UNITED STATES OF AMERICA

CENTERS FOR DISEASE CONTROL

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NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH

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ADVISORY BOARD ON RADIATION AND
WORKER HEALTH

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108th MEETING

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THURSDAY
NOVEMBER 19, 2015

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The meeting convened at 8:15 a.m., Pacific Time, in the Waterfront Hotel, 10 Washington Street, Oakland, CA, James M. Melius, Chairman, presiding.

PRESENT:
JAMES M. MELIUS, Chairman
HENRY ANDERSON, Member
JOSIE BEACH, Member
BRADLEY P. CLAWSON, Member
R. WILLIAM FIELD, Member*
DAVID KOTELCHUCK, Member
WANDA I. MUNN, Member
JOHN W. POSTON, SR., Member*
GENEVIEVE S. ROESSLER, Member
PHILLIP SCHOFIELD, Member
LORETTA R. VALERIO, Member*
PAUL L. ZIEMER, Member*
TED KATZ, Designated Federal Official

REGISTERED AND/OR PUBLIC COMMENT PARTICIPANTS

ADAMS, NANCY, NIOSH Contractor
AL-NABULSI, ISAF, DOE
BARRIE, TERRIE*
BURGOS, ZAIDA, NIOSH
BURKHART, HARRY*
CARROLL, STEPHANIE*
CRAWFORD, CHRIS "FRANK," DOL
DARNELL, PETE, DCAS
FITZGERALD, JOE, SC&A
HINNEFELD, STU, DCAS
KINMAN, JOSH, DCAS
KNOX, WAYNE*
LEWIS, GREG, DOE
LIN, JENNY, HHS
NETON, JIM, DCAS
RUTHERFORD, LAVON, DCAS
STIVER, JOHN, SC&A
TAULBEE, TIM, DCAS

*Participating via telephone

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P-R-O-C-E-E-D-I-N-G-S

8:29 a.m.

CHAIRMAN MELIUS: Welcome, everybody. Day 2 of the Meeting Number 108 and let me turn it over to Ted to do the -- to knock over the glass and do the roll call.

MR. KATZ: Welcome, everyone. I hope I do roll call more smoothly than I managed yesterday.

Folks on the phone, just to let you know, the materials for today's meeting are on the NIOSH website under the Board section, meetings, today's date. So, you can go on there and see all the materials that we discuss today. Pull up those presentations and read them.

Alternatively, the agenda's there, too, and on the agenda, there's a link for the address and code for Live Meeting and if you can deal with a Live Meeting, then you can join that way and watch the slides as they're presented here. So, that's an option, too.

Roll call, I'm just going to run --

there are no conflicts of interest today to address. So, we don't have that in the way and I'm just going to run down and I can actually speak for the people I can see. I'll run down the list.

(Roll call.)

MR. KATZ: Let me remind everyone to mute your phone. Everyone on the line, mute your phone and if you don't have a mute button, press *6. *6 will take your phone back off mute for this call and please don't put the call on hold at any point, but hang up and dial back in if you need to leave the call for a piece.

And with that, Dr. Melius, it's your meeting.

CHAIRMAN MELIUS: Okay. Thank you, Ted and let's start with -- we have Blockson Chemical Special Exposure Cohort petition and Jim Neton will be doing the presentation.

If the petitioners are on the line, just to let you know, how we usually do this is we'll have a presentation from NIOSH on their petition evaluation. That will be followed by questions

from Board Members about the evaluation and then we'll give an opportunity for the petitioners to speak, provide comments on the evaluation if they wish to do so. Not required to do so, but if you wish, you may. So, that'll be the order and then the Board will conduct further deliberations on what to do in regards to the Evaluation Report.

So, Jim.

DR. NETON: Thank you, Dr. Melius. Happy to do a presentation at the beginning of the day. Usually, I seem to draw the after-lunch presentations when people are slightly less alert.

But, I'm here to present the Blockson Chemical Company Special Exposure Cohort Petition Number 225 today.

Overview of the petition, it was an 83.13 petition that was received by NIOSH about nine months ago, February of this year and the Petitioner Class Definition as you see on the screen here is all maintenance and operations personnel who worked in any area of Blockson Chemical during the period July 1st, 1960 through

the end of 1991, December 31st, '91.

I should say at the outset that this time period is totally within the residual contamination period of Blockson. If you recall, there was a covered exposure period where they did AEC work from 1951 through the end of June in 1960.

A few months after we got the petition in May, we qualified the petition and the basis for the qualification is radiation exposures were incurred by members of the Class and they were not monitored either through personnel or area monitoring.

Of course, this is what you'd pretty much expect during a residual contamination period. The AEC operations are over and there's some contamination left and I'm hard pressed to think of any AWE that was not involved in radiological operations as a norm that had a personal monitoring program. Although, we do have some area monitoring data that I'll discuss later that we intend to use to bound the exposures in the residual contamination period.

1991, by the way, is the year production stopped, commercial production stopped at Blockson.

So, the Class evaluated by NIOSH was all employees who worked. We modified it from the maintenance and operations to all employees, which is typically what we'd do. Looked at the entire workforce who worked in any area of the Blockson site in that same time period, July 1st, 1960 through December 31, '91.

Like I said, this is in the residual contamination period, although Blockson Chemical made some type of phosphate products starting in 1930 all the way through 1991. So, it's a long period of operation with a little punctuated period of ten years where they made uranium for the AEC which I'll talk about later.

Just to refresh your memories, during that early period, we see the petition in SEC 58 I believe. The petition for 1951 through '61, that covered time period and the Board -- after -- we received that in 2006 and after much deliberation

if you recall about these various radon models and such, it was decided by the Board that we couldn't reconstruct dose in Building 40 which is the main operations facility at the site and an SEC was added in 2010. So, it took four years of deliberation to add that Class.

Now, I will note that if you see the petition was from '51 to '62, there is a disconnect between what we're looking at today. Because just before that Class was added, the Department of Labor reduced the covered period from 1962 to 1950 based on some documentation that NIOSH had discovered during our evaluation of the petition itself and since then, there's been some other documentation identified that corroborates the 1960 completion date.

So, again, remember the early period was now 1951 to '60 not '62.

The data sources that we used -- almost entirely what I'm going to talk about today is based on what's in the Technical Basis Document that was reviewed by SC&A back in the 2007 time frame. We

have a Technical Basis Document TKBS-0002, which is the Technical Basis Document for the Blockson Chemical Facility.

It was originally issued in 2006. I believe we're up to Rev 4 now. That was issued in 2014. So, it's a fairly current document.

We also looked at Technical Information Bulletins. There are several generic ones out there that deal with reconstructing dose from radon exposures and there's a TIB on exposures at phosphate plants. So, there are a few TIBs that were involved here.

We also relied on information from petitioners and former workers. The petitioner provided some information on Residual Contamination studies and such and we interviewed -- not for this particular petition but for the earlier petition, SEC 58 Petition, we did interview five workers from the site to develop our approach that's outlined in the TBK -- the Technical Basis Document for Blockson.

And also in the 2007 time frame, we had

two meetings in Joliet. One was a worker outreach meeting and one was a town hall-type meeting where we also received some information from workers.

Of course, we also relied on the Site Research Database. There's something like 1400 documents in there related to, as you can imagine, the history of the plant, chemical processing, procedures and such and that sort of thing, contracts. So, we relied on that and then also, as usual, we looked at previous dose reconstructions.

This slide shows you the status of the dose reconstruction as of, I think it's August 19th, a few months ago. But, I checked. As of Friday, that number's still good. We have 143 petitions we've received for Blockson.

And the slide says we have 130 cases for employees who worked during the period under evaluation. That's '60 to 1991.

That's somewhat misleading because remember I said there's an earlier SEC. Of those 130, 110 also have employment in the earlier SEC

period. So, in reality, these numbers aren't perfect, but this evaluation will probably end up affecting 20 or so workers, not 130. Because many of -- as I would say, assume that many of the 110 with earlier employment were covered under the previous SEC. Not perfect because there may be some employment issues there.

We've completed 127 dose reconstructions. So, we have three active cases in house.

And as I stated earlier, we have no internal or external monitoring records for workers during the residual period at all.

Just to refresh your memory about the background at Blockson. They processed Florida phosphate rock into phosphoric acid and from that phosphoric acid, they made various forms of phosphates, di- and tri-phosphate-type materials and the plant ran through, at least during this period, about 6,000 tons of phosphate rock per week. Pretty good workload.

Since the phosphate rock was known to

contain about .012 percent uranium by weight and the AEC was looking for any source to develop their inventory of uranium supply, they turned to Blockson Chemical and thought, well, maybe you could extract the uranium as part of your process. Which they eventually issued a contract and developed a process to recover the uranium.

In 6,000 tons of uranium, there's about -- or phosphate rock, there's about 1400 pounds of uranium, which gives you an idea of the scale. A lot of material went through that plant to extract the uranium.

Blockson did modify their process and actually built Building 55, which is a separate building, standalone building, one story, like 100 by 175 foot brick building or block building where all the operations relevant to extracting the uranium occurred. So, the source term actually is Building 55 when we're talking about uranium.

I mentioned they did use a wet process. This phosphate rock was originally -- was calcine. They just heated it up to drive off the organic

material and that was done outside of Building 40 and then transferred into Building 40.

The rock was pulverized, digested in sulfuric acid. The uranium actually went with the sulfuric acid and so, the sulfuric acid stream was diverted into Building 55 where they precipitated out the uranium into drums. Chemical process steps in the middle there, but that's basically the gist of it.

The waste, of course, this uranium in the ore was in essentially equilibrium with all of the uranium decay chain. U-234, thorium-230, radon, radium. So, there was equilibrium there. The radium in that ore actually went with the waste, which was called the phosphogypsum and that was deposited outside in these large piles. Eventually, it grew to a 227-acre 90-foot high pile. Not real close to the facility, but on their 1,000-acre property. So, it was a huge amount of material there.

I did a rough calculation and it seems to me that only about 8 percent of that pile is

related to AEC activities. Because if you know the volume of the pile and the density of the material, you can kind of do a calculation that will give you an idea and so, maybe 8 to 10 percent of the pile was related to AEC activities. The rest was due to the commercial operations that started in 1930 and ended in 1991.

So, there's some issues there with how you treat that residual contamination since you've got this radium sort of buried in the middle of this huge 227-acre pile.

I mentioned already the phosphoric acid stream contained uranium. That was done and processed in Building 55. I've kind of gone over this slide already. Got a little bit ahead of myself.

Okay. The uranium concentrates were digested, packaged and the final product was essentially some form of yellowcake, ammonium diuranate, something like that. I was about 40 to 50 percent uranium by weight and it was shipped off to the AEC facilities.

As I mentioned, production ended in 1960 and ultimately, Blockson recovered 118 tons of uranium in that time period. Quite a bit of uranium was processed through there. But, as I mentioned, there was 6,000 tons of this rock going through the plant at the same time per week.

So, as I just described the process, you can imagine the sources of internal and external -- the sources of residual contamination are going to be the internal/external doses from the uranium contamination that was in Building 55.

What you also have is a dose from the progeny: the radon, the radium. There was actually -- uranium was there in equilibrium, but there was also some thorium in this ore and our calculation, it's in the top line of the TBD, is about one-thirtieth. The thorium was about one-thirtieth the activity of the uranium. Thorium-232. So, we've included that in our calculations.

So, how are we going to bound the sources of this residual contamination? This is

after 1960. Is we use -- again, this is in the TIB, the TBD. Building 55 is used to bound the dose from the residual AEC-related contamination, that is, the uranium that is in that building.

You remember they're still processing 6,000 tons of this rock through the plant. So the residual contamination is somewhat diluted almost immediately with the commercial operations that are going through the plant.

And so, we're going to use Building 55 to bound the uranium doses and the phosphogypsum stacks are going to be used to bound the radon exposures from the AEC-related activity. That 8 to 10 percent of the pile that's still generating radium and is still there today as far as I know.

So, what kind of data do we have available for us to do these bounding-type calculations? Well, we had bioassay data from the uranium recovery workers. HASL, the Health and Safety Lab for the AEC, actually did uranium measurements on 25 workers. They collected a total of 122 samples between 1954 and '58.

We also have some air sampling results that were performed in 1978 and '83. In 1978, Argonne National Laboratory did an on-site survey in Building 55 as part of the FUSRAP program and did some particulate air sampling which didn't detect any long-lived activity above background, by the way.

And in 1983, Olin Mathieson who by that time owned Blockson Chemical contracted with Herman Cember, who most of you probably know of, to do some radon and particulate measurements as well. They did -- I think 11 workers had BZ samples that they took. None of those detected activity except for one which is a very small amount of activity on the BZ sample. Breathing Zone Sampler.

Argonne also did extensive contamination and radiation surveys in that 1978 survey. This is in Building 55 only. I think they surveyed 95 percent of all the floor area of that building and 90 percent of the walls and did a number of contamination surveys. I think they

found contamination above background, removable contamination in 70 spots in that building.

We also had some radon monitoring data. I mentioned Argonne did particulate surveys. They also did some radon measurements as well in '78, but not on the phosphogypsum pile. This was in Building 55.

