In The Matter Of:
Hudson River Dredging Phase 1
Peer Review Introductory Session

Public Hearing
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Martin Deposition Services, Inc.
Malta Commons Business Park
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HUDSON RIVER DREDGING PHASE 1
PEER REVIEW INTRODUCTORY SESSION
FEBRUARY 18, 2010
GIDEON PUTNAM, SARATOGA SPRINGS, NEW YORK

PRESENTED BY:
STEPHEN GARON, Ph.D.
SRA International, Inc.

MELINDA HOLLAND,
Facilitator

PANEL MEMBERS:

PAUL FUGLEVAND, Chairman
TODD BRIDGES
VICTOR MAGAR
RICK FOX
PAUL SCHROEDER
GREG HARTMAN
TIM THOMPSON

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EPA's PRESENTATION ON PRODUCTIVITY

JOHN MULLIGAN
DAVE KING
BEN CONETTA
ED GARVEY

GE'S PRESENTATION ON PRODUCTIVITY

ROBERT GIBSON
JOHN HAGGARD
ANDREW INGLIS
TIM KRUPPENBACHER
JOHN CONNOLLY
JENNIFER BENAMAN

Public Comments by:

TOM BRONSON
JOHN JERMANO
MANNA JO GREENE
TOM KRYZAK
WAYNE RICHTER
KEVIN FARRAR
MS. HOLLAND: Welcome, everyone.

We have a slightly thinner crowd today. You are welcome to kind of come up towards the front, be wherever you are comfortable. I hope everybody had a good evening. We are grateful it's not blizzarding. It's easier to get here for you who didn't have to drive. Do all of the mics work? Oh-oh, Victor's doesn't. All right, great.

Greg, we got you a different microphone. I think, hopefully, that one will work for you.

All right, can I see a show of hands how many people weren't here yesterday. Okay, a few folks, because we had a fairly long introduction yesterday and I don't want to make everyone sit through that. I want to make sure I give you what you need to hear.

My name is Melinda Holland. I'm a subcontractor to SRA. Steve Garon here is the Project Manager here from

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the SRA for the Peer Review. This is a contractor-run Peer Review. Steve had a long presentation yesterday about all of that. We won't go over all of that again.

If you have questions about what a contractor who runs a Peer Review does or who the contractor is, see Steve on a break or at lunch so we don't have to do that now.

I'm a Professional Facilitator Mediator. I have been doing environmental and Super Fund mediating for more than 20 years, too long. It's good to see all of you. So I will go through the agenda for today. We will start off with our EPA presentation on Productivity, and John Mulligan will lead off.

We will then have a half hour for panel questions to the EPA on Productivity. We will have the GE presentation on Productivity starting off with Bob Gibson and panel questions on the subject. Then we
will have an hour for overall questions for both EPA and GE. Then we will have a one-hour lunch break. Any of the public who would like to speak during our comment period later today, you need to register out front by the lunch period. So we will really know how many we have, how much time each of you will have to speak. So please register for public comment by lunch break. We will have an hour opportunity for public comment, and Steve Garon will give a brief wrap-up about the schedule, and the next steps for the Peer Review process.

I hope all of you who were new today picked up papers from the table out in the front because there is some important information. A key thing, of course, are the Charge Questions that this panel is to consider. I will not read these again, but I want to be sure you have this. The panel is not allowed to consider anything outside of the scope of the Charge
Questions. If you are making public comment, if you talk about things outside of the scope, they will listen to you, but it has no impact. I just wanted you to know that.

We went through the ground rules for the panel and the presenters yesterday. All of those folks are here again today so they don't need to hear them again. Since we have some new audience members, I want to go through ground rules for the public audience folks. First one, there is no active audience participation outside of the times designated for public comment on the agenda. That includes agency staff and contract support. The agenda provides an opportunity for oral comment by the public on the topics within the scope of this Peer Review. You can give a copy of your prepared remarks to Steve or to Alison out front to be included in the record. And we set the public comment up to where you will have a
fair and equal opportunity to make
comment within the limited one-hour
time span. We will take you in the
order in which you sign up and we will
divide the time available, and let you
know how much time you have. You must
pre-register to speak, and I will call
on each of you.

You must complete your comments
within your time. Please do not
address the Peer Review panel outside
of your public comment time. You are
not allowed to ask questions or ask
the panel to answer questions. If you
have questions, you just want to put
on the record, that's fine but they
can't answer them.

We ask you to honor time limits,
be concise and be respectful and
civil. Please turn off all the noise
making gadgets, cell phones, beepers
and the like.

Our EPA presenter can come on up
and switch your presentation over.

MR. MULLIGAN: Good morning.
Thank you, Melinda.

As Melinda said, my name is John Mulligan. I'm a consultant to EPA. I work on the Hudson River Dredging Team for EPA, and I first became involved in this project in 1974, the spring after the old Ft. Edward Dam was removed. When they pulled it out, they left a water main across the area upstream with the dam hanging like a clothes line across a new channel that was being cut through the mud flaps behind the dam. My firm was engaged to design a new water main. That job grew into designing the dredging, to an emergency dredging project to reopen the canals, because a million yards of material moved downstream in the first spring and filled in the Champlain Canal right up to the brim right at the Ft. Edward Yacht Basin.

