.

CHAIR BEACH: That's well documented. Let's not argue that, the specifics of it.

I don't want you to use all your time
on that because I know you had a whole list.

So this list that I made a copy for you, are you done with this list? Is there something on it that you're interested in us pursuing or discussing?

MR. KNOX: Yes, there are several things that I would like --

CHAIR BEACH: Why don't you start at the top and we'll mark them off.

Some of them -- that's later, yes. This is the one that he gave us in January.

But I keep directing him to the other one. This one he's sending to President Obama, so he just gave us a copy of it.

MR. DARNELL: Well, maybe President Obama will read it.

CHAIR BEACH: Okay, so Wayne, I'm going to let you just go down your list, or go down this list that you gave us in January.

Is there anything?

MR. KNOX: We can run down this list.

If we want to hit my highlights.

Since we've talked about incidents, can
we finish incidents?

    CHAIR BEACH: Yes.

    MR. KNOX: We still have the huge
    problem from my perspective with the Dottie
    Troxell.

    CHAIR BEACH: That is a --

    MR. KNOX: At least --

    CHAIR BEACH: -- case that we cannot --

we can't retry that.

    MR. KNOX: I'm not talking about
retrying it. I'm saying what were the exposures
of people that were on the roof and all of the
passersby. What were those exposures? That was
a legitimate incident.

    CHAIR BEACH: And that was from the
sources?

    MR. KNOX: This lady ended up with
cataracts in both eyes, so I would expect her to
have at least a 500 rem dose.

    What about the people that were working
on the rooftop? What about scattered radiation,
even outside of that facility?

    And I bet you would have seen skyshine
to those buildings around there from those sources.

MR. DARNELL: Okay, first part of the answer is the Troxell case did not find what you're stating.

So, there's no way that we can address what you're stating for Ms. Troxell.

We can't retry the case. We can't talk about the case.

We've already explained to you before that the practice in the nineteen fifties was to establish radiation areas when they used the radiography sources.

And that if they were up working on the roof and it was part of a radiation area they were either badged or they were removed.

We've explained this to you time and time again, okay? I don't know what more you want.

MR. KNOX: But they were not.

MR. DARNELL: That's not what we found when we asked.

MR. KNOX: Have you bound the radiation dose that an individual would receive, or could possibly have received that ended up with cataracts
in both eyes?

MR. DARNELL: No. We didn't even attempt to. That's not part of what we do.

MR. KNOX: Because it was a legitimate incident.

MR. DARNELL: It is part of a case that has been closed. It is not part of our Evaluation Report. It's not needed to be part of the Evaluation Report. Okay?

The more that you bring it up, and the more that you argue it, the more time you waste. You're not going to get anywhere.

I'm trying to be helpful to you, Mr. Knox.

MR. KNOX: Was Dottie Troxell exposed?

MR. DARNELL: I have no comment. It's a case that has been closed. I have no comment.

MR. KNOX: So, you -- are you evaluating the exposures of the workers from incidents that occurred? This was --

MR. DARNELL: Yes, we do. We do evaluate incidents.

MR. KNOX: What was the bounding
exposures associated with her case?

CHAIR BEACH: Are you working for her?

How does she figure into this conversation?

MR. KNOX: She defines a certain threshold level of exposures.

If she had cataracts in both eyes that means --

CHAIR BEACH: Are you her representative though?

MR. KNOX: No.

CHAIR BEACH: Okay.

MR. KNOX: I'm not. The only thing I'm trying to do is to say that based upon her having cataracts in both eyes, based upon her blood vessels being broken as a result of these exposures, the people on the roof should have gotten a lot of exposures.

People that were passing by should have gotten a lot of exposures.

And surrounding buildings. If you have a cloudy day you would have had skyshine.

CHAIR BEACH: But we wouldn't look at -- the only way to discover that is if people had
dosimetry on that picked up those doses.

And that is what we've done is we've
gone in and we've looked at the records, we've
looked at people's records.

We've looked at what's available on
site sources to try to determine what the doses were
and what people were exposed to.

I mean, somebody say it better than I
can say it, but that's what we're trying to do.

Going back to that specific incident,
we can't.

MR. DARNELL: The best answer that we
can give you is that in the nineteen fifties when
the Troxell case was going on, all the stuff was
going on, it was standard practice to establish
radiation areas around, below and above
radiography sources. That's what the site did.

We have evidence that workers that were
in radiation areas were monitored for radiation
dose as well as medically monitored to be in that
program.

Whether or not those workers on the roof
during the use of that source is immaterial.
Whether or not --

MR. KNOX: It is not immaterial if you're standing on the roof getting exposed.

MR. MCCLOSKEY: We looked at all the exposures and didn't see anything.

MR. DARNELL: We've got nothing, okay? We've got no dose that says there was anything that was even close to a credible exposure that would have been on an incident level.

You've got to get to an incident level before you ever get anywhere close enough to get dose to get cataracts. Okay?

The bottom line is the workers were in a program. The program was established.

The program has them either monitored or out of the area. That's the answer we have for you. There is nothing else.

MEMBER LOCKEY: Let me make a suggestion.

We have this list that we need to get through. Do you have this with you?

MR. KATZ: Yes, he has it right there.

MEMBER LOCKEY: Okay. So, can we
start at the top and run down through here and say
answered, not answered?

CHAIR BEACH: The N's are NIOSH.

MEMBER LOCKEY: Okay. The N's are
NIOSH, okay.

So this list is -- I think -- because
we have a limited amount of time today, and we have
-- I think we should try to get through this.

(Simultaneous speaking)

MEMBER LOCKEY: Do you have that with
you?

CHAIR BEACH: Yes, I gave him a copy of
it this morning.

MR. DARNELL: We'll just go by the copy
that you have.

CHAIR BEACH: Okay.

MEMBER LOCKEY: So the first one is
what?

CHAIR BEACH: Criminal violations
relative to knowing false statements by civil
servants and contractors, and violations, knowing
endangerment laws, including conspiracy,
racketeering, violations of the Atomic Energy Act.
I X'd that because that's not something we can answer here.

MR. KNOX: No.

CHAIR BEACH: The next one, didn't understand what you were looking for there, number 2 - '73-'84 finding, sense of Congress.

MR. KNOX: This is --

CHAIR BEACH: So we can X that out?

MR. KNOX: Yes. I didn't know -- I don't believe those were my numbers there.

CHAIR BEACH: This is your list.

MEMBER LOCKEY: Well, we'll do the best we can do, but the second one we --

CHAIR BEACH: Yes.

MEMBER LOCKEY: Okay. So, what's the third one?

CHAIR BEACH: The third one - applied meaning and use of worst case requirements, worst case versus average versus 99 percent confidence level versus survey data, sufficient accuracy versus full research related to case study of a machinist and coworkers machining and processing DU uniformed, unprotected and unmonitored.
I put NIOSH's name on that. This is one that we've been addressing throughout our Work Group meetings.

MEMBER LOCKEY: Is it on the agenda for tomorrow? Sort of halfway covered tomorrow, I think.

CHAIR BEACH: Anything on that one? That was NIOSH. I gave it to you guys.

MR. KNOX: Well, if this is my show, why don't we finish my opinion.

As far as promethium is concerned you have nuclear fleas. I was the one that helped clean up building 325. We had nuclear fleas over there. At Hanford.

But you would have had nuclear fleas here.

MR. DARNELL: It's immaterial. This is Kansas City.

MR. KNOX: But they found nuclear fleas here. And nuclear fleas represent --

MR. DARNELL: -- nuclear fleas.

MR. KNOX: A nuclear flea is a glob, if you will, of promethium.
MR. DARNELL: At what activity level?

MR. KNOX: They have one with 13 mics. They found one in that report. Thirteen mics.

If you look at inhaling that, that flea, see what kind of dose you get out of that flea.

MR. DARNELL: If it was small enough to get into the lower part of your lungs where it would cause dose it would be quite a bit.

And from what I remember of the report I believe it was about 108, you know, it was a rather huge particle. It was not a respirable particle.

MR. KNOX: No, they -- I don't recall --

MEMBER LOCKEY: How big?

MR. DARNELL: I think it was 100 microns.

CHAIR BEACH: This is Kansas City we're talking.

MR. DARNELL: Kansas City.

MR. KNOX: I don't remember them saying -- the problem --

MR. DARNELL: I don't remember them finding anything respirable in a large activity
particle.

MR. KNOX: They found it on the air filtration systems.

MR. DARNELL: Where?

MR. KNOX: At the Kansas City Plant.

MR. DARNELL: What document?

MR. KNOX: In the documents that I gave you. That were --

MR. DARNELL: You don't have it?

MR. KNOX: I didn't know that I was coming to defend this.