And the 1983 survey also did this measurement -- four or five measurements on site of radon and I'll talk about those in a little bit.

The last bullet is cut off here, but what that says is we also have flux measurements from the phosphogypsum piles taken in 1993. Flux measurement is sort of an exhalation rate of the radon. It's picocuries per square meter per second. It's taken, and I'll talk about this later, to demonstrate compliance with EPA regulations concerning radon flux coming off of phosphogypsum piles. There were about 300 measurements taken in 1993, in November of 1993.

So, to bound the internal dose at this site, we're going to use the TBD approach which

provides intakes of uranium during operations. We have bioassay data and we estimated the chronic exposure of these workers and at the end of operations, we estimate that the workers were taking in about 13 picocuries of uranium per day.

So, we're going to assume that that's the start. You know, there's not a sharp line there. So, at the end of operations, we're going to assume that's what people are breathing day one of the residual period. So, that's our starting point.

I also mentioned we have contamination data from Building 55 in 1978 taken by Argonne and the highest area of concentration they measure for alpha was 640 dpm per 100 square centimeters. So, if you take that 640 dpm per 100 square centimeters and re-suspend it, the re-suspension factor of 1 times 10 to the -6, you can estimate the air concentration in 1978 which comes out to an intake of about .28 picocuries per day.

So, you have the TIB-70 approach where you have a starting concentration, an ending and

you connect an exponential curve between the two and so now we can estimate the uranium intake at any time between 1960 and '78 and beyond because we're going to assume the slope continued down through 1991, and it worked out fairly nicely.

This TBD was actually developed before TIB-70 and this approach is pretty much in line with what was in TIB-70 ultimately. It's become a very standard approach in residual contamination periods.

As I mentioned, these values, we used -- compare -- Even though it didn't use TIB-70, they compare very favorably with what we would get if we used the TIB-70 approach today.

This may be even a little higher. Because again, we took the highest contamination survey value in 1978 and we assumed that the workers were breathing 13 picocuries in 1960. Which was the median intake by the way. Not the 95th percentile of the workers.

As usual, we can include ingestion pathways as well. We use that same bioassay data

and say, well, if they weren't inhaling the material and they ingested it, how much would they have to ingest in order to excrete 13 picocuries per day. That's the starting point and that came out 41 picocuries per liter or 41 picocuries per day ingestion and then we used the same exponential clearance function that we developed for the inhalation intake, the amount in any given year.

I mention though that the uranium is in equilibrium with U-234 and thorium-230. We assumed for this, and this is in the TBD, that it stayed in equilibrium through the entire process even though it's probably not necessarily true. So, any intake of uranium would give you a corresponding intake of uranium-234 or thorium-230. So, we've assumed that the uranium that was being drummed essentially was contaminated with thorium-230.

Okay. External dose, Argonne did measurements in '78, like I said. They surveyed about 95 percent of the floor area and they went and surveyed the hot spots, the areas where they

found contamination on the floor. I think they ended up with 70 hot spots. I think they did 63 spots, only seven of which had measurements above background.

The building background was about .02 to .03 mR per hour. Which those of you who know on an environmental level is about two to three times what you consider ambient background, 10 micro R per hour, or .1 mR per hour.

So, general background was around .02 to .03. The hot spots went from .04 to .2 mR per hour. The seven. But, a number of them were sort of in inaccessible areas where you wouldn't expect a worker to be standing most of the time. Like they were inside of a pipe scale or on top of a digester tank, that sort of thing.

Nonetheless, we used these hot spots to develop our external dose exposures and we ended up assigning them as a log-normal distribution with a median value of .03 mR per hour with a 95th percentile equal to .2 mR per hour, which is one of the highest values that was measured on the hot

spots. That equates to a GSD, geometric standard deviation, of I think around 3.

So, the median value is .03 mR per hour, then your annual photon exposure, your best estimate is about 60 millirem per year external dose from the residual contamination period.

We looked at the contamination levels based on alpha -- based on dpm per 100 square centimeters and the beta dose from the contamination levels that were there were pretty trivial. They were like 1 or 2 mR per year. Not much. So, we were just assuming that 60 mR per year bounds, incorporates the beta exposure to the skin as well.

And again, the amount we're ascribing to the beta is favorable in comparison with the dose estimates based on a general contamination survey. If you take the FGR11 -- 13 numbers, EPA document, you can calculate the external exposure rate from surface contamination and it's pretty small.

But, remember that these measurements also include the commercial operations that were

continuing after 1960. So, this is a somewhat conservative estimate because AEC operations ended in '60 and we have evidence that Building 55 was used through 1978 for commercial activities. So, the contamination here is not necessarily related to the AEC activities, but we're going to assume it is because we can't differentiate, you know, between the two.

Okay. Let's move over to radon exposures. Again, I mention radon was measured in '78 and '83. The Argonne measurements in Building 55 range from .14 to .61 picocuries per liter.

The 1983 survey measurements, they didn't -- they gave -- unfortunately, they reported results in counts per minute which is kind of interesting. But, they did say that of the four or five measurements that were made, the highest value was .042 working levels and that was not the phosphogypsum pile. So, the phosphogypsum pile by definition then is less than .042 working levels. Which if you assume 70 percent equilibrium for outdoor air, it's about six-tenths of a picocurie

per liter on the phosphogypsum pile.

Of course, you know, I mention the radon from the active phosphate work is not applicable, but we have no way of differentiating AEC radon on a phosphogypsum pile from the commercial activities. There's just no way. So, you got this 10 percent or 8 percent chunk in the middle. How much of that is AEC? We're assuming it's all AEC-derived.

I talked about these radon flux measurements, the 300 that were taken in November during various weather conditions and such during November of 1993 and the highest flux measurement was 10.1 picocuries per meter squared per second.

It was the highest mean value. They did multiple measurements at individual sites. So, that's why it's called the highest mean. It was 10.1 in '93. The average -- weighted average value of all the measurements was around 4.

Unfortunately, even with all these great 300 measurements, they did not report a radon air concentration value and there's no really good

way to convert that directly to a radon air concentration although we do know that in 1983 it was less than four tenths of a -- less than about six tenths of a picocurie per liter.

So, we looked at Texas City Chemicals which had an inactive phosphogypsum pile as well and they had similar radon flux measurements that were made because of the EPA requirement and they also provided radon concentration measurements in addition to the flux measurements.

So, the Texas City Chemical flux was -- the average value was 10 compared to the highest value which is 10 at Blockson. So, you would think it would be somewhat conservative to use that value because their mean value is 10. I'm sorry. Their mean value was 10. The highest at Blockson was 10.

And it seems to compare pretty favorably with what happened at Blockson. It's phosphogypsum pile. It used the same Florida phosphate ore that had the very same concentration of uranium. They used a wet chemical process. It was an inactive pile. They're both inactive.

Very similar operations and the value measured at Texas City Chemicals was .42 picocuries per liter. The highest value measured.

So, we're proposing to use that as the value to bound exposures at Blockson Chemical in 1993.

Now, I mentioned that they were both inactive fly ash piles. Well, inactive fly ash piles, according to EPA research, tend to vent less radon because a crust develops over the top and by the EPA research, it's about a factor of five difference in the ventilation rates.

So, if we adjust for the active to inactive, you end up with 2.1 picocuries per liter which we're going to use as the upper-bound estimate for Blockson in 1960. So, you have 2.1 picocuries per liter in 1960 and .4 in 1993. You connect the dots and you can estimate the radon concentration any time in between those two dates.

Like I said, we do an exponential depletion rate and presume to connect 1960 and '93 values and it is our opinion these annual exposures

that we're assigning based on this model or method bound all available radon data for Blockson.

And again, we didn't just use the Texas City data. We also have some corroborating values at the site which seem to put it in the right ballpark. There's also some Florida Institute of Phosphate Research data that indicates that active phosphogypsum piles are around 1.7 picocuries per cubic meter. So, it all kind of fits in that general ballpark.

So, in summary, we believe that we can bound the exposures for internal dose from the uranium and its progeny during this period. We have a method to bound the radon exposures. We can bound the external exposures.

Medical exposures are not covered in the residual contamination period so we don't have to reconstruct those. So, it's not applicable here.

And that concludes my presentation. I'm sure there are some questions because I kind of breezed through a 50-page document in pretty

short order.

Thank you.

CHAIRMAN MELIUS: Board Member questions?

MR. BURKHART: Yes. I had a question, if I could.

CHAIRMAN MELIUS: Who's this?

MR. BURKHART: My name's Harry Burkhart.

CHAIRMAN MELIUS: No. No. Please until the Board Member asks their questions. We'll get to petitioners --

MR. BURKHART: Okay. Thank you.

CHAIRMAN MELIUS: -- later.

MR. BURKHART: Thank you.

CHAIRMAN MELIUS: Do Board Members on the phone have any questions? Yes. Gen, you had --

MEMBER ROESSLER: So, SC&A reviewed the TBD in the previous evaluation of Blockson and have they reviewed this recent --

DR. NETON: No. Well, they haven't

reviewed any -- they reviewed Rev 0, I believe. Which was -- or Rev 1 possibly back in 2007. There's a couple of iterations since then, but it has not changed substantively since that point.

Most of the revisions -- one of the revisions had to do with adding the SEC Class. There was another one that was added because there was a mistake in one of the tables. I don't think it's substantively changed from the original version that was issued in 2006.

MEMBER ROESSLER: I think we need to hear from them as to what --

DR. NETON: Yes, and I honestly don't have in my head what the findings were and all the resolutions, but I know they did review this document or the TBD a long time ago.

CHAIRMAN MELIUS: But, not its application to this time period.

DR. NETON: No. No, that's correct.

CHAIRMAN MELIUS: Yes.

DR. NETON: Yes, they were focusing primarily on the covered period.

CHAIRMAN MELIUS: Right.

DR. NETON: You know, the covered years. Not necessarily residual contamination period. Although as I mentioned, our starting point is based on what we did during the covered period. But, either way, they haven't looked at it closely from a residual contamination perspective.

CHAIRMAN MELIUS: Josie.

MEMBER BEACH: I don't really have so much of a question as more of some comments.

When I read through the document, it was really clear to me that there are several issues. One being the complication between the residual period and then the commercial period. That's a little complication. Which you mentioned.

DR. NETON: Well, I'm sorry. You mean as far as the covered dates?

MEMBER BEACH: Yes, the -- well, no, not the covered date.

DR. NETON: That's --

MEMBER BEACH: Just the fact that they

did commercial work that's not covered. Yes.

DR. NETON: Okay. I see what you're saying. Yes.

MEMBER BEACH: So, no questions here. Just comments.

And then one question, though. Have you looked at the surrogate data against the Board criteria?

DR. NETON: Yes. Yes.

MEMBER BEACH: And it meets?

DR. NETON: We believe it meets the criteria.

MEMBER BEACH: Okay.

DR. NETON: It's summarized briefly in the Evaluation Report. I forget which section, but there was some bulletized lists and I kind of breezed through them about why it's the same chemical process and the same uranium concentration. That sort of thing. Inactive pile.

There's a ten-year discrepancy between the dates of the measurements. Texas was '83.

Blockson was '93. But, phosphogypsum pile to phosphogypsum pile. It's not like those engineering controls were different or something like that. At least in my opinion.

MEMBER BEACH: And then there's the -- there's some air sampling data from later years and then the sample data from earlier years. My suggestion would be just to have SC&A look at it in a Work Group, maybe, meeting. That's --

CHAIRMAN MELIUS: Yes. Let's get to that in a second.

MEMBER BEACH: Okay.

CHAIRMAN MELIUS: A little early. Jumping the gun here.

MEMBER BEACH: Oh, I --

CHAIRMAN MELIUS: Yes. Gen.

MEMBER ROESSLER: If that happens, it'll probably take care of this. There's probably a little question, but you're talking about those big old phosphogypsum stacks out there being a source of exposure and I think you said your calculations are all based on assuming they're

inactive and --

DR. NETON: Well --

MEMBER ROESSLER: -- or were inactive during that period.

DR. NETON: Yes, that's correct.

MEMBER ROESSLER: And I was just wondering if that's verified that they were actually?

DR. NETON: Well, production stopped in 1991. The commercial operations stopped in '91. The measurements were made in '93. So, they were inactive for at least two years or about two years.

MEMBER ANDERSON: But, they weren't disturbed at all?

DR. NETON: I don't know. I can't -- I can't -- yes, that would be --

MEMBER ANDERSON: Assumption of the crust, they were --

DR. NETON: Yes, I don't know the answer to that.

MEMBER ANDERSON: -- selling it or

using it in some way to get rid of it.

DR. NETON: Yes.

MEMBER ANDERSON: I mean it's a big pile.

DR. NETON: Remember. One could almost make the argument that, you know, how far is the radon that's in the middle of the pile going to diffuse out of it. It's maybe none, but we're assuming that it's all related. This entire 227-acre pile is related to AEC activities. Yes, it's confusing.

CHAIRMAN MELIUS: Yes. Do that. Well, Henry.

MEMBER ANDERSON: Yes, the other is I don't remember the location. The weather conditions in the two. Blockson area versus this area.

DR. NETON: Yes, it's a valid point. We didn't examine that.

CHAIRMAN MELIUS: And if you remember, Texas City was an SEC --

MEMBER ANDERSON: Yes.

CHAIRMAN MELIUS: -- and it was based -- there was lack of --

DR. NETON: Radon. Well, the same as Blockson for radon --

CHAIRMAN MELIUS: Yes.

DR. NETON: -- in the commercial operation. But, we can't confuse the radon that we can't reconstruct in Building 40 which is not applicable anymore to the radon in the pile.

CHAIRMAN MELIUS: Right. Right. Yes. Yes. Yes. But, what I was saying is I don't think we had ever done -- because Texas City became an SEC was not --

DR. NETON: That's correct.

MEMBER ANDERSON: Didn't explore very --

CHAIRMAN MELIUS: -- explore it in great detail.

DR. NETON: That's correct.

CHAIRMAN MELIUS: And so forth. So, there's probably information, but it's been a while since any of us have looked at that report.

MEMBER MUNN: It was all radon.

CHAIRMAN MELIUS: It was -- yes. Yes.

MEMBER ANDERSON: And it's clearly similar. So.

CHAIRMAN MELIUS: Phil.

MEMBER SCHOFIELD: I have a question. The pile of the spent phosphate rod, was that covered or was that just dumped loosely out there. My thinking is wind has dried out and blow it around or particularly, up there, they probably got a lot of moisture that may be leaching some stuff out as -- was there any concern about those?

DR. NETON: I don't know that it was covered or not. I can't imagine they'd cover 227 acres, but remember, the surface contamination is not relevant to our residual period because it's been buried. I mean over time the cover gets -- it's covered with commercial activities. So, I'm not sure that would be a source term in the residual period.

MEMBER SCHOFIELD: Interesting.

DR. NETON: Yes, it's --

MEMBER SCHOFIELD: How you parse that as a -- yes, into that.

CHAIRMAN MELIUS: Board Members on the phone have any questions?

MEMBER FIELD: Jim, I got a question. This is Bill.

DR. NETON: Yes, sure, Bill.

MEMBER FIELD: Can you go to slide 19?

DR. NETON: I'm sorry, Bill. I didn't hear the question.

MEMBER FIELD: Yes, can you go back to slide 19?

DR. NETON: Oh. Okay. I don't know what slide 19 is. But --

MEMBER FIELD: Okay. When you're talking about the measurements of the air concentrations near the stacks. Maybe your 19 is different than my 19.

DR. NETON: What's the title of it?

MEMBER FIELD: I don't know. It's moving while you move. So, every time you move it, it moves.

DR. NETON: Okay. Well, let me -- can you see --

MEMBER FIELD: Let me just ask you a general question. You were talking about there were air measurements made near the various phosphate stacks piles.

DR. NETON: Well, Argonne only made measurements in Building 55. There were only -- there was only one measurement at Blockson made near the phosphogypsum pile and the value was not reported, but it was less than the highest concentration that was measured which was .004 working levels. So, we don't --

MEMBER FIELD: Right. But, there were measurements made there at Texas City Chemicals. Right?

DR. NETON: Oh, the ones near Texas City Chemicals, the maximum value was .42 picocuries per liter. That's what we used. Right.

MEMBER FIELD: Right. And where were they -- do you know how far away from the piles they

were measured?

DR. NETON: I don't recall exactly, but I thought they might have been on the piles. But, I'd have to verify that. I don't recall for certain.

MEMBER FIELD: But the maximum .42 sounds -- like that sounds fairly low for me. I'm surprised by that. But, otherwise, I think it's -- you know, what you've come up here with is really for the claimant-favorable.

DR. NETON: Okay. Thanks. Yes, we could certainly take a closer look at that. But --

CHAIRMAN MELIUS: Any other Board Members on the phone wish to ask questions? Okay. Go ahead.

MEMBER ZIEMER: This is Ziemer. I'm sorry. I was on mute. I have a question.

CHAIRMAN MELIUS: Okay. Go ahead, Paul.

MEMBER ZIEMER: All right. This is for Dr. Neton. Am I echoing or what?

DR. NETON: I can hear you fine.

CHAIRMAN MELIUS: You're fine.

MEMBER ZIEMER: Okay. So, the pile eventually gets pretty deep there with commercial stuff. Do we know the expected distance for which radon is actually able to escape from these piles?

DR. NETON: No, that's a good question though. I don't know the --

MEMBER ZIEMER: I mean in reality, there's a pretty high probability that the radon from that era never or almost never gets out if it's got a pretty heavy burden over the top of it --

DR. NETON: Yes.

MEMBER ZIEMER: -- from the commercial stuff.

DR. NETON: Yes, we thought about that, but then we also figured if we maximize it based on the measurements that we had --

MEMBER ZIEMER: Right.

DR. NETON: -- that we'd also be claimant-favorable, but you're right.

MEMBER ZIEMER: Right.

DR. NETON: There's a good chance if you do the calculation the diffusion length may be so short that none of it would escape the piles.

CHAIRMAN MELIUS: Any other Board Members with questions? If not, let Ted. You wanted to --

MR. KATZ: Yes. I understand that the petitioners would like me to read a letter that they sent in for the record. So, if you're on the line, unless you don't want me to -- if you don't want me to do that, let me know and I'll let you go ahead and just speak. Otherwise, I'll do that. Okay.

So, this letter was addressed to staff here on behalf of sending it to the Board. So, the message is this.

If time allows, could you please refer to the following when evaluating Blockson Chemical and that's the SEC 88 for Texas City, SEC 177 for Vitro, SEC 133 for Mallinckrodt and SEC 185 for Ames.

All the above include provisions for residual contamination and possible unknown

conditions that may have existed after the dates of production. It does not appear that this was the case in the original Blockson SEC that was changed from March 1962 to June 1960.

The one-page U308 document that was relied so heavily on, in fact, shows the contract ending on September 15th, 1960 and production ending in June of 1960. The SEC was dated as of June 1960.

This is in contrast to the above SECs that went to the end of their contracts even though there was known to be no production up to the end of their contract dates.

Although all dose reconstructions and all studies were based on an original contract date of 1962 including OCAS TKBS 2 page 4, this one-page, unsupported chart was considered sufficient enough to change the date making the previous ten years of research and data by the DOE and NIOSH incorrect.

Although NIOSH mentions in the SEC that there are multiple references to Olin contract ending in 1960, we have yet to see any of those

documents being referenced. We have, however, requested on numerous dates copies of any documents supporting any earlier ending date including the written notice required when changing the contract date or ending production early.

At the very least, there would have to be written notice required to terminate production in June of 1960 as indicated in the one-page, unsupported chart, receipts of U308.

In March 2014, Ombudsman Malcolm Nelson reviewed our claim and responded to our concerns of changing ten years of research by DOE and NIOSH with a one-page document of unknown origin. Malcolm said in his letter that he would address this issue in the 2014 annual report to Congress.

He said in that report to Congress they will question DEEOIC's reliance on a one-page document and will stress that, quote, there appears to be a double standard, i.e., when it comes to evidence submitted by claimants, DEEOIC is usually fairly demanding in terms of evidence that it'll accept. It's hard to imagine DEEOIC crediting

such evidence if it were submitted by a claimant, close quote.

There are other errors in this one-page document that was given such credence including, but not limited to the reference to Texas City production dates that do not correspond to dates referenced in the Texas City SEC 88.

At the very least, considering the questionable reliability of the one-page unsupported document, we would request that the original contract date of March 1962 be used in this SEC.

Dr. John Howard did mention in a letter January 13th, 2012 to the Honorable Adam Kinzinger, Member of the U.S. House of Representatives in response to our concerns that, quote, although the 1958 amendment of the contract had a March 31st, 1962 expiration date, the contract allowed for either party to terminate the contract without penalty provided there was a written six-month notice of termination. The early termination of the contract on September 15th, 1960 and the

termination of production on June 30th, 1960 could have been at the discretion of Blockson or the AEC or both. NIOSH currently has had no information on which party initiated the early termination, close quote.

We believe this could indicate that there never was an early termination.

In keeping with the original spirit of EEOICPA, it would seem to be in the, quote, favor of the claimant, close quote, to at a minimum provide an SEC with an ending date reflecting the original contract date of March 31st, 1962.

It may, in fact, be more appropriate to extend the SEC coverage date to 1991 since all equipment used in the uranium removal process was still on-site.

According to the 1978 Argonne study, numerous, quote, hot spots, close quote, still existed. The 1978 Argonne study further stated based on their findings that few individuals are expected to acquire such radiation doses annually.

Also, a 1996 study conducted for Olin,

indicated a yellow radioactive powder assumed to be yellowcake was still on-site.

And that concludes the letter.

CHAIRMAN MELIUS: Do the petitioners wish to make any more further comments at this point? Okay.

If not, contract end dates, that's not the purview of the Board nor of DCAS. So, it's noted for the record under that.

I think we're ready to move on. If there are any suggestions on what we should do with this, how we should handle this SEC evaluation.

Josie, you're --

MEMBER KOTELCHUCK: Just a question.

CHAIRMAN MELIUS: A question's fine, too.

MEMBER KOTELCHUCK: There was a reference in that letter to the one-page unsupported document. Could Dr. Neton tell us about what the claimant is referring to?

CHAIRMAN MELIUS: Petitioner.

MEMBER KOTELCHUCK: Petitioner.

DR. NETON: I don't have it in the top of my head, but it was a shipping document, I believe. Receipts of uranium and such that listed numerous facilities. One of which was Blockson Chemical about how much uranium was produced at certain times. But, I don't recall the specifics of it. But, that document was used as evidence to move the completion date of the contract from 1962 to '60.

The contract actually did go through '62, but I think there was some provision that the contract could be terminated at any time and it was terminated earlier in 1960. But, I don't recall the exact specifics of that document.

MEMBER KOTELCHUCK: What was --

DR. NETON: It's referenced in the Evaluation Report with an SRDB number. I could certainly --

MEMBER KOTELCHUCK: Okay.

DR. NETON: -- make it available.

MEMBER KOTELCHUCK: In your mind, was there any question about the official nature of the

document? I mean was it a supported document?

DR. NETON: I had no reason to question it. Although, you know, we forwarded that information to the Department of Labor and as Dr. Melius indicated, they evaluated the merit of that document against, you know, the completion date.

But, I do think there was other -- as we heard, there's other supporting documentation that's surfaced since that time that indicates that that end date that we were using -- that the Department of Labor has established is actually the correct date. But, again, we don't --

MEMBER KOTELCHUCK: Thank you.

CHAIRMAN MELIUS: Yes, I mean, Dave, we have no -- and DCAS has no role other than providing information, but we don't adjudicate, you know --

MEMBER KOTELCHUCK: Right.

CHAIRMAN MELIUS: -- the end dates. That's in the legislation. Yes. Okay.

MEMBER KOTELCHUCK: Yes, I was just --

CHAIRMAN MELIUS: Well --

MEMBER KOTELCHUCK: -- I was just

questioning is the document -- was the document verified as a material document.

CHAIRMAN MELIUS: Well, but, that's not --

MEMBER KOTELCHUCK: And it was.

CHAIRMAN MELIUS: It's up to DOL to do that.

MEMBER KOTELCHUCK: We don't -- right. DOL did it and that's --

CHAIRMAN MELIUS: Well, but I'm not sure it's appropriate that, you know, to expect Jim Neton to respond to that. That's sort of my sense. I think it's, you know -- he provided the factual basis for what happened, but it's not -- NIOSH is not a direct party to the --

MEMBER KOTELCHUCK: Right.

CHAIRMAN MELIUS: -- evaluation of that document and the establishment of that. I think the role has been, and I think we've done that for quite some time, is to refer the documentation. If there's documentation that questions or, you know, the period under EEOICPA, then we pass that

on --

MEMBER KOTELCHUCK: Okay.

CHAIRMAN MELIUS: -- through DCAS.

MEMBER KOTELCHUCK: Good.

CHAIRMAN MELIUS: But, it's up to -- yes, Brad.

MEMBER CLAWSON: Myself, Jim, you know, this is pretty complicated and being on Blockson before, we went through a lot of battles. But, I'd like our contractor to take a look at what we've got there. Right. Myself. But --

CHAIRMAN MELIUS: Is that a motion?

MEMBER CLAWSON: Yes.

CHAIRMAN MELIUS: Okay.

MEMBER BEACH: I'll go ahead and second it.

CHAIRMAN MELIUS: Okay. Any further comment? And we also have a Blockson Work Group chaired by Ms. Munn.

MEMBER MUNN: In name only. Jim -- oh.

MEMBER ANDERSON: Yes, when they review it, I would say we especially pay attention

to the surrogate data and the comparison of the two sites. I think that's --

CHAIRMAN MELIUS: Yes, I think there were -- you know, my own view is there was a number of sort of technical issues --

MEMBER ANDERSON: Yes.

CHAIRMAN MELIUS: -- that are hard to explain in a short period of time.

MEMBER ANDERSON: Yes. Yes.

CHAIRMAN MELIUS: I think Jim did it and the report is helpful, but I think we need to evaluate. There's a number of assumptions there. I'm not sure that any of them were wrong, but I think they all need to be evaluated and do that. So. Okay.