CHAIR BEACH: You know what? This isn't the drop-dead. If you have it, make yourself a note. And if you can provide it -- to us, or let us know where we can find the copy.

MR. KNOX: And if you have found the 13 mic nuclear flea that could possibly mean, since we're doing worst case analysis, that higher levels existed out there.

And I would have expected when you do your analysis to consider the worst case situation.

So, nuclear fleas are an issue. And I don't think they were --
MEMBER LOCKEY: So, that could be an action item. We need a document. Can you provide us, again, the documentation where nuclear fleas were found on the filtration systems within the plant?

MR. KNOX: I did it.

MEMBER LOCKEY: I guess -- I don't have it. I might have missed it. Can you provide it again? Is that possible?

MR. KNOX: Yes, I will be happy to.

MEMBER LOCKEY: All right, so that's an action item, okay? We have something we need to look at.

If it is on the filtration system then I guess that's something we need to at least look at, look at the size and exposure potential. Okay?

MR. KNOX: Okay.

MEMBER LOCKEY: So, what's another action item for us?

MR. KNOX: When you use -- we're supposed to be doing worst case assessments.

But I see all of the time where we use 95 percent data. You can't get to a 99 percent
confidence level using 95 percent data.

MR. DARNELL: Okay, first thing we have
to do is understand that we're not using confidence
intervals and statistics from data quality
objectives to do the math that we're doing for the
health physics.

You appear to have data quality
objective math, EPA math, and different quality
assurance factors mixed together trying to apply
to what we're doing.

We're using the 95th percentile of all
the dose when we're calculating the 95th
percentile.

It's -- we don't go to the 99th
percentile. Number one, the program is not built
that way.

Number two, it's not a data quality
objective. The two things are different programs.

MR. KNOX: If you're required to use
worst case --

MR. DARNELL: Estimates. Remember it
is saying worst case estimates. What I remember
is we're supposed to adequately bound the dose for
the Special Exposure Cohort.

It doesn't say use worst case estimates. Although we do use worst case estimates in some cases. We don't always because we don't have to. We have data to support the methods that we use.

It's not always a worst case estimate. It's not always a best case estimate. It varies depending on how we're doing -- what we're doing with the data and how we're using it.

MR. KNOX: So, you're telling me you can use 95 percentile data and come up with 99?

MR. DARNELL: No. What I'm telling you is that we use 95th percentile data for the statistical approach that we use it for.

MR. KNOX: So you define worst case as 95 percent.

MR. DARNELL: I never said that.

MR. KNOX: Well, how do you define worst case?

MR. DARNELL: You're stuck on that we have to use worst case.

MR. KNOX: That's what the regulations
say, that you'll use worst case.

MR. DARNELL: No, they do not.

MR. KNOX: I will give you the regulations, worst case regulations.

MR. DARNELL: I would be glad to learn that if I am in error. I would appreciate the correction.

MR. KNOX: Okay.

MR. DARNELL: Okay.

MR. KNOX: You identified another incident concerning a hood in the paint shop that had contamination in it, strontium-90.

MR. MCCLOSKEY: Who identified this again?

MR. KNOX: In your report you identified that as an incident. Strontium-90.

MR. DARNELL: Joe, do you remember any strontium-90?

MR. FITZGERALD: Are you referring to the Evaluation Report? The ER?

MR. KNOX: I don't remember which one. I remember reading --

MR. FITZGERALD: I don't recall --
MR. KNOX: -- it was the paint. And they only looked at strontium-90. And I will agree that --

MR. MCCLOSKEY: I don't think that's Kansas City.

MR. KNOX: Well, we can look it up and see. But I'm sure it was there.

But in that assessment did you consider yttrium-90 also? Because it would have --

(Simultaneous speaking)

MR. DARNELL: First of all, we don't want to talk about strontium that nobody here remembers being in the ER or any of the reports.

Strontium and yttrium are ingrown together as you well know when they are in equilibrium.

So we'll talk about strontium and yttrium if and when we find the incident that you're speaking of. Otherwise, we need to move on.

MR. KNOX: Okay.

CHAIR BEACH: I don't see strontium.

MR. FITZGERALD: -- talking about cesium, cobalt and plutonium-beryllium sources is
pretty much the extent of KCP. I don't see strontium.

CHAIR BEACH: I don't see it either in the ER.

MR. KNOX: It's in the incident report where you have some explosion inside of a paint hood.

MR. DARNELL: That's not this site.

MR. MCCLOSKEY: You might be thinking of another site.

MR. KNOX: Well, I'll find it.

MR. MCCLOSKEY: Okay.

MR. DARNELL: Sure. If you can find it we'll be glad to address it, but until then we need to move on.

CHAIR BEACH: Well, I'm keeping track of some of them. That one I don't believe was at this site.

MR. KATZ: What's next on the list?

CHAIR BEACH: Well --

MR. MCCLOSKEY: I think we already covered --

CHAIR BEACH: Well, we talked about
number 3, but the survey, the DU information is un-uniform. So, I guess I need a little more clarification of what that was about. For number 3 of your list, Wayne.

MR. KNOX: Number 3.

CHAIR BEACH: Yes. Applied meaning of the worst case requirements, worst case versus --

MR. KNOX: Okay.

CHAIR BEACH: Okay. So, we kind of talked about the 99 percent.

Is there anything more on that? We're looking into what the machining of uranium was quite extensively in our issues matrix.

MR. KNOX: But this -- we'll just move on to number 5.

CHAIR BEACH: And your bottom part was unprotected and unmonitored. And we are discussing potentially unmonitored workers. It will be part of our discussion tomorrow. The laborers, the janitors.

So, you're okay? Is there anything more on that? You're ready to go to number 4?

MR. KNOX: Yes.
CHAIR BEACH: Okay.

MR. KNOX: Number 4, I guess we've beaten that to death.

CHAIR BEACH: Okay. Number 5, health physics. Okay, so KCP health physics and radiological monitoring capabilities and practices.

MR. KNOX: We've talked about that. Again, they had industrial hygienists and not health physicists.

MR. MCCLOSKEY: Up until the promethium-137. That was a discovery there, that we need to bring in some more HPs. And so from '90 on --

MR. DARNELL: May I add something to this discussion specifically about the - [identifying information redacted] did it.

I'm sorry, I probably shouldn't mention his name, but he's the doctor who wrote the final report on the review of the Bendix Radiation Program in December of 1987.

And in Part 6 of his overview he talks about the adequateness of the rad protection
program.

And what it basically said was that the program is adequate for the size and complexity of the site.

MR. KNOX: But that is not what they said in the audit reports that I provided to you.

The audit reports painted a different picture.

MR. DARNELL: Okay. You've also said that the criminals hold the key. They're going to say what they want to say, and the whole bit.

So, here is the independent reviewer from a university. He's not part of the criminals that are holding the key. He's not part of their organization.

He doesn't hire them. He doesn't fire them. He doesn't run the contract.

And he's saying that the radiation protection program is adequate for the size and complexity of the Kansas City Plant.

That's in the promethium documentation. That is -- in the Site Research Database number 40.
MR. KNOX: You let him see what you want to see. And just because you have a college degree does not make you an operational health physicist.

MR. DARNELL: Really.

MR. KNOX: And you do not know all of the details of what goes on in the real world.

MR. DARNELL: There's no way to answer your question. There's no way to give you an adequate response.

MR. KNOX: If you get a college professor that they are making contributions to the institution to come in and give you a report.

Why don't you have someone like me that's independent to come in and do it?

But the other problem --

MEMBER POSTON: I'm a college professor, Wayne.

MR. KNOX: I know you.

MEMBER POSTON: I would do a good job. I'd make my own decisions. You know that.

MR. KNOX: I know you. But we still have people out there that are dependent upon contributions.
MEMBER POSTON: You're impugning somebody you don't even know. I think that's a very unfair statement, for you just to make a blanket statement about that when you don't know the person.

And if you want to look at what they wrote, and if you want to look at their background and come back and say you think he bought the farm that's another thing.

But you're making a judgment which is inappropriate at this point.

MR. KNOX: I cannot know what they told him. But anyway, moving on.

MEMBER POSTON: So, that's my point.

MR. KNOX: I don't know.

MR. DARNELL: Mr. Knox, you see, what you're doing is you are introducing unspoken and unseen conspiracies into whatever response is being given to you.

There's no way to give you an adequate response. You won't accept the documents that we've given you. You won't accept the --

MR. KNOX: You won't accept the
documents I've given you.

MR. DARNELL: So far you've given us nothing.

MR. KNOX: I have given you many documents.

MR. DARNELL: You gave me a piece of paper once that said -- from the president of Bendix was talking about a reactor built at the Bendix facility in Michigan.

And in the next sentence mentioned the Bendix facility in Kansas City.

And because the word "reactor" and "Bendix" were in the same paragraph you assumed the reactor was in Kansas City.