MEMBER BEACH: Can you remind us who's on the Blockson. I know Wanda's the Chair. I was just curious.

MEMBER ROESSLER: Wanda's chair. Brad is on it. Jim Melius is on it and I'm on it.

MEMBER BEACH: Oh, perfect.

MEMBER ROESSLER: I think. I just

looked it up. Right.

MEMBER BEACH: Fully staffed.

CHAIRMAN MELIUS: Good. So, I think -- can we have a voice vote on that? The motion. The motion is to refer this to the Work Group for evaluation and to have SC&A evaluate a report and when they're done with their evaluation, we'll -- the Work Group will meet and follow up.

So, that's -- all in favor say aye.

(A chorus of ayes)

CHAIRMAN MELIUS: Opposed? Opposed? Abstain? Okay. Very good.

MR. BURKHART: Anybody there?

CHAIRMAN MELIUS: We're here.

MR. BURKHART: Just listen. I'm just wondering if it's too late for a petitioner to speak.

CHAIRMAN MELIUS: Well, I gave you lots of opportunities.

MR. BURKHART: Well, I know, but I'm not up on these phones like you guys are. I'm sorry for that.

CHAIRMAN MELIUS: Well, okay, speak quickly then.

MR. BURKHART: But, if I -- I can answer -- I can answer some of those questions about the documents that you guys -- that one-page document that you guys are worried about in trying to figure out what it is.

CHAIRMAN MELIUS: I think as I've just said, that's really not appropriate to this Board's function or what NIOSH does.

MR. BURKHART: Well, but you're wondering about the written consent and I can tell you that that contract calls for written consent in six-month period either by Blockson or by the Department of Energy. That has never been done. There is no written consent. Nobody knows anything about a written consent.

Now, Rachel Leiton from the Department of Labor that you said is responsible for setting the time which I understand that, she said that that one-page document was the written consent and I don't see any way nor does a lot of other people

see any way that that document would be considered written consent.

If you don't have written consent, then in order to be claimant-friendly, it should go to the claimant.

There is no written document. John Howard admits there is no written document. They don't have one.

That's the thing that I think the Board really needs to look at.

Also, that I think all the Board Members since it seems that nobody has seen that document, if they would take time to look at it. It was 1963 when that document was generated.

If the Board Members would look at it, they could see that, one, it may not even be typewritten. Which back in 1963, it would have been typewritten.

CHAIRMAN MELIUS: Sir. Sir.

MR. BURKHART: Go ahead. I'm sorry. And listen, I'm sorry that I didn't get in on time.

CHAIRMAN MELIUS: Well, but you're --

MR. BURKHART: But, go ahead. I'm listening and then I'll get off the air.

CHAIRMAN MELIUS: You're focusing on an issue that's not the purview of this Board or of NIOSH and it's not our place to be reviewing these documents or responding to that.

If you have comments on the petition evaluation that was just completed, that's --

MR. BURKHART: Am I talking to Mr. Melius?

CHAIRMAN MELIUS: Dr. Melius. Yes.

MR. BURKHART: Yes. Doctor, I have no problem with what I've heard so far.

CHAIRMAN MELIUS: Okay.

MR. BURKHART: With you guys looking at the new SEC and I'm sure that you guys are going to do a good diligence for the claimants. So.

CHAIRMAN MELIUS: Okay. Thank you and you'll be informed of when there's Work Group meetings and a chance to provide comments at those meetings. So, thank you very much.

MR. BURKHART: Yes. Thank you very

much for letting me interrupt. I'm sorry about that. Thank you. Bye-bye.

CHAIRMAN MELIUS: So, we have -- any correspondence? Okay. Good.

MR. KATZ: So, I don't think we have correspondence that we need to address. I shared some correspondence with all the Board Members. I'm sorry. I shared some correspondence with all the Board Members that we received related to Pinellas. Several letters.

I believe they were -- at least one was addressed to the Board, but they were also sort of addressed to NIOSH and I think NIOSH would be handling those letters like any correspondence they receive and respond directly back to them and if you want, we can have them copy the Board when they respond back. That would be great.

MR. HINNEFELD: Can we just copy you, Ted, and you distribute it? We'll just copy you.

MR. KATZ: Sure. Yes, that would be great and I believe there may have been also Rocky Flats correspondence also addressed to NIOSH as

well.

CHAIRMAN MELIUS: Yes, there was one Rocky Flats correspondence which we heard yesterday. Judy Padilla.

MR. KATZ: Right. That's right. Right. Judy ended up, right, actually presenting it.

Otherwise, I would have read it during the comment session.

CHAIRMAN MELIUS: Yes.

MR. KATZ: Right. So, I think that covers it.

CHAIRMAN MELIUS: Okay. Then I think we'll break until 10:15. We have -- just for information of Board Members including Board Members on the phone, we have Rocky Flats at 10:15. I expect that the petitioners will be on the line. We want to stick to that timing.

We have a Board work session, but I think we've done most of our Board work.

At 1:30, we have a Kansas City presentation and discussion. Again, petitioners

will probably be on the line for that. So, we'll need to stick to that schedule.

We have then a Board work session scheduled after 3:00 and I don't think we'll be needing that.

So, I expect that we'll end the meeting by 3:00 this afternoon, if that helps anybody with their scheduling or plans and people on the phone with dealing with the time difference. It should help.

So, anyway, thank you and we'll be back here at 10:15.

MS. CARROLL: Excuse me. Can you hear me?

CHAIRMAN MELIUS: Yes.

MS. CARROLL: Yesterday, I waited patiently to make a comment and after Judy Padilla, I said I wanted to make comments and you all disconnected me and I didn't get to make my comment.

So, I wanted to let you know this is Stephanie Carroll. I had very important comments on the Rocky Flats issues.

CHAIRMAN MELIUS: Well, why don't you wait until the Rocky Flats session at 10:15? Is that okay?

MS. CARROLL: I'm not the petitioner. I'm just making comments.

CHAIRMAN MELIUS: Well, I'm not saying that, but you make comments after there's been discussion of the Rocky Flats. So, it will be probably closer to 11:00.

MS. CARROLL: So, you are going to allow me to make comments today?

CHAIRMAN MELIUS: Yes. That's what I just said. Yes.

MS. CARROLL: Oh, I'm sorry.

CHAIRMAN MELIUS: Okay. Yes.

MS. CARROLL: There is a problem with the phone. So, thank you so much. I appreciate that.

CHAIRMAN MELIUS: Okay.

MS. CARROLL: So, just let me know when you're available to hear my comments and I will be on the phone.

CHAIRMAN MELIUS: Yes, we'll be reconvening at -- it's 10:15 Pacific time.

MS. CARROLL: Right.

CHAIRMAN MELIUS: So --

MS. CARROLL: Okay. Thank you.

CHAIRMAN MELIUS: Yes.

(Whereupon, the above-entitled matter went off the record at 9:30 a.m. and resumed at 10:15 a.m.)

MR. KATZ: We're about to get started again with a Rocky Flats presentation. Before we do, let me just check on the line and see that I have -- that our Board Members on the line have rejoined us.

(Roll call.)

CHAIRMAN MELIUS: Okay. So, we'll start with an update on the Rocky Flats SEC petition covering the '84 to '89 time period and start with Dave Kotelchuck who's the Chair of the Work Group. Dave.

MEMBER KOTELCHUCK: Very good. Thank you.

Let me also acknowledge. I didn't put a slide in, but acknowledge other members of the Rocky Flats Work Group: Wanda Munn, Phil Schofield and William Field -- Dr. Field.

Just quick -- well, not so quick petition overview. In August 2011, NIOSH received an 83.13 petition to cover the period from April 1st, '52 to December 31st, 1989, SEC 192. In February 2012, the petition qualified for evaluation and the Board revised it to extend to December 2005.

In October 17 meeting, the Board expanded the investigation to cover thorium U-233 and neptunium-237. The Board then essentially extended the existing SEC which went up to 1966 to cover the period from -- an SEC from April 1st, '52 to December 31st, '83 and then this extension was based on the inability to estimate the dose with sufficient accuracy for thorium, U-233 and neptunium.

At our October 13 Board meeting, we voted to extend investigations for 192 beyond 1983

to do the following five -- look at the following five issues: one, evaluate the use and exposure potential for magnesium-thorium alloy, continue to evaluate the '84 to '88 period for neptunium exposure potential, resolve open questions with SC&A and the Work Group concerning tritium, examine the implication of data falsification issues and examine exposures at the Critical Mass Lab.

Let's start first with the magnesium-thorium alloy. First, this issue was raised back in 2007 for the earlier petition and that went up to 1983 and apparently, there was magnesium-thorium alloy shipped to Rocky Flats to be used in plates to bulletproof military trucks.

In 2013, NIOSH did another review of the Site Research Database for a Rocky Flats magnesium-thorium link and more -- they found more evidence of a Dow magnesium-thorium link, but no corroborating evidence for Rocky Flats.

Other site visits were undertaken to see if there was perhaps some record there of magnesium-thorium being sent to Rocky Flats.

However, I mean the issue was there was a worker Dow Madison who reported that shipping magnesium-thorium materials to Rocky Flats. NIOSH interviewed the individual. The person stood by the report. That is to say verified the report and at that time, said that he was not aware that there were other Dow facilities in the Denver area to which the magnesium-thorium from his facility might have been sent.

The Dow Madison co-petitioner alleges additional affidavits supporting the Rocky Flats magnesium-thorium link claim. That is affidavits from folks at Dow Madison that it was sent.

One of the petitioners from Rocky Flats reported to the Board that there was a worker who wished to remain anonymous who said that magnesium-thorium was used at Rocky Flats. The NIOSH conclusion was, their White Paper, that we cannot find corroborating documentation of a Rocky Flats magnesium-thorium link and this has been now looked at over an eight-year period and I leave it to people to go to the transcript to see a report

on how many different sources of data were looked over by NIOSH to try to find such a link and did not find it.

An additional NIOSH observation, if there was undocumented magnesium-thorium use at Rocky Flats, all alleged use took place between '56 and '76 which was during the covered SEC period, or which is in the covered period.

SC&A disagreed with NIOSH. The worker interviewed both by NIOSH and SC&A provided a high level of clarity and detail, they reported, and he specifically named five different magnesium-thorium alloy specifications only two of which were searched for. Rather than confusion, SC&A said it is just possible that the worker had a gripe all along.

And SC&A continued, the Dow co-petitioner reported 400 boxes of Rocky Flats records sitting at LANL according to the DOE and would have to be hand searched. He estimated that the search would take two years.

The DOE project manager noted that 2 to

3 percent thorium in the magnesium-thorium alloy which is what you're basically talking about, it may not have been considered enough to be a reportable quantity and that may be the reason that there was no record.

So, SC&A's conclusion was the receipt and use of magnesium-thorium alloy material at RFP remains inconclusive.

Given this -- I mean given this disagreement, the Rocky Flats Work Group debated long and hard and decided not to ask NIOSH or SC&A to pursue this investigation further and our reasons were first the failure of the intensive years' long search for documentation at the plant and agency levels.

The vast majority of cancers during the years of possible magnesium-thorium use are compensable under the existing SEC and I note that only those non-compensable cancers, that is not covered by the SEC, might be negatively affected by not continuing the search and the feeling was that with limited NIOSH resources of staff time and

funding, that we just couldn't keep looking for what was feeling to be a needle in a haystack.

So, and that was our decision. It was a difficult one because there was disagreement and we cannot say it was not used there. I mean I accept that it was inconclusive, but eventually, our feeling was we needed to finally conclude this effort that we've tried -- worked at for many years.

Let's look at neptunium-237, the second issue. The NIOSH search concluded that neptunium-237 was used at Rocky Flats after 1983, perhaps until 1988. So, that -- even though the active production with neptunium ended in 1983, it was indeed true that the material was used in the '80s and evidence points to a series of discrete tasks.

This is the NIOSH report. Evident in a White Paper, evidence points to a series of discrete tasks performed from '62 through '83 involving a few grams to a few hundred grams usually at the request of other DOE facilities.

The only processing operation in the

post-1983 period involving neptunium was plutonium-neptunium separation and residue recovery from '85 through '87. This was a glovebox operation involving five operators and one engineer with a plutonium-neptunium mass ratio of 6.4 and the far greater specific activity of plutonium-neptunium operations and later waste clean-up were monitored by plutonium air sampling contamination surveys and bioassays which were consistently implemented in the post-'83 period.

SC&A studies independently confirm the results of the NIOSH paper.

Conclusion, with which the Work Group agreed: only one processing operation in the post-'83 period involved neptunium and the co-presence of neptunium with plutonium enables radiological monitoring to account for any neptunium exposure in a claimant-favorable manner.

Tritium exposure, which was the basis of accepting petition 192 initially. Prior to the '70s, the radiological program did very little monitoring for tritium because they felt they had

limited exposure after the 1973 incident. The 1973 incident with returned triggers were found to emit 500 to 2,000 curies of tritium.

Changes in the program were implemented as a result of course and we've talked about this. These included increased number of tritium bubblers and wipe samplers, air sampling on opening incoming used pit containers, urine -- for two years, there were urine samples for 250 workers thought most affected by the incident and then after two years, sampling was done only among job-specific categories because the results had shown zero positive samples and 10 percent of urine samples for plutonium were tested for tritium.

Result: greatly reduced levels of tritium exposure by the 1980s. Since virtually all RF workers before '83 were covered by the SEC, the crucial issue for NIOSH, ORAU, SC&A and the Work Group was whether the post-'83 tritium exposure control program was adequate and individual tritium exposures appropriately assessed.

After extensive group discussion by all

parties about the placement of the bubblers, their efficiency, tritium sampling procedures, the Working Group agreed that the exposure control program after '83 was adequate to protect workers exposed to tritium.

Just for the record, partial dose reconstructions for workers before -- if they're needed for workers before '73 will be assessed as chronic dose based on measurements after the 1974 incident, which are believed to be 37.5 millirems per year, believed to be claimant-friendly overestimates.

For the exposure measurements taken after '75, they were consistently found to be less than a millirem a year due to the control measures that had been enacted.

Get this down here. Oops. No. No. I got it now. Okay. It's not moving quickly. Thanks. Okay.

So, the Working Group agreed that tritium exposure at the Rocky Flats does not add materially to the radiation exposure burden of

plant workers post-'83 and thus of itself does not constitute a basis for an SEC category beyond 1983.

Now, let's get to data falsification, the fourth issue. As you know, an FBI raid was -- or many of you, most of you remember an FBI raid was conducted at Rocky Flats in 1989 concerning alleged data falsification, improper bioassay processing and document destruction. Soon after the 1989 or soon after a 1989 DOE study was conducted and finally after many long efforts by many folks in 2015, the FBI finally released its report.

Now, NIOSH and SC&A -- and based on this report, NIOSH or before actually the report was released, but with relevance to the report and the issue, NIOSH and SC&A interviewed a worker at Rocky Flats who reported being ordered to destroy records and they interviewed 12 other employees. That -- no allegation on those 12 that they were ordered to destroy records. They were just interviewed about record destruction.

SC&A found no loss in essential records

which would interfere with radiation dose reconstruction nor evidence of data falsification.

Another interviewee made statements about the inadequacy of fume hood stack samples and improper handling and/or preparation of environmental samples.

Quotes from NIOSH, from a radiological perspective, NIOSH finds no scientific basis for concluding that the issues raised regarding environmental samples would compromise the radiological count results, end quote.

So, yet another interviewee raised the issue of dosimetry technicians writing down dose rate information in pencil which would allow management later to direct changes to keep production going. This impacts field survey instruments used for comparison only. The primary source of data of dose reconstruction are personnel dosimeters and bioassays assessed in labs.

And then SC&A reviewed eight documents mentioned in the NIOSH White Paper. It concluded "The documents were concerned with other aspects

of RF operations or environmental issues rather than data falsification, record destruction or bioassay data that would potentially impact the ability to perform adequate dose reconstructions."

And based on the interviews, analyses and evaluation of the 1989 FBI raid report, NIOSH concluded "There exists sufficient quantity of individual external monitoring data to support assessment of the Rocky Flats personnel external doses."

And SC&A corroborated this conclusion.

In addition to its basic support of the conclusions of the NIOSH White Paper, SC&A expressed concern that the data used to generate radionuclide intakes were impacted by the environmental sampling and data issues that surfaced after the 1989 FBI raid and the DOE investigation.

So, the Rocky Flats Work Group having read the White Paper discussion and presentations agreed with the NIOSH conclusions, but referred the environmental occupational linkage issue to the

Subcommittee on Procedures Review and we asked them to take a look at this.

Just in response, the claimant representatives have written a lengthy response to the NIOSH White Paper. "NIOSH combines all of the issues raised by petitioners and their relationship to Building 123. Each of the issues raised are separate concerns. Some concerns may be related to Building 123, but not all of the issues are. Therefore, each of the issues needs to be addressed on an individual basis. It is the petitioners position that the problems associated with each individual concern is sufficient for NIOSH to determine they cannot reconstruct those with sufficient accuracy. It is even more evident that when combining issues serious questions are raised with the bioassay documents used to reconstruct dose."

Claimants also presented evidence. They gave evidence to NIOSH and it was presented to the committee from the Final Historical Release Reports for Rocky Flats Plant, June 1992 of

additional destruction of records. So, there is official information that records were destroyed in addition to one of the claimants' assertions. So, both of those are there.

Finally, they assert "It is clear the accuracy of the dosimetry records NIOSH has for Rocky Flats claimants needs to be questioned. These records are unreliable. Therefore, NIOSH must admit that dose reconstruction cannot be formed with reasonable accuracy and must recommend expanding the SEC."

NIOSH is currently writing a response to this communication.

And the final issue here -- actually, semi-final. We'll come to that.

Operations at the Critical Mass Lab took various assemblies and radioactive materials to criticality levels. The NIOSH White Paper notes "Radioactive materials at the Critical Mass Lab included nuclear fuels and sealed radioactive sources used in the criticality experiments. Fission and activation products generated in the

fuels, building materials and fixtures as a result of the nuclear criticality experiments conducted there are an additional source of radiological exposure." Just a little background on the lab.

The White Paper concluded that the external radiation exposure of those workers and staff is accounted for by the Rocky Flats personnel dosimetry program which assigned radiation dosimeters to all the workers. The personnel dosimetry program included periodic bioassays that focused primarily on identifying uranium and plutonium intakes. Also found little radiation from fission and activation products and the Working Group accepted the paper.

However, at our 7/14 meeting and conference call, the last surviving of three senior scientists at the Critical Mass Lab, he worked there from '64 to '86, joined the discussion and expressed strong disagreement with the conclusions of the NIOSH White Paper. He requested a personal interview at a later time which was agreed to and conducted in October of this year.

During the interview, the scientist argued that no one can bound the neutron flux in the labs near criticality experiments. The radiation levels at the CML were not properly documented he asserted and the RF did not do body counts on the lab's 30 to 35 employees, only lung counts and irregularly urinalyses.

He also disputed the ability to put upper bounds on the neutron flux by other reactor's energy output.

In addition, the scientists reported that during the '80s typically 100 to 200 non-CML Rocky Flats' employees enter the lab annually to observe ongoing experiments. It seemed a rather informal procedure of people walking in and observing.

At the conclusion of the discussion, NIOSH staff agreed to review and modify as appropriate its White Paper on Critical Mass Lab and is currently drafting a response and I leave it to LaVon to talk more about that.

As part of this effort, NIOSH will do

a data capture from LANL about CML and again, LaVon will report.

This past spring claimants raised concern about this 600 curie cobalt-60 source at Rocky Flats and presented information and employee testimony alleging lack of proper exposure protection during the removal of that source from Rocky Flats.

At our 10/28 meeting, NIOSH staff person LaVon, Mr. Rutherford, said that proper standard protective measures were employed during the cobalt-60 removal. He'll respond at a later time.

So, we've gone through a lot of issues. Let's look back now at what we were charged with taking a look at. The five issues.

Evaluate use and exposure potential for magnesium-thorium alloy at Rocky Flats - CLOSED.

Continue to evaluate '84 to '88 period for neptunium exposure potential - CLOSED.

Resolve open questions with SC&A and the Work Group regarding tritium - CLOSED.

The examination of the data falsification issues, it's closed for the Work Group, but we referred it to the Subcommittee on Procedures Review to look at that one issue of how environmental emissions might have impacted on exposure to the workers in the plant or affected it.

And finally, examination of exposures at the Critical Mass Lab remains open with the LANL data capture and again, LaVon will talk about it. The cobalt-60 will just say is in process.

Questions. Okay.

CHAIRMAN MELIUS: Questions for --

MEMBER KOTELCHUCK: Comments.

CHAIRMAN MELIUS: Comments for Dave. I'm a little confused on the agenda. LaVon, do you have a presentation also or --

MR. RUTHERFORD: No. No. I can provide follow-on to the Critical Mass Laboratory.

CHAIRMAN MELIUS: Okay.

MR. RUTHERFORD: What we're doing there.

CHAIRMAN MELIUS: Please do.

MR. RUTHERFORD: Okay. Basically, there were 30 to 35 boxes that [identifying information redacted] had sent to LANL and with those 30 to 35 boxes, we're hoping to get additional information that we can resolve his issues.

LANL's indicated that they can't get them to us until January. So, that's pretty much where we are with that one.

CHAIRMAN MELIUS: Thank you.

MR. RUTHERFORD: Okay. I wanted to --

CHAIRMAN MELIUS: Yes.

MR. RUTHERFORD: Yes, I just found out, and I apologize, that -- [identifying information redacted] sent me an email last night to go into public comment and I didn't see it until just now and so, I'll have to forward that on to the Board.

MR. KATZ: Forward it to me and --- does it relate to Rocky Flats?

MR. RUTHERFORD: Yes, it was -- apparently, it was supposed to go into public comment last -- I've just seen it and it looks like

Terrie sent a follow-on email as well. So.

MEMBER KOTELCHUCK: However, [identifying information redacted] sent a letter to the Work Group which we got and talked about. So, we certainly have a lengthy communication from him that has been looked at on the data falsification issue. I don't know what the public comment will be exactly. We're aware of his concerns certainly.

CHAIRMAN MELIUS: Board Member questions and actually, I have a question on the magnesium-thorium alloy issue. I think you had one -- one of your slides in there was that the thorium SEC covered period. So.

But, I guess I'm trying to get a sense of if it's the 2 or 3 percent alloy, what would it add in terms of dose to -- yes, what are we talking about in terms of --

MR. RUTHERFORD: Well, I mean I can't say for sure depending on the operation that it --

CHAIRMAN MELIUS: Yes. Right.

MR. RUTHERFORD: -- was used in, but,

you know, the information that we had from Dow Madison and from the other sites, it would be a very small internal dose and this is our -- this would be for the non-presumptive cancers which are not, you know, do not really gain a lot from the internal dose.

CHAIRMAN MELIUS: Right. Okay. That's -- and that would go along with why it was sort of not reportable and so forth. I was just trying to fit that together and then understand the --

MEMBER KOTELCHUCK: And in addition, if I may say, since I noted that only two of the five alloys that were named by the Dow Madison worker were investigated and LaVon talked to me about it, I'll repeat what you said, but better if you would like to say it. Why those two -- okay. Why the two --

CHAIRMAN MELIUS: Well, we want to hear from the horse's --

MEMBER KOTELCHUCK: -- only two were looked at. Only two had been used in the military

and atomic weapons -- had military and atomic weapons uses. Because there's plenty of information about magnesium-thorium alloy being sent to other places and those two were examined. Then the other three were not used militarily and, therefore, were not examined.

CHAIRMAN MELIUS: Okay.

MEMBER KOTELCHUCK: Didn't need to be.

CHAIRMAN MELIUS: Thank you, LaVon and your messenger. Other questions? Board Members on the phone have any questions?

If not, I think we want to hear from the petitioners. They're on the line. Terrie Barrie, are you?

MS. BARRIE: Yes, Dr. Melius, I'm on the line. Can you hear me?

CHAIRMAN MELIUS: Yes, we can.

MS. BARRIE: Okay. Good. Thank you. This is Terrie Barrie and I'm a co-petitioner for the Rocky Flats SEC petition.

[Identifying information redacted], the petitioner, and I filed this petition to cover

all workers from 1952 through closing up in 2015 and besides the tritium issue. We also raised the issue of thorium strikes and data falsification in our petition, original petition and we appreciate you giving us this opportunity to present our petition.

From the mid to late-1990s, union officials and scientific experts publicly raised serious concerns about the health of the nuclear weapons workers.

David Fuller, President of the PACE Local 5-550 testified before the Senate Appropriations Subcommittee about this issue on October 26, 1996. He stated that, and I quote, "Over the past 20 years, several studies have shown an increased risk of cancer and other diseases among DOE workers. They include workers at Hanford, Rocky Flats, et cetera."

The Department of Energy's own statistics support that statement. According to DOE's Occupational Radiation Exposure Report of 2000, Rocky Flats' workers have a collective

totally effective dose equivalent of 373.9 person-REM for 1999. This was the highest reading for all DOE sites and is more than double what was reported for Hanford workers for that same year.

Another way of looking at this is that 29 percent of DOE's complex-wide TEDE was given just to Rocky Flats workers and the remaining 71 percent was distributed among the other 34 sites and please note that this was during the D&D period.

On April 12th, 2000, DOE former Secretary Bill Richardson announced a comprehensive plan that ultimately led to the passage of the EEOICPA.

Quoting from the news article authored by James L. Nash, this legislation "would shift the burden of proof from the workers to the Government for radiation diseases at three sites: Paducah, Kentucky; Portsmouth, Ohio and the K-25 plant at Oak Ridge, Tennessee. This means that sick workers no longer would need to prove their ailments were work related."

When a reporter asked why the

Government only assumed the burden of proof at these three locations, David Michaels, the DOE point man on the proposal, said that "At those three sites, there is strong evidence the Government lost or destroyed records needed for workers to make their case."

Six years later then Congressman Mark Udall testified before the House Subcommittee concerning the OMB passback memo.

For those of you who are not familiar with those hearings, the OMB passback memo offered suggestions on how to keep the growth of the EEOICPA benefits in check. One of those suggestions concerned SEC petitions.