You read the paper wrong, you gave it to us wrong and it's incorrect data.

MR. KNOX: No.

MR. DARNELL: Unfortunately, yes.

MR. KNOX: What you're telling me is the -- you stated that Bendix built the reactor that went over to Burt Hall at the University of Kansas.

MR. DARNELL: I didn't say that. I said there was never a reactor at the Kansas City
Bendix plant.

MR. KNOX: But you said one was built in Detroit.

MR. DARNELL: That article was the one they were talking about, the Pioneer Division in Detroit.

MR. KNOX: Okay. Do you have the license that allowed them to build --

MR. DARNELL: I don't need a license. I don't want the license. It's not the Kansas City Plant.

MR. MCCLOSKEY: As soon as we found out it was another division of Bendix doing this work and it didn't affect the site that we're here to talk about we -- there's a lot of stuff we could go study, but we didn't study that.

MR. KNOX: If you look at all of the materials that Bendix had onsite based upon the DOL SIMS, they had reactor fuel there.

MR. DARNELL: No. Actually, the problem is you're misreading the sentence.

When the Department of Labor puts a material on that site and states that it was at the
Kansas City Plant it gives you all of the aliases for that material.

So, when they listed uranium they listed U-233, they listed -- they listed yellowcake, they listed U-235, the whole thing.

You are misunderstanding the SIMS.

MR. KNOX: No.

MR. DARNELL: Yes.

MR. KNOX: The SIMS, what is in the SIMS is taken to be fact.

MR. DARNELL: Sure. It said uranium was at the site and it gave you all the names --

MR. KNOX: But they don't give you all of the isotopes, do they?

MR. DARNELL: They gave you all of the names that were in common use for uranium.

What I suggest is you go back and read it more carefully. You are incorrect in your assumption.

MR. KNOX: I am not.

MR. DARNELL: Yes, you are, sir. I'm sorry.

MR. KNOX: What is in the SIMS is
supposed to be accepted as fact.

Now, you've gone --

MR. DARNELL: I'm not arguing with that part.

MR. KNOX: But the interesting thing is after I presented you all of this information that says that they had yellowcake there, they had the depleted uranium.

We don't know whether that contained plutonium or not.

They had weapons-grade material there. All of this is in the SIMS.

Once I told you guys that what you did was to go in and somebody, I shouldn't say who, but someone went in and removed all of the radioactive material indications from the SIMS.

Even those people, the industrial hygienists that were surveying around, were not even exposed to radioactive material. It was deleted.

MR. MCCLOSKEY: That's not our database, that's DOL, right?

MR. KNOX: So, why would DOL -- it was
interesting to me. After I presented to you all of this information that was in the DOL SIMS that suggested these workers were working with these radioactive materials they were all deleted.

Mr. DARNELL: Mr. Knox, can I ask you to come around and take a look at my computer screen?

I have brought up the United States Department of Labor Site Exposure Matrix.

I've brought up the toxic substance uranium. Identification. HAZMAT name. Uranium, uranium and compounds. CAS number.


Mr. KNOX: They do not put -- okay, well, which ones were there then? Which ones were there?

Mr. DARNELL: We had depleted uranium at the site.

Mr. KNOX: But it doesn't say that. It just says uranium, and then it says aliases.

Mr. DARNELL: That's correct.
MR. KNOX: Okay. So, what was there?

MR. DARNELL: We told you in the Special Exposure Cohort Evaluation Report.

MR. MCCLOSKEY: We have other ways to verify what's there.

We have NMMSS, right? They're required to log their inventory with that database.

CHAIR BEACH: Correct.

MR. MCCLOSKEY: And so we don't just take one piece of information and say we're done. We go off and we validate it.

MR. DARNELL: Do you understand now that those are just aliases that are listed?

MR. KNOX: No, because I do not have -- you deleted, someone, I could say who. Someone deleted all of those references to the use of radioactive materials --

MR. DARNELL: Again, you're -- conspiracy --

(Simultaneous speaking)

MR. DARNELL: When you're facing a fact you're introducing a conspiracy to try to undermine it.
There is no conspiracy. Nothing was deleted. This is what the website has always said.

MR. KNOX: No, it wasn't. It was changed. That's not true.

MR. KATZ: Okay, but we don't need to argue about SIMS because SIMS is a database maintained by the Department of Labor.

We have no role in SIMS. We don't delete, we don't add to SIMS. So, it's really, it's not germane to the Work Group.

MR. DARNELL: It is germane --

MR. KATZ: Whatever might have happened it's not germane to what this Work Group does though because this Work Group doesn't maintain SIMS.

MR. DARNELL: It's germane to Mr. Knox's belief in what radioactive materials were at the site.

He's looking at the aliases and saying that fissionable and fissile materials were on the site when they were not.

MR. KATZ: I understand what you're saying, but it's not useful is what I'm saying for
this Work Group.

MR. DARNELL: You're absolutely right.

MR. KATZ: Because the Work Group has gone into depth about what materials actually were there. And that's what all this several years of work has been involved in.

So, the SIMS which is a very superficial database by comparison to what's been done by the Work Group, and by NIOSH, by SC&A, is -- it's just not germane to this discussion. It's not a primary source, or even -- it's not even a source for this Work Group's work.

MR. KNOX: The SIMS indicates, for example, the lathe operators were using nickel-163.

What were they doing with it? That's what the SIMS says for that work category.

CHAIR BEACH: So, we have --

MR. DARNELL: -- published. That's going to be discussed --

CHAIR BEACH: And it will be -- tomorrow.

(Simultaneous speaking)
CHAIR BEACH: And it's very clear what the site was doing with it.
And if you're here tomorrow you'll see that report.

MR. KNOX: It mentions --

CHAIR BEACH: In fact, Wayne, just for the record it is on -- Wayne, it is on the website available for you to take off the public website the report on nickel-63.

MR. DARNELL: I believe also that Josh Kinman mailed you a copy of it.

CHAIR BEACH: So, we're aware of what they did with it and we'll talk about it tomorrow.
But you have access to that report.

MR. KNOX: Yes, but now we delete all of those materials that --

CHAIR BEACH: We didn't delete.

MR. KNOX: Someone deleted them.

CHAIR BEACH: But, Wayne, here's the deal.

MR. KNOX: And --

CHAIR BEACH: Wayne, we are trying to help you.
You have to understand when we tell you that it's not something that we have control over we can't do anything about it.

So, that is something you can take up with DOE or DOL. But it's not part of what we're discussing here, or shouldn't be.

MR. KNOX: Okay. I've got to hit the john. I'm an old man.

CHAIR BEACH: So, you know what? Let's see. It is --

MR. KATZ: It's about 3.

CHAIR BEACH: -- almost 3. So, come back at 10 after? Five after?

(Whereupon, the above-entitled matter went off the record at 2:52 p.m. and resumed at 3:10 p.m.)

MR. KATZ: Welcome back. We just had a short break.

This is the Kansas City Plant Work Group and we're working on Mr. Knox's list of issues from back in March, I believe. January, sorry.

CHAIR BEACH: January. I want to check did [identifying information redacted] join
MR. DARNELL: There was no license required. They were contractors.

MR. KNOX: Even if they did work that was not associated with -- there is no license required?

MR. DARNELL: No license required.

MR. KNOX: Okay. I saw an indication that fuel was shipped from Mallinckrodt there in St. Louis to Bendix. And I gave that as an exhibit.

MR. DARNELL: Are we on number 7?

CHAIR BEACH: Yes.

MR. KNOX: Number 7.

MR. DARNELL: Okay.

MR. KNOX: Did anyone run that down to see if they have actual shipping records?

MR. DARNELL: We actually talked about
this in the 2014 Work Group.

And it's on page 317 of that transcript where we discuss that there was metal handling at the Kansas City Plant. It came from Bethlehem Steel and Lackawanna.

And they were slugs. They were natural uranium. They were not reactor components.

MR. KNOX: If you were to look in the Mallinckrodt Site Profile, it indicates that Bendix was a material -- a uranium handler facility.

It also gives the name -- and I've forgotten the codename for the fuel that they sent. And I provided that, the codename that was shipped.

MR. DARNELL: Okay. In our response to you in 2014 and our response to you today is that we did not handle -- the Kansas City Plant did not handle reactor fuel.

They did natural uranium meaning some slugs. They got stuff from Lackawanna and Bethlehem Steel which were DU and U materials that were done for different projects.

There was no reactor fuel handled on the
site. That was the response in 2014. That's the response now.

MR. KNOX: Did you look for any shipping records of material to that facility?

MR. DARNELL: To Mallinckrodt or from Mallinckrodt?

MR. KNOX: From Mallinckrodt to the Kansas City Plant.

MR. DARNELL: No. The reason why we didn't have to was we had the Nuclear Materials Database that would have shown whether we had fissile or fissionable material onsite.