Mr. Udall testified, and I quote, "If I had known how deficient the records were going to be, and in fact were, I would have worked to have included the Rocky Flats Work Team in the Special Cohort Group initially in the legislation that we brought forward."

The petitioners to Rocky Flats petition 192 have provided ample evidence that records

needed to reconstruct dose were destroyed. We had a worker who bravely came forward to admit she actually destroyed medical and dosimetry records. We had a statement from her supervisor confirming that she did so under orders. We even submitted a DOE memo dated April 25th, 1996 directing the Rocky Flats contractor to stop destroying records.

The debate on the Rocky Flats petition should have ended shortly after this information was submitted to NIOSH. Sufficient proof has been submitted that not only was it possible that records were lost, but that they were intentionally destroyed. Intentionally destroyed. Instead, the debate goes on.

Revision 4 of NIOSH's White Paper on data falsification stated that the records destroyed were probably area survey records. You may remember how incensed the worker who came forward was.

During the Work Group meeting on October 26, NIOSH backed off of that assumption stating that they had no basis to make such a

statement, but the fact remains that NIOSH did make the statement. Why?

A similar example exists of misstatements in their White Paper on the Critical Mass Lab. NIOSH's model assumed that the experiments lasted an hour and that the power level was no more than 10 milliwatts. The senior scientist strongly disagrees with that assumption as Dr. Kotelchuck mentioned and I'm grateful that they're taking another look at this.

What is really ironic, if I remember the discussion from years ago correctly, is that during the first SEC petition, it was NIOSH's position that no criticality ever occurred at Rocky Flats. NIOSH was wrong about that.

Granted, the experiments performed at the Critical Mass Lab were controlled, but they were still criticalities.

Another example is that NIOSH originally stated that there were no near misses in the lab. The scientist again vehemently objected to this characterization because there

was indeed a near miss.

NIOSH was wrong in their first Evaluation Report on petition 192 about neptunium production. They were wrong in the original ER about the thorium strikes and U-233.

Fortunately, NIOSH reversed their position and concluded that they could not reconstruct dose for those elements through December 31st, 1983.

As LaVon has just mentioned, [identifying information redacted] and a couple of other Rocky Flats stakeholders have also sent emails concerning this petition and I strongly urge that the entire Board read these.

These stakeholders still object to the interpretation of their testimony which has so far been discussed during the Work Group meetings.

In conclusion, the gaseous diffusion plants were legislated as SEC sites because there was strong evidence that records were destroyed.

The Rocky Flats petitioners have also supplied strong evidence and indeed documented

proof that records were destroyed at Rocky Flats. NIOSH cannot affirmatively prove that the records destroyed were not dosimetry records as the former worker who actually destroyed the records asserts.

It is time for the Board to vote to include Rocky Flats in the Special Exposure Cohort. A vote to include Rocky Flats in the SEC will be consistent with the legislative intent and application of the law.

Thank you very much and I'd be happy to answer any questions.

CHAIRMAN MELIUS: Okay. Thank you, Terrie, and the emails that you refer to will be distributed to the Board Members.

MS. BARRIE: Thank you.

CHAIRMAN MELIUS: Okay. And I believe there is another person who had wished to make public comments last night and had trouble with the phone and wished to make them now. If you're on the line, if you want to --

MS. CARROLL: Hi. Hi. Stephanie Carroll.

I just wanted to make sure there were no questions for Terrie before I start.

CHAIRMAN MELIUS: We're taking comments. Not --

MS. CARROLL: Oh. Okay. Alright. I am an AR for Rocky Flats claimants and I have contributed research and documentation to the petitioners to help pass the 1983 SEC.

My position as an AR allows me to review site exposure records, personal records, medical documentation and worker first-hand accounts via interviews.

I would like to thank the Board for allowing me to make comments today and especially would like to thank the petitioners Terrie Barrie and [identifying information redacted] for their dedication to the expansion of the SEC and to Rocky Flats workers.

I have great concerns related to the validity of TLD data used to reconstruct dose at Rocky Flats. I intend to describe documents that I believe prove modification, data falsification

of TLD findings reported to the RHRS electronic system.

On October 13th, 2015, I was on a call between the CML lead scientist and NIOSH related to the White Paper on the Critical Mass Lab. He worked from 1964 to 1995 not until 1986 as was stated earlier. So, I just wanted to clarify that.

NIOSH, during the call, stated that they depended on personal monitoring data, TLDs, to reconstruct dose. Specifically the fission and activation products created in the CML.

The lead scientist, during the call, expressed concern related to the limitations of external monitoring data and the ability of NIOSH to reconstruct dose related to the CML. He stated that it was impossible.

I have in my possession monitoring records for the CML lead scientist that are not comprehensive and also, an employee working in Building 886.

The employee working in 886 gave me copies of two TLD data investigation reports from

his personal files, he had them at home, from 1996 and 1997 that were not found in his DOE file. Were they destroyed?

I reviewed two RHRS generated reports with handwritten notes before with exposure documented and after with zero exposure on the documents. Showing that neutron exposure in both investigations had ultimately been reported as zero. This led me to investigate further.

I would like to submit the documents that I believe indicate a falsification of data used to document exposure to fission and activation products.

The 1996 external dose reconstruction analysis indicates in the comments "That a data investigation was initiated because of an apparent over response of elements 2 and 5. This reconstruction replaces a dose previously electronically uploaded."

Also in the comments was the statement "Element 2 and element 5 were elevated above the other element readings. They appeared abnormal.

The dose should be redetermined after eliminating the results from the suspect elements."

Note, because element 2 and 5 did not agree with the other elements, they were eliminated and ultimately recorded as having a zero reading related to neutron exposure.

In regards to the 1997 investigation with neutron findings of 338 millirem that later were modified to a calculation of zero, the reason given for an investigation was noted as findings above 200 millirem.

In the comments related to the investigation, "Glow curve of element 8 was abnormal and therefore, the dose will be recalculated eliminating the neutron dose from element 8 and we'll use the element 2 calculation which would include any neutron dose received."

Element 8 had a high gross response of 202.9. While element 2 had a gross response of 62.7. Note, element 2 was used to calculate the neutron dose which ultimately was reported as zero in the RHRS report.

Reviewing the final verified documentation RHRS report from these two investigations, you will find zero exposure to neutron dose from October 28th, 1994 until October 7th, 1997 for this worker who was exposed to neutrons in Building 886. This is not an accurate representation of the exposure found on his TLD and makes it impossible to use the TLD documentation to reconstruct dose.

I am very concerned about the ability of NIOSH to depend on the data from the TLDs at Rocky Flats as late as 1997. It is only through my experience representing claimants with their EEOICPA claims that I was able to have access to this documentation.

All claimants should request a complete copy of their files via fax to the district offices handling their claims. A FOIA request is not required. DOE records should be included in the case file.

Thank you for allowing me to comment and to present this documentation and I can be reached

at energyhealthone@hotmail.com. Thank you and please expand the current SEC to 2005.

CHAIRMAN MELIUS: Thank you. Board Members have any further questions or comments at this point?

MEMBER KOTELCHUCK: She is sending in the documents? She said she will give us the documents?

CHAIRMAN MELIUS: Yes. Yes.

MEMBER KOTELCHUCK: And they will certainly be looked at by the Work Group.

MS. CARROLL: Thank you.

CHAIRMAN MELIUS: So, any further actions at this point on Rocky Flats?

MEMBER KOTELCHUCK: No.

CHAIRMAN MELIUS: Okay. Right on schedule. I'm impressed. Good. So, we will break.

We will take a break now until 1:30 p.m. We've completed our Board work and we have the Kansas City SEC petition to discuss at 1:30.

Since that's timed in terms of

petitioners, we need to stick to that schedule. So, we'll see everyone back here at 1:30.

(Whereupon, the above-entitled matter went off the record at 11:01 a.m. and resumed at 1:32 p.m.)

CHAIRMAN MELIUS: So, telephone on and Ted, do you want to do the check.

MR. KATZ: Yes, let me just check and see about Board Members on the line. Who we have.

(Roll call.)

CHAIRMAN MELIUS: So, we'll start this afternoon. This will be our final session for the day and we'll be talking about the Kansas City SEC petition and first we'll hear from Pete Darnell who's been the NIOSH point person on this. Then we'll hear from Josie Beach who's the Chair of the Work Group on the SEC evaluation and then we'll give a time for the Board Members to ask questions on those presentations and then we will provide an opportunity for the petitioners to make comments if they wish to.

So, Pete, go ahead.

MR. DARNELL: Good afternoon. My name's Peter Darnell. I appreciate the Board taking the time to hear these presentations.

What I'd like to mention is a look at the acronyms that we'll be using through the presentation. That working with this Work Group has been both challenging and interesting. I've enjoyed the process very much.

To begin with, the Kansas City Special Exposure Cohort Petition was received on March 12th, 2013. The initial Class that was requested was all employees who worked at the Bannister Federal Complex from 1949 through the time of the petition. The petition qualified for evaluation July 1st, 2013.

The Class that was evaluated by NIOSH was all employees who worked in the area of the Kansas City Plant from January 1st, 1949 through December 31st, 1993.

The Kansas City Plant, by the way, covers 122 acres, 38 different buildings and over the period of operations, they averaged around 2700

workers a year. Their peak came during the height of the Cold War and they had 8,000 workers in 1985.

On January 7th, 2014, NIOSH completed its Petition Evaluation Report and we first presented those findings to the Advisory Board on January 28th of 2014.

And just a quick review of some of the radiological work that went on at the Kansas City Plant over time.

The first thing, we actually didn't put the slide and I apologize for that, was that we look at cesium gap tubes at the Kansas City Plant. There was a question as to whether they were manufactured at the plant or not and during the course of our investigation through the interview process and records, we found that they were not made at the Kansas City Plant and that actually greatly simplified our review.

They had natural uranium operations May 1st, 1950 through February 28th, 1955.

The post-operations period was March '55 through August of '59 and again, January of '78

through May of '84.

These radiological operations that we're talking about at the Kansas City Plant, just to give you kind of an idea of the scope with the 38 different buildings that they had, they had one huge building where most of these operations took place. The operations in relation to the size of the building were very, very small and tightly located to specific areas of the plant.

In 1984 through September of '86, the uranium areas were D&D by the Rockwell Company.

From 1959 through '75, the plant did work with nickel-63 operations. This was mainly electroplating.

The plant also worked with tritium water for the building of a detection system from '59 through '75.

They did machine magnesium-thorium during a couple of different periods and we'll discuss more about that when we get to the section on the feasibility of dose reconstruction.

Organically-bound tritium was used at

the plant for hi-lo switch plates work from 1963 through '68.

So, that's just a quick overview of the petition of radiological operations at the plant.

The Work Group met quite a bit for this site. Four different meetings from 2014 through 2015. We had Worker Outreach meetings in 2004, 2005 and again in 2009 and we conducted SEC Workshop meetings in 2008 and 2009. So, we had plenty of input from the stakeholders and personnel on the site.

The Work Group completed extensive database internet searches and site visits. We had over 2,000 individual references added to the Site Research Database and the Kansas City Plant records that we received included personal monitoring, area monitoring, industrial processes and radiation source materials. The same thing that you would normally see in record searches.

Work Group actions included seven data capture visits between 2012 and 2015. We interviewed 56 people. Although, the 56

interviews do include some people that were interviewed more than once. Some of them several times.

This also includes seven people that we interviewed during the development of the Technical Basis Document and these occurred between December 2012 and 2015.

I'd like to point out that we did a special interview for the petitioner at the July 2015 Work Group meeting and I believe Josie will be covering more about that, but we definitely wanted to give him a chance to have his say in this process.

The original Kansas City ER, or Evaluation Report, identified 19 issues. A 20th issue was added after we discovered that there was work done with tritium.

Closed issues, as you can see, there's 4, 5, 6, 7, 8, 11, 12, 14, 15, 16, 17, 18, 19 and 20 have been closed by the Working Group.

Four issues moved to the Site Profile to be completed with a revision to the Technical

Basis Document and those are issues 2, 3, 10 and 13.

Issues 1 and 9 which I'm going to be covering in depth here are pending final action by the Work Group and deals with the validation and verification -- sorry, of the database used to construct the coworker model.

Kansas City first created their electronic database to facilitate their own dosimetry needs in 2001. They provided extracted information to us in 2004 and then later the entire database in 2012. Which included both the internal and external dosimetry data.

In 2006, NIOSH used it to develop a coworker model and a Site Profile.

The ER also uses the coworker model to bound some doses.

The internal and external dosimetry data includes data from 1950 through 2010. The database has 15,000 lines -- well, actually, a bit more than 15,000 lines, that include between one and five individual dosimetry records.

The V&V extracts raw data from NOCTS records and compares it to this database. One hundred percent of the NOCTS data was used in the comparison.

Five data entry staff between August 24th and September 30th of this year inputted all that data and each line was individually peer reviewed by other people. So, data entry clerk one put the data in. Then data entry clerk three would review it. So, there were fresh eyes and there was a review on every single line of the database V&V.

Each record that we used is the sum of the individual monitoring records throughout a given year. So, if a worker had six TLD badge readings, it would be the sum of those six badge readings.

NOCTS contains 223 claims with external dosimetry data, 95 claims with internal dosimetry data and the V&V compiles 5,878 lines of data.

The V&V compares annual sums of 173 NOCTS records with the database annual totals. One hundred and sixty-two of those agreed. This

is for the internal V&V.

We did have some discrepancies. Nine instances where we had an actual zero value recorded in NOCTS or the database and the other one was blank. In other words, NOCTS would say zero and the dosimetry card would be blank or vice versa.

On one occasion, the database listed a value of 4.55 micrograms per liter and NOCTS listed 4.5.

In one instance, the database listed 9.5 micrograms entered and NOCTS was blank.

Ten uranium in urine entries were unverified. Those U in U entries were unverified due to legibility.

Since the publication of the V&V by NIOSH, we've actually requested and received the data from the Kansas City Plant to try to correct this. It hasn't been put into an updated V&V yet, but that's on its way.

For the external V&V, we compared 1502 NOCTS records with the database annual totals and 1462 or 97 percent agreed.

Again, there were some discrepancies noted. Twenty-seven zero values recorded in NOCTS or the database and the other was blank. Fifteen NOCTS records had a value of M and the database was blank. M meaning below the minimum and 13 discrepancies with a greater than zero millirem exposure. In other words, there was some dose recorded on one either NOCTS or the database and it was different on the other. Twelve exposures with differences of less than 70 millirem and all of them fell less than 70 millirem and one was -- one dosimetry record was noted to have a light leak on the film.

NIOSH classified eight additional entries as unverified due to legibility and again, as with the other portions of the V&V, we're requested these data and received them from Kansas City.

In reviewing of the V&V, NIOSH has determined that the Kansas City Plant accurately transferred dosimetry information from their raw exposure records into an electronic format and the

electronic database that we used to develop a coworker model is sufficiently accurate.

NIOSH has determined that the available monitoring records, process descriptions and source term data are sufficiently accurate to complete dose reconstruction. The external dose is bound by the Technical Basis Document coworker dose model and depleted uranium operations is bounded using the ORAUT Technical Basis 31.

For each radiological operation that occurred at the Kansas City Plant, NIOSH reviewed and came up with a feasibility approach for performing dose reconstruction. For the natural uranium from 1950 through 1955, we were using TBD-6000 methodologies. For the post-operations period, we were using the maximum gross alpha air sample 49 picocuries per cubic meter to give us our bounding calculations. In post-operations from '78 to '84, we're using DU and D&D operations maximum surface contaminations in the ORAUT Technical Information Bulletin 70 to model the doses. For workers with less exposure potential

than the machine operators, we're using the descriptions in TBD-6000 to provide a method to apply dose for those workers.

For the D&D operations in '84 through 1986, NIOSH using the Rockwell dosimetry data. This includes covering waste handlers with TBD-6000 methodologies when they had exposure potentials less than the people that were performing D&D operations. We wanted to ensure that we captured all workers that had any possibility of exposed retention.

At the Kansas City Plant, workers assigned to the projects were generally provided dosimetry, but once the radioactive materials crossed the boundary, they could have been given to workers that were unmonitored to transfer to the waste storage areas. We're capturing those workers using these different methodologies.

Nickel-63 operations, we went through a calculation to determine the amount of nickel-63 released during the electroplating operation that was done. It worked out to be less than one

millirem per year and this is not going to be assigned within the dose reconstructions.

For tritium operations using tritiated water, we assumed the 400 milliliter bottle was spilled over a work year. That's a bounding assumption when you consider the tight controls in value that the Department of Energy places on tritium. Losing a 400 milliliter bottle of that would be a large deal to the operations personnel. Using the ICRP dose conversion factor, we're going to be assigning 6.66 millirem per year to all workers.

The magnesium-thorium operations, the example dose reconstructions were completed and include triple separated thorium. The methodologies were agreed upon in the Working Group and the issue was closed pending moving -- well, not pending. Actually, after moving the process to finalize the last doses from the example DRs during TBD updates.

Let's see. For magnesium operations, the bounding limit of 3E-11 microcuries per

milliliter is used. We're also using OCAS-TIB-9 for ingestion rates and TBD-6000 methodology for worker Classes with less exposure than machine operators.

For tritium operations from '63 to '68, the bounding scenario was assuming that a worker handling a hi-lo switch plate would have all of that contamination transferred to skin and absorbed.

Using ICRP dose conversion, it works out to 1.77 millirem per year and that dose is going to be applied to all workers.

So, in summary, sorry. Got to catch my breath. The SEC petition was received in 2013. We know that radiological operations went on at the plant over a period of time. Looked at the feasibility of performing dose reconstruction for each of those operations and have determined that both internal and external dosimetry or, excuse me, dose is boundable and we can calculate a dose reconstruction and that's it.

CHAIRMAN MELIUS: Okay. Thank you, Pete. Questions at this point for Pete? Board

Members on the call have any questions?

MEMBER ZIEMER: (Unintelligible)

MR. KATZ: Paul, your voice was a bit garbled. Can you repeat what you asked?

MEMBER ZIEMER: Yes, I had my speakerphone on.

I just wanted to ask about medical exposures. It's not mentioned in the summary here on the slide.

MR. DARNELL: I can't understand him. Medical? Oh, medical exposures are covered under the Technical Basis Document. They are bounded within the TBD.

MEMBER ZIEMER: Right. I assume their feasible. You just didn't mention them here.

MR. DARNELL: Yes. Oh, I'm sorry. I didn't think of putting them on the slide.

CHAIRMAN MELIUS: Okay. Let's hear from Josie Beach.

MEMBER BEACH: Okay. Good afternoon.

I'm going to go ahead and just go through these first couple of slides. Work Group

Members: Myself, Brad Clawson, Jim Lockey, John Poston and Loretta, I know I was going to stumble on her last name, Valerio. Thank you. That's what happens when nerves get you.

Okay. So, this slide you've seen. We've reported out twice. The last one was March at the Richland meeting. So, some of these slides, you're already seen. I've added one technical call which we did last -- or in November, not too long ago.

So, I've reported out on a couple of these already. This slide just represents what was closed and discussed at the last reporting.

Okay. I'm going to go ahead and do a summary of the newly closed issues. I'm going to try not to repeat what Pete has already talked about, but if I breeze over something and you have questions, definitely we can go over those.

So, in July, we did have a two-day meeting. The 16th was reserved for the petitioners and the 17th, these items were closed out.

Issue 7, radioactive waste, hundreds of barrels of drums were shipped out of Kansas City Plant between the '50 -- 1950 and the earlier '70s. Particularly during the depleted uranium time period of 1960 to 1972.

One of our big questions was how is the waste handled and who handled the waste. Through interviews, we learned that unmonitored personnel handled all the waste. They collected the uranium and magnesium chips and cutting from the lathe machines, placed them in drums for later shipment.

The Work Group has accepted NIOSH's recommendation to apply the depleted uranium coworker model to all unmonitored workers. Those include the laborers, radwaste handlers and D&D workers. So, we've closed that item.

Most of these become TBD items which I'll cover in a later slide.

Issue 11 was the neutron-to-photon ratios issue. I covered this in detail last March. There was 35 datapoints. If you remember back, NIOSH was going to use OTIB-24. We agreed that

that wasn't acceptable. So, they went in and looked at the 35 positive neutron measurements. The Work Group and SC&A were satisfied with those, that they were claimant favorable. They used the three highest values.

So, the next issue is the mag-thorium. This was agreed upon as a TBD issue also. The reason it stayed open there was a couple of different scenarios. One, we asked NIOSH to do the dose reconstruction of -- mag-thorium was one of those and we wanted to make sure we had those numbers right. Which Pete went over.

Also, there was some operations during -- there was a time period. There wasn't operations, but there was a time period between 1963 and 1970 that we were questioning because we had no information that there was mag-thorium operations. But, we also had no information that there wasn't. So, we discussed that and that will become a TBD issue if something comes up for that time period.

Thorium operations which was issue 15,

this was held open because of an inventory basically. So, based on DOE's interview review listing unalloyed thorium, it did not refer to thorium, but it was a duplication of mag-thorium. Once that was addressed, we were able to close that. Other than the mag-thorium at Kansas City, it was all laboratory scale and involved gram quantities with negligible exposure potential.

All right. The next one is issue 16. This was the natural uranium, 1950 to 1958. We're going to be using the TBD-6000 for that. I know Peter hit on that and we discussed that.

Issue 17, D&D activities, that is tied to issue 7 and that we also accepted NIOSH's proposal to apply the DU coworker model to all unmonitored radwaste and D&D workers as I mentioned.

Issue 18, we kept that open looking for more records of incidents, fires. We kept going back and looking and we just didn't find anything. So, that was closed in July also.

And then the tritium issue. You've

heard about that. I'll talk about it in a slide. It was part of our dose reconstruction that we asked NIOSH to perform.

Okay. So, this is a bit unusual. We have two open items at this time and the last -- we held the technical call I talked about in November on the 12th. NIOSH's report came out soon after that call. SC&A's memo came out the next day actually.

So, for the Work Group Members, I was hoping to have a few minutes to discuss this open issue, the issues 1 and 9, the verification and validation of the electronic database.

So, we're going to do that in real time. I've sent out an email to all the Work Group Members. Two are not here and I haven't heard back from them. Hopefully, they're on the phone or at least Mr. Poston's on the phone now.

If not, I guess with the verification, SC&A has agreed that it -- there's very few errors. There was about a 4 percent error margin which is acceptable. Some of those may even be cleared up

with better records from Kansas City.

So, I'm going to ask the Work Group Members if they could let me know or let us -- the Board know and anybody else that wants to weigh in on these open issues.

As the Chair, I agree to accept SC&A's recommendation that these issues be closed. That's where I'm at.

Brad, since you're in the room, anything?

MEMBER CLAWSON: Yes. We've run this to the ground I think. I'm good with it.

MEMBER BEACH: Thank you. Loretta, are you still with us?

MEMBER VALERIO: I am, Josie, thank you. After reviewing the last report after the conference call on the 12th and seeing what NIOSH provided and SC&A provided, I think that, you know, we've come to a close on this. We've looked everywhere we can for, you know, additional data and I am in full agreement with the Work Group -- you know, with the rest of the Work Group to close

out these issues, these two issues.

MEMBER BEACH: Okay. Thank you, Loretta. Mr. Poston, are you with us? Yes, I was hoping since we heard him this morning.

Any other Board Members have any comments or questions for either NIOSH or SC&A on this issue before we move forward?

CHAIRMAN MELIUS: I would just add that the memo, the November 12th memo, from Pete and the ORAU staff on this is included in the materials that were sent out to the Board Members. So.

MEMBER BEACH: That's true. Thank you. I meant to mention that.

CHAIRMAN MELIUS: Yes, it's --

MEMBER BEACH: Yes.

CHAIRMAN MELIUS: -- labeled as KCP dosimetry. So.

MEMBER BEACH: Yes.

CHAIRMAN MELIUS: Yes, on that. But, I don't know.

MEMBER BEACH: Okay.

CHAIRMAN MELIUS: John, do you have any

-- okay.

MEMBER BEACH: Okay. So, then I will say that issue is -- those two issues, 1 and 9, which we consolidated are effectively closed. Okay.

So, moving on to summary of TBD issues, mine are slightly different than Peter's.

We have issue 2, worker location, job category and coworker model. The remaining issue revolved around implementation of the coworker model. Not the feasibility. We agreed that it could be done. Additional information regarding the adequacy and completeness of the data used for coworker model and its applicability to various job categories can be incorporated into the next TBD.

Too many words, LaVon. Right? Okay.

So, the other one is 3, chronic versus acute and the radioactive waste and D&D activities. That's a little different than what Peter had. We did agree in the Work Group meeting that those would become Site Profile issues.

Ten, non-penetrating doses and the mag-thorium which we discussed. We did ask to

reserve operations during '63 to '70 in case any other information comes to light for that time period.

Oops. I didn't move forward. Okay.

So, on to the sample dose reconstructions. We did ask NIOSH to complete example dose reconstructions. Peter covered those very well just a few minutes ago. So, the mag-thorium, the switch plates with tritium, the tritium monitors.

The Work Group looked at the dose reconstruction and agreed that it could be done very claimant-favorably. We did have some issues on using the .19 triple separation. That has been completed as Peter just reported.

So, we were happy with the sample dose reconstructions on all three of those items.

That leaves me to petitioners' issues. I wanted to cover this. We worked really hard with the petitioners to satisfy some of the concerns that they had. Again, there's a lot written down here. I'm sure you've had time to look at it.

Some of the things that we ran down included whether special nuclear material was used and it was reported early on by one of the petitioners that there was a nuclear reactor that was tested and operated at KCP. What was the radiological significance of promethium contamination incident and other known or alleged incidents involving tritium depleted uranium, radiography monitoring, health physics historic monitoring practice at KCP and their adequacy, the movement of potentially contaminated workers from contaminated areas into clean areas and the contribution of nuclear fleas or hot particles? These are some of things that the petitioners brought up.

We conducted numerous interviews with petitioners. We conducted follow-up information submitted to NIOSH for review. We asked for specific responses, got those back to the petitioners and the Work Group Members.