There was none. There has not been any. It's not in the database.

So again, our answer is this was never here.

CHAIR BEACH: And that's back to NMMSS, correct?

MR. DARNELL: NMMSS.

CHAIR BEACH: The NMMSS database, yes.

MR. MCCLOSKEY: If Mallinckrodt shipped uranium to Bendix, it was not the Kansas City division of Bendix. It was another Bendix
division.

MR. KNOX: I have to find out where it went then because it was shipped to Bendix. And they designated Bendix as a fuel-handling facility.

MR. DARNELL: Remember, the Pioneer Division had a reactor in Michigan.

MEMBER LOCKEY: Detroit.

MR. DARNELL: Okay, so just because it says Bendix doesn't mean it came to Kansas City Plant.

MR. KNOX: I agree and that's what I wanted to run down to see. There are leads, there are indications that they were processing radioactive material.

CHAIR BEACH: Okay, so you're satisfied with that one?

MR. KNOX: No, I have work to do on it.

CHAIR BEACH: Okay, but for this Work Group.

MR. KNOX: Number 8 -- we can move on.

CHAIR BEACH: Okay, number 8?

MR. KNOX: Yes, we can move on.
CHAIR BEACH: So you feel like thorium dose reconstruction has been covered?

MR. KNOX: There are some issues but I don't want to even get into that.

I'm not prepared. I don't have my documentation to show you.

It's difficult for me to speak without having a piece of paper to say, look at this.

And that's what I had before. I had all my documentation, but I have no documentation now.

Okay. The period of number 9, the period of coverage of SEC --

CHAIR BEACH: So the Evaluation Report. You're questioning the years that are covered?

MR. KNOX: Yes. Why stop at '93?

MEMBER LOCKEY: That was an issue.

It's on our issues matrix, why we stopped there.

And we've gone back and forth to the site getting documents about where we should stop this evaluation.

You know, initially we decided it was '93 in our Evaluation Report. And we looked at a
lot of the DOE audits of the facility, and a lot
of the statements that independent organizations
made about the facility.

And we convinced ourselves -- I can find
the issue number -- but I think we've closed that
one.

MR. DARNELL: Yes, it's one of the ones
that's closed.

Basically, the implementation of the
DOE Radiological Control Manual and 10 CFR 835 with
associated Price-Anderson Amendment acts leads the
Working Group to believe that at that point in 1993
that was dated -- I don't remember what that date
was -- that the program was adequate and monitoring
everything that it should be monitoring for the
Kansas City site.

There was nothing more to be discovered
by searching later than 1993.

MR. KNOX: Did you get any reports,
audit reports after 1993?

MR. DARNELL: Oh yes. That's part of
our Site Research Database.

MR. KNOX: But based upon my evaluation
of many facilities, they still had problems after 1993. It didn't go away just by us writing better regulations and better requirements.

MR. DARNELL: They don't just appear by saying that they're there either. What we need is documentation.

MR. KNOX: Monitoring --

MEMBER LOCKEY: So, we're okay with number 9 then?

CHAIR BEACH: Well, there's nothing to say that the years can't go -- if there's a petition put in and the petition is accepted for the years beyond what we're looking at here.

There's nothing to say that that can't in the future happen. It's just not part of the business of this Working Group at this time.

MR. KNOX: And tritium monitoring equipment that they were using, the training that they had.

And all of us recognized specialized equipment is needed, and specialized training and techniques are necessary to control tritium.

MR. DARNELL: Maybe you haven't been
informed. I thought you were mailed the tritium White Papers that have gone out.

MEMBER LOCKEY: Can you speak a little louder?

MR. DARNELL: Oh, I'm sorry. I thought you had been mailed the tritium White Papers that have gone out. We'll be discussing tritium tomorrow for the bounding exposures and everything that we found with tritium.

So if you're here tomorrow, that's when we'll be discussing recovering tritium.

CHAIR BEACH: It's also part of the documents that are on NIOSH's website that are available to the public or to petitioners. So those have been posted, and have been for a couple of weeks now, I believe.

MR. DARNELL: Actually, it's been quite a while.

CHAIR BEACH: Yes, it's been posted for a while.

MR. KNOX: I believe you were mentioning that people were pouring tritium into a glass container. And I was wondering how --
MR. DARNELL: When was that mentioned?

MR. KNOX: You mentioned it at a meeting.

CHAIR BEACH: Yes, we've discussed it.

MR. DARNELL: We've discussed it. I'm just trying to figure out where you're coming from.

MR. KNOX: And how was that controlled?

I've worked --

CHAIR BEACH: It's all part of that document.

MR. DARNELL: It's part of the paper. We'll be talking about it tomorrow.


MR. KNOX: We've touched on that.

CHAIR BEACH: Yes. That's part of our matrix so we have looked at that.

MR. KATZ: Can you just name it for the record so that we know what we're talking about?

CHAIR BEACH: Oh, what it was? The issue - spread of uranium and other unknown, undetected contaminants.
And so you're okay with that at this time?

MR. KNOX: Yes. The only comment that I would like to make relative to that, and I have just read the table that you provided of uranium contamination that showed that it was in clean areas.

And they were average values. And average values don't mean a lot to me as a dirty-hands health physicist.

You need to know what the raw data looks like in these cases in order to determine the actual levels of the contamination.

And average data has very little meaning because we are supposed to be making worst-case assessments.

MR. DARNELL: Now we're going back to something that we've told you before, that is not what we're supposed to do.

It is part of a process. It may or may not be done depending on how we're using the numbers and what part of dose we're reconstructing.

You can never say a blanket statement
that we have to use worst-case because it's not true.

MR. KNOX: But average data doesn't tell me anything.

MR. DARNELL: Well, I'm sorry that you have -- you're objecting to the way the data was presented.

Is there something that we can do for you?

MR. KNOX: Looking at the raw data. That's what I'm asking for.

Now, I know you can't give it to me.

MR. DARNELL: Sure. Send us a written request and we will be glad to send you copies of our data. Whatever that we can provide, we will provide you. But you have to ask for it in writing as part of a Freedom of Information Act.

MR. KNOX: That's what I'm doing. And I've gathered my little team now and we're going to go through all of this stuff.

MR. DARNELL: Okay.

MR. KNOX: Number 12, the HVAC system.

You had, good grief, maybe 100
different short stacks on that roof. You have people that were continuously working on the rooftop. And --

MR. DARNELL: We've got pictures of the roof in the Site Research Database.

There were a lot of stacks. It wasn't hundreds. There was an office on the roof and people assigned to do work on the roof.

When they were in radiation areas, as we discussed and repeatedly said, they had to be monitored. They had to be part of the medical monitoring. They had to have special training to do it.

The rest of the workers up there had basic industrial hygiene requirements that had to be made for the environmental health programs that they had.

I don't understand what your issue is.

MR. KNOX: The issue is that radioactive material was being released through those vents.

From what I understand in talking to workers they had no HEPA filtration on the systems
and they were short vents at breathing height.

MR. DARNELL: When you were speaking with these workers, did you ascertain whether they had a need to know about the classified systems that were being used, and whether they had knowledge of what you were asking them about?

MR. KNOX: I asked them about the configuration of the HVAC system and the venting system. And that's what I was told.

I looked at the picture, and you can go in Google and you can see the top of the Building 1 there.

MR. DARNELL: Yes, and you certainly --

MR. KNOX: And they smelled a lot of odors up on the roof. So, any kind of radioactive material release through those vents could have been inhaled by those workers.

In addition to that you had many different --

MR. DARNELL: -- view if you had a site that was doing a lot of radioactive material work.

That's not the case here. You had some discrete projects that weren't going all the time.
The uranium was the worst stuff that they had. They had filtration. We saw the places where they did the work. We saw the controls that they had in place because the remnants of them are still there.

We see that there's no survey data showing uranium still being there and still spread outside of the work area.

Because, you know, uranium half-life is very long. If it was spread a lot it would still be there. We would see it today. We're not seeing it today.

They're not seeing it on the roof. The other radioactive materials that could have gotten to the roof are extremely low exposure potentials. You're talking nickel-63, tritium.

You basically had to have your snout up against the vent to get an appreciable dose to begin with for those radioactive materials.

So, I'm trying to figure out why is this an issue to you. We've got workers in a program. We've got workers that were monitored. We have systems for the bad actors that had the filtration.
I don't even know whether the off-tritium work had filtrations every time, but we have a dose bounding for it and it's on the order of millirem per year if they took the entire amount of tritium that was used. So where's your problem?

MR. KNOX: I don't know. There is an issue with monitoring.

I think there is an issue associated with monitoring for tritium, based upon the quality of health physicists you had there.

And the facility -- controlling tritium is very hard. Filtering it, hey. It doesn't work that way.

CHAIR BEACH: So, is that an item that you can listen to the discussion on tritium tomorrow during our Work Group session? And read the report that's out.

MR. KNOX: Yes.

CHAIR BEACH: Okay. And then the HVAC system, that covers that, correct?

MR. KNOX: Yes.

CHAIR BEACH: Okay. How about 13, assay of the reported DU?
MR. KNOX: Yes. We spread around a lot of recycled uranium.

And the question I have is, was any of that recycled depleted uranium?

MR. DARNELL: I'm not sure I understand what you're asking. I'm sorry.

MR. KNOX: You had uranium. Did you have any recycled depleted uranium?

MR. MCCLOSKEY: What we fall back on here is we use TBD-6000 in the Site Profile. And so we use that in our ER to bound doses.

And it makes an assumption that if there's --

MR. KNOX: I hate to do this, but I did not take my old man's pill this morning.

MR. MCCLOSKEY: Okay. You want me to pause while you --

MR. KNOX: Would you like to pause?

MR. KATZ: Okay, we're just on a brief break here for folks on the phone.

(Whereupon, the above-entitled matter went off the record at 3:28 p.m. and resumed at 3:31)
p.m.)

CHAIR BEACH: Okay, so we're back.

(Simultaneous speaking)

MR. MCCLOSKEY: Okay, so you make a good point with DU. After a certain point in time there's other contaminants in there.

And it actually came up as an issue that this Work Group has been working on. We call it issue number 5 on our issues matrix. We titled it Recycled Uranium.

And what we relied upon in our Evaluation Report for this SEC was a Site Profile known as TBD-6000 written by Battelle. You can go to the NIOSH website and find it and pull it up.

CHAIR BEACH: I was going to say the matrix is listed for tomorrow's meeting. So you can pull the full document and see the work that's been done on all these issues.

MR. MCCLOSKEY: So you make a good point. I mean, that is something that we were concerned about.

And when you get to Battelle 6000 you'll find Table 3.2 and it shows all the other nuclides
that we would consider were included in those exposures after 1952 and we included all these with the DU exposures.

CHAIR BEACH: And we concluded our work on that and agreed that what's been done for that particular incident has been well thought out and closed.

The agenda that we gave you that's listed the different issues, those are the ones that are still open of the 21 that we are still working on to come to some conclusion and resolution on.

Everything else that's not listed on here from 1 to 21 has been closed by the Work Group, or put on what we call a TBD. And that will be worked through a TBD Site Profile. That will be changed in that process.

So, just for a little more understanding there.

Okay, so where are we at? So, 13 we're done with. Fourteen.

MR. KNOX: Fourteen.

CHAIR BEACH: Is there anything more to
MR. KNOX: We're back to that. And I have to do some more investigation in that. I'll go over to Burt Hall and do some research on that.

CHAIR BEACH: So, for those of you on the phone, if you don't have this list, number 14 was on the nuclear reactor development testing and indicators, and Burt Hall nuclear reactor. It is our understanding there was not a nuclear reactor ever at KCP. So, that's our stand on that.

And Wayne, you said you want to do some more research on that. And that's fine. Okay.

So, 15, the Ferguson Bendix president testimony before congressional hearing committee. What was your issue with that for us?

MR. KNOX: Well, if you read the -- now, I understand you have a different interpretation of what he said in his testimony.

But it indicated that they had hired 100 nuclear workers from the failed airplane reactor and indicated that they were developing nuclear
technology.

And there were indications that it was being done at the Kansas City Plant, at least part of it. Not all of it, but part of it was being done at the Kansas City Plant.

CHAIR BEACH: Okay. And we have found no proof of that and have no documentation on that. So this, from where we're at we, don't believe there was one, correct? Okay. So that one we're done with also.

MR. DARNELL: Malcolm P. Ferguson was the president of Bendix Detroit.

CHAIR BEACH: Right. He was the president of Bendix Detroit. So, okay.

So, it may have happened, but it was not at the Kansas City Plant. That's our understanding so that's the stand we'll take on that, okay?

So, number 16, use and monitoring of special nuclear materials.

MR. KNOX: With this one, you didn't have any.

CHAIR BEACH: There was none. Yes,
that follows with the -- okay. So, at this time we have found no proof or documentation of any nuclear material sources, no reason for it to be there. They weren't doing anything with special nuclear materials at Kansas City.

MR. KNOX: And that the DOL SIMS is incorrect.

CHAIR BEACH: I think you're misinterpreting the way that is being used. So, that's just my view of that.

MR. MCCLOSKEY: They keep listing on there their PuBe source, right? It's a plutonium-beryllium source, plutonium-239.

And plutonium-239 is a special nuclear material. But in this case it's used as a tool, right? It's just a source. They liked the way that it emits neutrons. They used that for that purpose.

CHAIR BEACH: And we have a list of all the sources that were used from the beginning of time at Kansas City Plant.

I mean, we've seen it, we've all looked at it. Okay.
So that one -- so the next one is number 17, Mallinckrodt versus Battelle.

Okay, so this is back to the TBD-6000. What was your issue there, Wayne? That was not clear.

MR. KNOX: The issue was that in this Mallinckrodt document, it listed Battelle as a -- I mean it listed Bendix as a fuel-handling facility.

And I felt that that was the one that should be used in characterizing the exposure.

But even if you use Battelle's 6000 you get some reasonable doses. So, they're not that far apart.

CHAIR BEACH: So, Joe, excuse me for a second. Joe, that was one that SC&A looked at. I think you had Ron look at it. I have a paragraph on it but I don't know.

MR. FITZGERALD: Well, we have a discussion tomorrow too. So, I don't know how you want to handle that.

Ron will be on the phone tomorrow for some detailed discussion. He can answer
questions. That might be a better way to do it.

CHAIR BEACH: Okay. So, save some of

that --

MR. FITZGERALD: I would save it, since

he's going to be right available.

CHAIR BEACH: Okay.

MR. KNOX: The only argument that I had

was that since this document, the Mallinckrodt
document listed Bendix as the fuel-handling
facility. That one should be used versus

Battelle.

MR. MCCLOSKEY: Oh, I see.

MR. DARNELL: I'm sorry, we can't do

that.

MR. MCCLOSKEY: Yes, we have strict

rules about what can apply to a work site.

We're allowed to use TBD-6000 for --

MR. DARNELL: But we can't -- unless

there is a technical position stating why a method

contained within the technical basis calculation

for Mallinckrodt would apply to Kansas City, then

we can't use it. It's against our rules.

MR. KNOX: Well, the general rule was
that the regulations that exist at the time of the incident are the ones that should be used. The regulations that exist at the time of the event are the ones that should be used.

MR. DARNELL: That's absolutely wrong. What we do is go back in and recalculate the doses according to the best methods and procedures we have today.

If I went back and did it the way they did it in the 1950s, you'd have no doses, you'd have no SECs, you'd have no problems.

MR. KNOX: That's true.

MR. DARNELL: Okay? So what you're saying is absolutely incorrect.

MR. KNOX: But from the fact that they were designated as a fuel-handling facility.

MR. MCCLOSKEY: Well, first of all --

MR. KNOX: The problem is that --

MR. DARNELL: It's not a fuel-handling facility. Kansas City Plant is not a fuel-handling facility. It never has been, never will be, never going to be.

MR. MCCLOSKEY: I believe that Bendix
reference in that Mallinckrodt document is not the Bendix in Kansas City.

And a lot of thought goes into the development of these procedures to make sure they apply to each facility we use.

CHAIR BEACH: So, on that particular one, Joe had asked Ron to do some work on it.

I just gave him that paragraph.

MR. FITZGERALD: I guess we had the same reaction. It didn't seem like there was anything in the TBD that referenced Mallinckrodt so much.

There was a reference to an MDA value which the Kansas City TBD uses the greater of any of the values for the uranium, 10 micrograms per liter.

And it's not clear what your issue is I guess is the real problem here.

MR. KNOX: The main concern was that that document, that is, the Mallinckrodt document identified Bendix as a fuel-handling facility.

CHAIR BEACH: Bendix Kansas City?

MR. FITZGERALD: See, that's the
problem. I don't think it's Bendix Kansas City. I think we're back into the issue of which Bendix because Bendix is a large company, has all these different facilities.

And we've gone into this issue before, that it's not the Kansas City division. It's probably another division that you're referring to.

I think one thing we need to do is clarify which division of Bendix is being referenced in the Mallinckrodt document.

I suspect -- in fact, we confirmed it, that they did not receive any fuel from anywhere at Kansas City.

We checked the classified inventory to make sure there was nothing in the way of enriched uranium or plutonium or anything of that sort and confirmed that was the case.

And these are classified records, and found nothing. So, if there would have been anything, any fissile material, any fuel, that would have been very clear from that.