The follow-up with the petitioners, we followed up on many issues, provided discussion

periods as I talked about earlier in July to go over technical concerns, specific responses.

We also conducted follow-up interviews late in the game. I would say in October. Looking for more instances and we had a couple of names that we hadn't got to earlier. So, we conducted those interviews regarding specific allegations concerning radioactive exposure incidents at Kansas City. There was -- no corroboration was found at all.

We also concluded that all -- the Work Group concluded that all petitioner issues raised were either already addressed within the 20 SEC Matrix items or were not SEC relative or they could not be substantiated through the extensive interview or records review to date.

And I keep forgetting to move forward. Sorry about that for those of you on the phone.

That brings us to Work Group recommendations. The first two bullets basically cover the open issues that I talked about 1 and 9 which we've just resolved and the remaining concern

on the example dose reconstruction which has been satisfied.

So, with the completion of those actions, the Work Group does recommend to the full Board closure with conclusion that the dose reconstruction feasible as specified by NIOSH's Evaluation Report.

So, we recommend to accept NIOSH's report. Any --

CHAIRMAN MELIUS: Any questions for Josie? Yes, Henry.

MEMBER ANDERSON: Yes. I saw that there's a coworker model. I'm sorry. Did you review the DU coworker model issues and are those coworkers at Kansas City or is it the broader frame work?

MEMBER BEACH: I'm going to either Joe or Pete catch that. We're using TBD-6000. We're using 70 and anything else you want to add to that?

MR. FITZGERALD: Yes, this is Joe Fitzgerald.

Yes, we did look at the coworker model.

We looked at the TBD-6000 applications of the coworker model in terms of the uranium.

So, there was at Kansas City considerable amount of uranium bioassay data. So, the data wasn't issue. But, certainly the treatment of that data in the model was fine.

MEMBER ANDERSON: Okay.

MR. FITZGERALD: And so, our focus is more, you know, to what extent that should be extended to other workers that may have been exposed to uranium and you heard some of that today.

MEMBER ANDERSON: Yes. Okay. Thanks.

CHAIRMAN MELIUS: Thank you. Any other Board Members with questions at this point? Any Board Members on the telephone with questions?

MEMBER ZIEMER: None here.

CHAIRMAN MELIUS: Okay. Okay. Thank you. Are the petitioners on the line and wish to make comments?

MR. KNOX: Can you hear me?

CHAIRMAN MELIUS: Yes, I can.

Please --

MR. KNOX: This is Wayne Knox.

CHAIRMAN MELIUS: Okay.

MR. KNOX: And I'm going to patently disagree with many of the statements.

MR. KATZ: Wayne, excuse me. Sorry to interrupt. This is Ted. But, if you could just either -- the volume is very low on your phone. I wonder if you can't either speak more closely into your phone. Perhaps that would help.

MR. KNOX: How it that?

MR. KATZ: That's better. Thank you, Wayne.

MR. KNOX: I patently disagree with many of the statements made by the Group. I have not been allowed to fully express myself concerning obviously false statements that were made.

I sat there with documents in my hand that indicate that these are average contamination levels. But, yet, they still -- NIOSH says well, this is the worst-case situation and I said wait. Hold it. There's no way the average of anything

can be the worst-case situation.

They will say that everything was controlled within the work area. But, we have contamination found in the homes of workers.

The reports I gave them indicated there was 2 million counts per minute of promethium 147 or other radioactive material found in the home of a lady on a brochure. It was found on her toilet and on her pillow.

But, yet, they still -- they say that it was confined. They say that a particle of promethium-147 -- that's 13 mics which they found was the maximum they found, but they said well, that was the maximum available. It is not true.

But, even if you were to do the dose analysis for the inhalation dose particles, you would have significant radiation doses to many organs of the body and it's just the skin dose.

They say that only promethium-147 was leaking, but then you look at the reports and no, there were many other radioactive materials that were found leaking.

You must keep in mind that this facility was classified as a non-nuclear facility. We don't have radioactive material here. But, that's not true. Radioactive material was found outside as I said in the homes, outside of the building.

If you look at the DOL Site Exposure Matrix, it contained a lot of radioactive material that workers were working with and the DOL, Department of Labor, Site Exposure Matrix was based upon a group of people going to the site, looking in records and digging out all of the toxic substances that were used, stored or recorded and they came up with the Site Exposure Matrix which was probative. That is whatever is in the Site Exposure Matrix was supposed to have been accepted as fact.

However, the Working Group meeting disagreed with that and I presented the Working Group meeting with a number of labor categories, a number of places where radioactive material was used and a number of processes in which it was used and guess what happened? Magically, all of this

information was deleted from the DOL Site Exposure Matrix. I consider that destruction of evidence.

Why would they go in and have it deleted? Why were they using uranium, powdered uranium in this facility?

If you look at the records, they had yellowcake. Why would a facility that was making widgets and non-nuclear have yellowcake.

You look at the wet chemistry there. It looks like they were preparing -- making some type of fuel there.

As far as the reactor development, everything I looked at points toward the fact that they were developing and testing small reactors there and that reactor went to the University of Kansas Burt Hall. If you follow the line, you had fuel that was shipped to Bendix from St. Louis and why would they ship the fuel from St. Louis? We have discussed this and no one is willing to give me a license that said that it was developed in Detroit.

Now, I'm told that Detroit -- the

Detroit Honeywell Plant actually developed and tested a nuclear reactor. No one is willing to put that in writing though. Tell me, tell this Board that in the city of Detroit a nuclear reactor was developed and tested by Honeywell Bendix.

I have helped put together a small TRIGA reactor. It wasn't just putting it together. We had licenses. We had a lot of procedures. Where are those procedures then that say that this reactor was developed in the city of Detroit?

Is anyone willing to testify that a nuclear reactor was developed and tested in the city of Detroit? No one. They will not provide me any documentation to support it.

But I have provided them documentation which suggests that it was done right there at the Kansas City Plant. They had all of the facilities available to do it and plus, it was being built by the University of Kansas. It was installed in Burt Hall in the University of Kansas.

Let's see the contract between the University of Kansas and AEC and Bendix. Those

three were involved in this. Show me the contract. They won't show me the contract.

There are many things that they will not show me and I would submit that my security clearances out-trump any of them. I've had the highest levels of security clearances in DOE, the Nuclear Regulatory Commission and Department of Defense. I was Top Secret Control Officer. I had special access authorizations and yet, we can't show you this information.

To say that we used TBD-6000 is not true. I can show you, if anyone wishes to see, the data. I can show you that TBD-6000 has not been used in evaluating the worker exposures.

Tell me where I can meet some non-Working Group Member of the Board. I will pay all of the expenses and meet you anywhere and I can show you where this is a bunch of crap.

I was not allowed to speak at these meetings when NIOSH was patently misrepresenting data and information and the Board Members just nodded when it was patently wrong.

How can the average be the maximum? How can we do a radiation survey and find a particle of promethium that's 13 mics and say well, that's the maximum available?

No, you're supposed to use the worst-case situation and you can use student statistics to come up with a 99 percent competence level, but don't say it is. Don't say that everything was confined to this footprint when we found contamination outside of the Kansas City Plant in the GSA side.

Material from that plant that was contaminated was found all the way in New Mexico. It contaminated -- potentially contaminated material from that plant was shipped to Amersham, England.

And if you take a look at it, and I have operated health physics programs, if you look at a 3 million square foot facility, just one, one, one of those buildings, 3 million square feet, and you look at the number of radiation detectors, they had two of this and one of that.

You cannot operate any kind of facility with two instruments. You have one in repair. You get one crapped up. What are you going to do? You cannot do these operations and you have the uranium there.

If you look at -- based upon DOL Site Exposure Matrix, you had U-233. That was part of that uranium cycle and it was a part of the old teapot bomb that was built and tested here. That was part of the uranium cycle.

That stuff would build up high gammas and that's not even considered even though it was stated in the Site Exposure Matrix that it was there.

It just bothers me that such a group focuses on paperwork and not the reality. The reality of what happened has to be considered and not what they said on paper.

So, my main objective, number one, is -- in addition to this, is the Dotty Coxwell event. No one wants to talk about a cobalt-60 source that was left open. How long? We don't know. But, we

know the lady, Dotty Coxwell, ended up with cataracts in both eyes. Her blood vessels broke, burst. You understand? Blood vessels burst from radiation exposure and yet, huh, no big deal.

And you had people that worked on the roof. Can you imagine the exposure? It's a threshold for cataract formation. It's about 200 -- 150 to 200 rem dose to the eye. So, she got more than that to the eye. What happened to these people who were on the roof?

What happened to skyshine? Anytime you have a large radiation source like that and you get the clouds coming over, you're going to have it bouncing off of the clouds and going over that whole facility and you had short walls. Based upon my discussions with workers, all this radiation would bounce over the short walls.

You had all of these radiation generating machines and you had no -- you had no one trained in health physics. All of them -- all of them were in industrial hygienists because it was not defined as a radiological facility.

In my opinion, the report is not worth a hill of beans. It's false. It misrepresents the exposure and in my opinion, it's done to cover up the fact that corporate America was using government facilities and a disposable group of workers. Primarily, if you look at the records, primarily, women, minorities and the craftsmen took it in the shorts.

They were exposed highly to radioactive materials, toxic chemicals while Bendix worked under the cover of a hold harmless indemnification. Bendix was provided a hold harmless indemnification for building the atomic bomb.

But, they have all of these government facilities. They were on a special committee. Bendix was on a special committee to find ways of increasing the use of radioisotopes.

CHAIRMAN MELIUS: Mr. Knox, I think you need to wrap up shortly please.

MR. KNOX: Okay. The bottom line is no, I have not been given the opportunity to fully voice myself. When I tried, they played games with

that.

The other big issue is the designation of the Kansas City part of the 3 million square foot facility that had a common ventilation system. People moved in and out of these areas all the time. Workers from GSA actually went into the Kansas City Plant space and performed work on contaminated components and brought the tools right back out of that space.

The whole facility was contaminated and by law, the facility, a DOE facility, is the facility and its surrounding grounds. How can half of a facility not be on the same grounds as the other half of the facility?

But, yet, we're denying coverage to all of those workers that actually performed work on the Kansas City side under a contract. That was a contract between GSA and the Kansas City Plant. They came in and provided work for them. So, all of those workers should be covered.

There are many more issues out there. I would like to sit down with somebody and just show

you the paperwork I have because I have not been permitted to demonstrate. Regardless of what Josie says, no, I have not been permitted to say and show what really happened at that facility.

If anyone wants to call me and I will meet them anywhere and just show them.

CHAIRMAN MELIUS: Okay.

MR. KNOX: Thank you.

CHAIRMAN MELIUS: Thank you very much, Mr. Knox.

Is there any other petitioners that wish to make comments? Okay. Thank you.

So, any other questions from Board Members?

I think we have a motion from the Work Group basically to accept the NIOSH recommendation that the evaluation -- that doses can be reconstructed at the site. Essentially, they would not be -- this group would not be added to the Special Exposure Cohort.

So, any further comments or questions? If not, then, Ted, want to go ahead and do the --

MR. KATZ: Yes, sir. Dr. Anderson.

MEMBER ANDERSON: Yes.

MR. KATZ: Ms. Beach.

MEMBER BEACH: Yes.

MR. KATZ: Mr. Clawson.

MEMBER CLAWSON: Yes.

MR. KATZ: Dr. Field.

MEMBER FIELD: Yes.

MR. KATZ: Dr. Kotelchuck.

MEMBER KOTELCHUCK: Yes.

MR. KATZ: I will collect votes from Dr. Lemen and Lockey because they're absent. Dr. Melius.

CHAIRMAN MELIUS: Yes.

MR. KATZ: Ms. Munn.

MEMBER MUNN: Yes.

MR. KATZ: Dr. Poston, are you on the line? John Poston? Okay. Absent. I will collect his vote. Dr. Richardson is also absent.

Dr. Roessler.

MEMBER ROESSLER: Yes.

MR. KATZ: Mr. Schofield.

MEMBER SCHOFIELD: Yes.

MR. KATZ: MS. Valerio.

MEMBER VALERIO: Yes.

MR. KATZ: And Dr. Ziemer.

MEMBER ZIEMER: Yes.

MR. KATZ: Okay. The motion passes. I'll collect the additional votes following this meeting.

CHAIRMAN MELIUS: Okay. And I would like to just acknowledge somewhat contrary to what we've heard, I think the Work Group and NIOSH made substantial efforts to reach out and give opportunity for people from the facility to provide information and provide comments on the work as they went along and I think the Work Group did an excellent job as well as with NIOSH and SC&A in evaluating this particular petition and petition evaluation and addressing issues at the facility.

So, Josie, you and your fellow Work Group Members, we know it wasn't all the Chair. So.

MEMBER BEACH: No, it wasn't. So, let

me add, too. We're not finished here. We've already tasked SC&A to work on the TBD Site Profile issues. So, we'll be moving forward with those.

CHAIRMAN MELIUS: Okay. Any other business for the Board meeting at this point in time?

Okay. Thank you. I think we can be adjourned.

(Whereupon, the above-entitled matter went off the record at 2:31 p.m.)