MR. MCCLOSKEY: We don't just trust one
document. We go and we get all --

MR. FITZGERALD: Well, I think we wanted to go and look at the classified database just to really make sure there was nothing that was going on.

MR. DARNELL: And we were also looking for other things that were classified.

MR. FITZGERALD: Yes, yes, just to make sure there was nothing that we wouldn't expect to see at Kansas City.

We did not find anything that we didn't expect to see at Kansas City.

And a lot of that was from, I think, the original concerns that were expressed. We wanted to confirm that even though nothing in the unclassified documents spoke to it, nothing in the classified did either.

CHAIR BEACH: All right. So then next one, 18 is not applicable to what we're doing. It's chemical. We're just talking radiological exposure.

So, just for the record 18 is synergistic effects of simultaneous chemical and
radiological exposure by multiple pathways.

So, I don't know, I guess you can talk about the radiological. We pretty much covered. Is there something --

MR. DARNELL: What are you missing?

MR. KATZ: Wayne just left the room for a moment so we're just going to break again.

(Whereupon, the above-entitled matter went off the record at 3:44 p.m. and resumed at 3:49 p.m.)

CHAIR BEACH: Okay, so we were talking about 18, radiological exposure by multiple pathways.

We eliminated the first part because we're not here to discuss chemicals.

Is there anything more that we need to talk about on that one, Wayne?

MR. KNOX: No, no. But that chemical damage to the lungs can impact the uptake of radioactive retention factors associated with the lungs.

CHAIR BEACH: I understand, but it's not something we can cover here. So that one is
off the table then? All right.

So the next one, absorption/injection pathways, DR.

MR. KNOX: A lot of those workers have cuts. If you look at their records they have a lot of cuts and scrapes.

And you will have the injection particles of radioactive material into their skin, especially those who work with the lathe.

And I know that produces a lot of skin cancers which are not really covered under this act.

CHAIR BEACH: Well, I think most rad workers are trained that if they have open wounds they are supposed to have them covered.

Whether they did or not I can't say, but I know that that's pretty ABC training.

MR. MCCLOSKEY: Early on at the Kansas City Plant, this is that same document I showed you earlier with the procedures that were in place.

And so this began in 1951 is the date on this one.

And Section 1.06 says, First aid and
treatment following accidents.

Minor lacerations. Any minor laceration received on the hands or body as a result of contact with the uranium-238 will be treated in the following manner.

Wash the hand -- affected area. Wash the affected area thoroughly with soap and water. Check the affected area for contamination with an alpha counter.

Report to first aid where the wound will be examined thoroughly with a high-powered magnifying glass and all foreign bodies removed.

So, I mean they had procedures in place to address, and it goes on.

A periodic recheck will be made by the medical department until the wound is completely healed.

It is permissible to continue working with uranium with very small lacerations on the hand provided they are bandaged and gloves are worn.

So if you show up to medical with one of these cuts, they're going to make sure you get
a bandage on it.

And you have to wear additional PPE, i.e., gloves. So they had at the very beginning, the very onset of their radioactive work there procedures in place to address cuts, wounds.

MR. KNOX: Okay.

MR. MCCLOSKEY: That was SRDB 128346.

MR. KNOX: I'm going to request a copy of that too.

MR. MCCLOSKEY: Sure. And that's just one iteration of the health and safety procedures required to enter the radioactive areas where they did the radioactive work.

I have many iterations of those procedures over the years as they were revised as you would expect.

MR. KNOX: Did you find, number 20, did they do a lot of radiography work there with sources?

MR. DARNELL: As far as finding records of radiography work, I don't remember finding that much.

It was an industrial plant, so I would
assume yes, they did.

MR. FITZGERALD: Well, they had a lot of sealed sources. They did some radiography.

We did check on iridium and on cobalt. We didn't find any iridium, but certainly found references to cobalt-60 use at the plant for that purpose.

So yes, they did do those kind of procedures using cobalt-60.

And it's an industrial plant so it's not too surprising they would be using gauge sources to do that.

MR. KNOX: What about the procedures established in the boundaries?

MR. FITZGERALD: Yes. I mean, we saw the documentation for use of those sources. And they certainly had a program for that. And they were sealed sources.

In terms of radiography they had radiography procedures. And those were documented. We certainly can make those available. I mean, that's part of the record.

Now, granted it was part of this
integrated safety program including industrial
hygiene, health physics and industrial safety was
all together until I guess it was -- was it '87?
Something like that.

So, it was managed that way. But
nonetheless the plant had experience and did, in
fact, manage a radiography program, sealed source
program, did those kinds of procedures.

Had a fairly good record. They had a
couple of incidents the worst of which was the
promethium incident and you're familiar with that.

But other than that there's a pretty
documented history of that. That's fairly well
documented.

MR. MCCLOSKEY: You can look in the SEC
Evaluation Report. Tables 5.2 and 5.3 show all the
different types of sources that were used at the
site and how they were used.

MR. FITZGERALD: As I recall it's also
cesium and cobalt are the two that seem to be the
prominent sources.

They did have plutonium-beryllium
sources, but they were not very -- they were only
I think used sparingly. It was mostly cobalt and cesium.

MR. KNOX: But I was also concerned about the exposure of people on the roof.

Because when you set up those boundaries, and I've seen this where they set up the boundaries downstairs and they forget about the exposure to people that are on the roof.

MR. FITZGERALD: We looked at incidents and we actually did not find any experience with exposures like that.

They did inadvertently expose individuals in an adjacent room. We did look at that incident. And certainly there were some exposure to those individuals, but it wasn't very high.

But it was an accident. It was written up as an accident.

So, over the history of radiography use it was fairly good except they did have, in fact, that one.

It was an incident where they had individuals who were not part of the radiography
operation in an adjacent room.

And the way the beam was set up they were exposed.

And that was written up pretty much as an incident.

We did investigate that because that would have been a potential -- if it weren't investigated and the doses weren't estimated that could have been an unmonitored exposure.

So, we chased that one down because that certainly could have been potentially a high exposure.

It turned out it was not in terms of where the individuals were.

The potential was there. But the individuals were not positioned so that they were exposed.

So, we did look at the incident record primarily because of the way the program was set up.

When you have radiography like that it's not -- you don't have a routine exposure monitor. You have external badging, but you don't
have routine exposure monitors.

We looked at what the history of inadvertent exposures might have been and whether or not there was a history of that thing going on.

But they had set it up where the radiography was being done in a very controlled environment in a certain room.

They had indicated where the shielding would have been, where the workers would have been positioned.

And they were pretty careful about it. They slipped up once that we can find. We didn't find any other experiences where they had slipped up.

And certainly in terms of the beam going up, that would have been a major issue since they were doing beams horizontally.

So, there was no evidence that they, in fact, had an inadvertent beam going up to the roof.

But if you're interested we can certainly get the document. We did look at that one that we did turn up.

MR. KNOX: Okay. Related to that is
the exposure from all of these radiation-generating machines.

Did they use NCRP 49 or some other method of procedure for determining the exposure of people?

MR. FITZGERALD: I'd have to go back and see what the actual standard referenced. They did have a proceduralized program.

Now, that changed over time. They started fairly far back, in the sixties using radiography. So, as they moved forward those standards shifted and were updated.

So, whether it was NCRP 49 at some point in that continuum of time I'm not positive.

But I certainly -- one thing we can do as an action is make sure you have that timeline of which radiography procedures would have been at any time from the early sixties through almost current time, actually.

CHAIR BEACH: Excuse me. Sorry, Wayne. Timeline for when --

MR. FITZGERALD: If that's of interest, radiography used at the plant and what
the basis of the procedures would have been at the time.

Now, a lot of these were based on DOE orders that were, in fact, based on standards. So, you could certainly paint the picture it was DOE order XXY that had this particular standard referenced as the standard of practice for radiography.

But I'll tell you from history that radiography was pretty, you know, it was used almost everywhere at DOE and AEC before that.

So, there was a pretty standardized procedure on how one does that and how you design facilities so you do it safely.

So, that's something that I think we would certainly -- we did look at that. And like I said, it was pretty much consistent with practice elsewhere.

MR. KNOX: So, they did the shielding design studies.

MR. FITZGERALD: Yes, you had the -- when you're using cobalt-60 in this kind of radiography, obviously, you have to have the
engineering right, have the beam and the target in the right locations.

You have to have even occupancy in rooms. That's where they slipped up. They had occupancy in a room that shouldn't have been occupied when they were shooting the beam.

So, those kind of things needed to be proceduralized.

CHAIR BEACH: Is that your action or NIOSH?

MR. FITZGERALD: I'll give it to NIOSH. No.

(Laughter)

MR. FITZGERALD: Whatever the Work Group wants to do.

CHAIR BEACH: What do you say, NIOSH? Do you want that action?

MR. DARNELL: Not really.

CHAIR BEACH: It sounds like you have it pretty well covered.

MR. FITZGERALD: We can do it.

MR. KATZ: Wayne just stepped out so we'll break again.
(Whereupon, the above-entitled matter went off the record at 4:00 p.m. and resumed at 4:02 p.m.)

CHAIR BEACH: Okay. So, there's one more item on our list, 21, radiation generating machine exposure and shielding design study.

Wayne, what was your thought on that?

MR. KNOX: We just basically talked about that.

CHAIR BEACH: I thought so but I wanted to make sure.

So, anything else then?

MR. KNOX: No. No, not today.

CHAIR BEACH: Okay, from this list I've got a couple of actions. The one we just talked about on the timeline for the radiography and procedures in place. SC&A is going to take that.

For Mr. Knox, if you want the raw data, you'll have to FOIA NIOSH.

And the nuclear fleas on the filtration system, that's also for you to provide documentation to us.

As far as the equipment that was sold
to the public and you asked if we had survey reports for them, I'm not clear on what would be an action there, or if there would be one.

MR. MCCLOSKEY: We can show you examples of surveys of equipment. I don't know that anything got to the public based on what Josie just said there equipment-wise.

CHAIR BEACH: So, would you be content with a memo on that? Or what are you looking for there? Do you want to see the actual survey?

MR. KNOX: That's what I would -- ideally I would like to see the actual survey results.

CHAIR BEACH: Is that a FOIA request then?

MR. DARNELL: Yes, it has to be. That's a FOIA request to Kansas City.

CHAIR BEACH: Okay. Because we can provide you with a memo, but if you want the actual surveys you'll have to FOIA that.

MR. KNOX: Okay.

CHAIR BEACH: And then the exit surveys, you talked about that, from the rad areas.
We showed you a procedure. Does that take care of that? Or is there something more that we need to do?

The procedures in place that said what the procedure was for people to do when they exited the areas, when they were injured.

Are you okay with that, or do you need more?

MR. KNOX: Well, I'm not -- based upon what I have been told they did not do it.

The people that came over there from -- when they went out to lunch, they did not perform an exit survey. When they brought tools over there from GSA and they worked on contaminated systems, they said they did not survey the equipment.

CHAIR BEACH: There's no way for us to prove they did or didn't other than what procedures were in place at the time, unless you can think of something else that would help you there.

MR. DARNELL: The other thing you really need to remember when you're talking to these workers. You have to ascertain whether they know what they were actually working on or not.
In a lot of cases because of the way security was set up at Kansas City, these workers had no idea.

So it would be for more than -- my guess would be that more than 95 percent of them would never survey in or out of anywhere because they weren't working with radioactive materials.

But they never knew whether they were or were not to begin with.

That's the only thing I can tell you. It doesn't surprise me that you hear from the workers that they didn't survey. Because it would be my venture to guess they weren't working with it anyway.

Like I said, very small footprint of where the actual radioactive work took place on that site.

One little corner of a huge upper level of the Bendix facility was where the work was done in the 1950s.

And it was no bigger than, what, 40 feet?

CHAIR BEACH: Yes, it was a pretty
small area.

MR. DARNELL: Very small area compared to the rest.

Department 20. Metal walls. HEPA filters. Filtration in place. You can still see it. You can still see the boxes where the filters were in the facility.

You can -- we had the rad tech people standing there telling us we did these surveys.

And then we're explaining to him how he needs to do some more. You need MARSSIM.

But they're not finding any contamination. They're not finding uranium.

We go to one small area that's about 6 by 12 and they're finding some contamination 6 inches down in the cement.

But they're looking for it. It's just not being found, okay?

So your workers telling you they didn't get surveyed, they didn't do their surveying, I believe them. I believe you.

But I also know and believe that they probably weren't ever working with the radioactive
material simply because of not only what we've seen, but what we know about how the radioactive material was used at the plant.

CHAIR BEACH: Okay, so that is the list that you gave us prior to the January 20 meeting.

You still have time but I wanted to check again to see if Mister -- [identifying information redacted], if you're on the phone?

(No response)

CHAIR BEACH: Okay. So, Wayne, the floor is yours.

MR. KNOX: Okay. There were -- I don't know how much time you want to spend with this, but there were some other issues.

I have to do some more research on this, but looking at air flow characterization studies and air balance.

Looking at the met data and looking at the intakes of facilities around that.

CHAIR BEACH: For facilities outside of Kansas City Plant? Is that what you just said?

MR. KNOX: Yes, facilities -- you had a number of buildings around the Kansas City Plant.
Some were owned by DOE.

It wasn't just the main building. There were others.

So, I was just looking at what is the possibilities of the releases occurring there from the main building and moving into another facility.

CHAIR BEACH: Based on the sources that we've been looking at, I would say it's very small if nonexistent possibility.

MR. DARNELL: Again, we've not found the spread of contamination. We've not found contamination anywhere that it wasn't supposed to be.

MR. MCCLOSKEY: We have a blurb in our ER about their environmental monitoring program, about their staff monitoring and stuff. I'll see if I can find it.

MR. DARNELL: What is it you're trying to say in this regard?

MR. KNOX: The people at Hanford when I came there, and just like at this plant here, you had -- we had actual health physicists there.

But the HAMTC workers, we got the
radiation technicians from HAMTC. And they were
the lowest qualified people at HAMTC.

They did not do a good job because they
were not qualified to do it. They were not
trained. They didn't have the education to do it.

And I'm saying what I think happened at
Kansas City. You don't give people the equipment
to do their job. You don't give them the training
to do their job.

And therefore you don't see the
radiation. You don't see the radiation exposure
because you're not measuring it. You don't give
them the proper equipment to do it.

MR. DARNELL: What is the half-life of
uranium?

MR. KNOX: Long. I should say it
depends upon which isotope you're talking about.

MR. DARNELL: Depleted uranium,
natural uranium, very long half-life.

MEMBER LOCKEY: Four and a half billion
years.

MR. DARNELL: Yes, okay. Very long
half-life.
We can agree that the Kansas City Plant has not been there longer than one half-life. Okay?

So, if I have a release of uranium through a stack onto a roof with thick tarring material like any other roof that's built, I release uranium up there. It's been less than 4 and a half billion years. I should still find it.

MR. KNOX: My basic concern is that I'm not associating with people who are being honest, and actually made appropriate surveys.

MR. DARNELL: I can't help you with that. That's your feeling.

MR. KNOX: That's my honest opinion.

MR. DARNELL: Okay. Thank you for your opinion, but that really has no bearing on what we're doing here.

MR. KNOX: Anyway, let's just end it. I apologize, but this is unexpected.

MR. DARNELL: Are you sure I can't take you to the hospital or to a pharmacy?

MR. KNOX: We can go to Costco because that's where I have the --
MR. KATZ: We're breaking again.

(Whereupon, the above-entitled matter went off the record at 4:13 p.m. and resumed at 4:21 p.m.)

MR. KATZ: Pat wants to report out some of the work he did in response to petitioner issues. So if you could that, then we'll close.

MR. MCCLOSKEY: At the January meeting we were taking notes on some of the things that you and [identifying information redacted] brought up. You gave us a list of names of people to interview. I don't remember if it was you or [identifying information redacted], but we went and interviewed those folks. And we're going to talk about some of that tomorrow.

I know it was [identifying information redacted] said to go look for these documents called Engineering Process Controls documents because they'll have some of the procedures there.

We sent a list of keywords to the site, to Kansas City Plant. The Work Group and NIOSH all worked together on generating these lists.

And the site pulled out boxes that were
responsive to those keywords. And we pored over thousands of pages there in March. I didn't actually make the trip. A number of people in this room did, and others.

We did all those interviews for you guys.

And one of the things also that [identifying information redacted] brought up was this place that he referred to as the lab. I don't know if you remember that conversation. He said it was underneath the -- I was hoping he would be here to hear this as we're showing what I found.

He said it was in the basement south of the cafeteria. And he said, I had to go down there and clean that area out, and I want you guys to learn what was in there and find out what I was handling when I was in that area.

And so we sent them the keywords and they pulled all the documents.

And one document I found, and we're pretty sure we have the area because at that meeting, I don't know if you remember, but I walked over to [identifying information redacted] and I
had him point to where it was on the map.

And I gave the site, the Kansas City Plant the actual post numbers. I said look for anything within this area, any documents you can find.

And so this document confirmed that we were talking about the same area.

And they referred to it as the lap shop, L-A-P. And I was going to ask [identifying information redacted] if there was any chance he over the years got it remembered wrong or something.

But it was a machining area. And it was pretty secure. They were working on one of the weapons programs down there, but there was no radioactive material.

Now, there could have been a source taken down there to be used to take measurements. I didn't find any record of that. But there was no machining of radioactive material down there, but they did clean it out and convert it over to a different purpose.

And for anyone that wants to read this
report it's SRDB reference 142000.

MR. KNOX: SRDB --

MR. MCCLOSKEY: One four two.

MR. KNOX: One four two.

MR. MCCLOSKEY: Zero zero zero. It's one of the ones we retrieved from the site in March of this year.

So they cleaned out this area. I think I can tell you some of the machines they had there -- it would have been best for [identifying information redacted] to hear.

So, the above lap shop support items could be removed to the southwest corner of the lap shop and provided the southeast corner a partition to prevent contamination of the main lap shop area. Adequate space is made.

So they talk about, you know, can they give up part of the cafeteria area down there in the basement to make room for this machine.

And so several people went down there.
And there's maps that show what they were taking out.

So maybe [identifying information
redacted] can get hold of that document, confirm what he remembers from that time period.

MR. KATZ: Sounds like it's right on target from that discussion.

CHAIR BEACH: Yes, it does.

MR. KNOX: Yes, it does.

CHAIR BEACH: Thank you. Okay, Work Group Members. Any questions, comments? Any issues you have or topics you want more information on?

[Identifying information redacted], sorry you feel like you were caught off guard and are not feeling well. I mean Wayne, I'm sorry. I was just writing [identifying information redacted] down here.

So, Wayne, any other issues you'd like to cover? It's not quite 5.

MR. KNOX: Well, there's always my -- when I got trapped in was thoriated rods crapping up my plutonium facility.

They have those rods and they do welding that releases radioactive material to the air.

CHAIR BEACH: Did KCP have thoriated
rods? I think we looked at that issue.

MR. KNOX: I don't know. I don't know if they had it.

MR. FITZGERALD: I don't recall. You know, that would have been, if they did any welding it would have --

CHAIR BEACH: Right, of course.

MR. FITZGERALD: We didn't notice anything, obviously.

MR. KNOX: Yes. And I'm still confused at why they label this a non-nuclear facility when clearly it was not.

MR. FITZGERALD: Well, this gets into the nomenclature DOE and AEC used. They had different classifications and they based it on a facility safety assessment.

And they had nuclear facilities. But to be a nuclear facility in the DOE-AEC world you had to have certain sources of nuclear material.

And plants like Kansas City, Pinellas and some others did have some radiological sources, but not to the extent and scope that they would have classified them as nuclear.
Nuclear meaning that you would have had to have engineered safeguards. You would have had certain facilities like they had at Rocky Flats, Los Alamos that were rigorous enough to control radiation.

Places like Kansas City, they had radioactive sources, but they were almost incidental to a non-nuclear mission.

They actually -- Kansas City built the non-nuclear components of weapons. So they focused on that.

But to do that they needed to have some sources because they had to have, as we point out, radiography to make sure that the metals were joined the right way, the welds were correct and all the rest.

They had -- in the very early days before they got into the regular mission they, like most of the other atomic energy facilities, participated in producing rods.

Because back in the early Cold War, there was a rush to produce plutonium. So everybody practically did uranium slugs and sent
them over to be irradiated in Savannah River. So that was just a sign of the times.

But their mission after that rush in the early fifties was basically non-nuclear.

But when they classify a complex, a site as non-nuclear that doesn't mean they had nothing on the site that had something to do with radiological.

They had some radiological. Not to the extent that you would have a nuclear classification and everything that goes with it.

It comes down to the facility safety analysis. That's where the classification comes from.

So they were classified as a non-nuclear facility. And there were others that were non-nuclear facilities as well in DOE.

But again, all those had some radiological sources. They just weren't as -- they weren't designed to be as rigorous with controlling the plutonium, the uranium.

They weren't fabrication facilities like Portsmouth and Paducah. They weren't testing
facilities like Nevada Test Site. They weren't laboratories like Lawrence Livermore and Los Alamos.

So, they didn't have that.

MR. KNOX: What really -- maybe I shouldn't get into that.

MR. DARNELL: No, please. This is what we're here for.

MR. KNOX: Well, back in the good old days we retrieved materials from our friends as well as our enemies. And I was a part of that process.

And you didn't know the whole pathway. You knew that the materials were obtained, and they went back to the U.S. Where they went you didn't know.

And that the Kansas City Plant to me would have been a great cover facility. It's designated as a non-nuclear. It has all of these -- it has a railroad that goes by it and has tunnels underground, all these big facilities.

And it's located in the city. No one would ever suspect that we were doing all of this
work there.

Well, this is just me.

MR. FITZGERALD: Let me just answer you your concern this way. Because certainly one of the reasons we spent a great deal of time looking at the classified information, what would be considered Secret information and documents at each of the sites is to be absolutely sure that there weren't any programs that weren't public, but were nonetheless involving radioactive materials that would have presented some exposure to the workers.

And for Kansas City, and I can tell you directly because I actually went through those files, I went and looked at the total nuclear inventory, classified nuclear inventory for Kansas City over the years, just to be sure in my own mind as well as for the Work Group that there weren't any materials that was somehow surreptitiously or maybe in a military program that was classified that was coming onsite and being applied.

To be absolutely sure of that. Because we can look at the public record. But I think that
for some of the concerns you have, that back in the Cold War there weren't any instances where this material was somehow finding its way on the site. And I can say for Kansas City we did look very, very closely at the classified database and did not see anything that would lead us to believe that there were any sources of material coming on the site that way.

Now, that's not to say that there were not programs that brought back things like Russian plutonium, what have you, as part of the non-nuclear program as one of those programs that did that.

But there were other places in DOE that went to. And they were engineered in a way that could receive that material safely.

DOE's system, and we'll just mention that, had a facility safety system where you could not receive materials unless your facility was classified as one as being engineered to safely receive it.

You just could not possess or keep that material there unless you had that kind of
assessment that was already done.

And if nothing else, that system got more and more rigorous over the years.

So, a lot of our attention is to make sure going back in time that when things were looser that some of this material, whether it was fissile material or it was something else, didn't get onsite in some form or some program that would have led to an exposure that wasn't a public exposure -- wasn't publicly known.

So, that's how I would answer your question.

We didn't take it for granted that Kansas City never received anything just because the public record said it did not. We went and looked at a lot of these records that aren't public to be absolutely sure about that.

MR. MCCLOSKEY: Prior to you guys filing a petition in 2013 and [identifying information redacted], none of our documents, our Site Profile, noted machining of natural uranium.

That wasn't listed anywhere, and neither was the mag-thorium machining. It wasn't
Because you guys filed that petition, we went to the site and said tell us again about all of these materials.

And we discovered something they had forgotten about, or maybe from need to know, you know, they just didn't include it in their documents that they had machined uranium or mag-thorium.

And now we know about that because we went through this process.

MR. FITZGERALD: I would even add to that, and you'll hear about this tomorrow with tritium and nickel-63.

That was identified and pursued based on our going through weekly activity reports that were written in the 1960s week by week by week in microfilm.

That's how we picked that up. Because we went through reels and reels and reels and happened upon a mention that tritium was being handled in 1963.

And that led to, frankly, uncovering a
program that everybody had really forgotten about. You know, this was 50 years ago.

And that's kind of the investigation that we go through. We go through the records. Even if nobody says anything about any of these programs, what records exist, even if they're 50 or 60 years old, if there's any mention that opens up an investigation into that particular program.

So, that's how tritium came about. And we're just mentioning how these others were identified, mag-thorium and the uranium cores.

I mean, that's all based on the investigation going through these documents.

Many of the people who would have been familiar with those are no longer available. So, really that's the process you have to go through.

MR. MCCLOSKEY: There's a lot of work that goes on behind the scenes when you guys give us something like the lab, or a name of a person to interview.

There's a lot of work that goes on for us to get that information from that site or from that person.
MR. KNOX: By my nature as an auditor and my intelligence training and experience, I'm suspicious.

MR. FITZGERALD: As am I. I was an auditor for almost 30 years.

MR. KNOX: And I still have some things that I'll work on, but I think we should -- if you could run me by Costco.

MR. DARNELL: Costco is about 40 minutes from here.

MR. MCCLOSKEY: Anything else that will work?

CHAIR BEACH: Okay, so wait, before we get onto that discussion, is there anything from anybody on the line?

We're talking about closing the session out today. Does anybody have anything to add or say?

MEMBER CLAWSON: No. This is Brad.

CHAIR BEACH: Thank you, Brad. Hearing none, then I will call this meeting adjourned. Thank you, everybody.

MR. KATZ: Thanks, everybody, and
we'll speak to you all tomorrow.

CHAIR BEACH: Nine o'clock tomorrow.

MR. KATZ: Eastern time.

(Whereupon, the above-entitled matter went off the record at 4:36 p.m.)