We stayed out on the job throughout the seventies, wrote a bunch of reports, proposed dredging and building a landfill in the Town of
Fort Edward. Ultimately, we ended up here with GE doing the work some 30 years later and hauling the material out west.

In any event, I have a long history with the project. I'm pleased to be still in it even though I'm retired for the most part and I'm only doing this job.

I would like to talk to you today about the Productivity standard. In Phase 1 the Productivity Standard called for certain volumes be achieved during this first year of dredging. As the standard was written back in the 2002 and the 2004 time period, we assumed we would have 2.65 million cubic yards of sediment to be removed in both Phases 1 and 2. The Standard called for removal of a target volume of 265,000 cubic yards during the first year, about 10 percent of the total volume to be dredged. It also said the minimum that should be removed during that first year was
200,000 cubic yards to kind of test
the system, to make sure we knew what
we were doing before we got into a
full scale advanced dredging project
over the next five years. The
standard called for a five-year Phase
2; one year for Phase 1, five year
Phase 2, six years of dredging
overall.

During the pre-design Sediment
Sampling Analysis Program, we had an
SSAP program, GE developed a new
estimate of what the volume might be
in the two phases. They came up with
an estimate of about 1.8 million
yards, down somewhat from the 2.65
million yards. As a result of the
Phase 1 work, of course, we learned
that the designed cuts weren't deep
enough. There was sediment that had
not been discovered during the
sampling program that was
contaminated. So we went back to the
2.65 million cubic yard estimate as to
what would likely be dredged over the
two phases of the project. GE has a very similar numberer, I believe. I think it's important to note, though, that this may be a moving target. We felt we had 1.8, but after we started Phase 1, we are now up to 2.65 million yards, because of the underestimation of the depth of contamination. We expect as we go through Phase 2, we will learn, we will start zeroing in on what the true numberer will be. I good want to imply we have a rigorous scientific or engineering estimate of what this overall volume is. I want to make that clear. That's a guesstimate at this point, 2.65 million cubic yards overall.

During the Phase 1 project, GE actually dredged about -- their estimate is 282,900 yards exclusive of the navigation dredging up above Lock 7.

EPA made their own estimate. We came up with 273,600. We are not clear as to where the difference is.
We believe it's in the frequent of
these shore line areas and how it was
mapped. For the purpose of this
presentation, we will accept GE's
number as being close to the truth,
because they have a better idea
because of their field surveys.

GE also targeted a maximum
monthly production rate of 89,000
cubic yards to achieve a dredging rate
sufficient for the Phase 2 volumes
based on the 2.65 million total
volume. They actually only achieved
58,000 cubic yards, so they fell
somewhat short of the 89,000 cubic
yard target. In Phase 2 the amount
that had been left to dredge -- you
started with 2.65 million yards,
subtract the 280- some-odd thousand
yards in Phase 1, and you come up with
a number that is 2.3 million and
change for the next five years. This
translates into a required volume if
you dredge the same amount of 475,300
cubic yards a year. The way the
Standard was written, we suggested that they target a higher dredging rate in the initial year so when they reached the final year, they could close it out a little earlier in the year, at least provide them with a cushion in case the volume ran over. The target volume would be about 528,100 cubic yards a year for the first four years, and 264,000 for the last year.

Now, we also understand the design for the systems. When Phase 2 was designed, they won't shoot for the numbers exactly. They won't just say 475,000 cubic yards a year for four years. This doesn't work that way. The geology of the river, the difficulty of getting into the landlocked sections, and other problems will require them to do less in one year and more in another year just depending on the ease of the dredging; they don't know what they're going to run into. But these are good
numbers to use to shoot for if you're going to get this job done in five years. To do a 375,000 cubic yards per year for the project, you will have to get a daily rate of about 3,378 cubic yards. To get 528,000 cubic yards, you will have to get a daily rate of 3,700 and change per day. The monthly rate that will be required will be about 86,500 cubic yards a month. Still, that is less than the 89,000 they targeted in Phase 1, but, again, they did only about 78,000 yards in Phase 1 in a month.

For that target volume, you have to go up to 96,000 cubic yards a month. Those numbers are based on a six day a week dredging project, which is what they did for most of Phase 1. The last few weeks I think they dredged on Sundays, as well, because they were running out of time and had to get off the river. For the most part, they like to do this six-day-a-week dredging. The dredging
season is five and a half months. I think that is down about a month from what was originally proposed in the Productive Standard, which we wrote back in 2002.

For dredging equipment for the majority of the dredging season, GE had the following dredgers:

They had five 5-yard dredging buckets called CAT-385 Excavators, they had one 2-yard bucket on a CAT-345, they had six smaller dredges of one-yard buckets on CAT-320 excavators. They actually had a few other machines out there, but this is what was primarily there for the season.

One of the five-yard dredgers was used to transfer the material from the mini-hopper scows to the large hopper scows, so they wouldn't be running the smaller scows up through the locks.

For scows they started with about 20 large hopper scows. These
things are about 195 feet long by 35 feet wide by 12 feet deep. They started with, ran about 7 mini-hopper scows and started with 7 mini-hopper scows. These things were about 26 feet long by 18 1/2 feet wide and 2 feet deep. And they had initially one super mini-hopper scow, which were actually two mini-hoppers attached end-to-end, and they just left it that way.

Under GE's report -- first, the remedial action work plan as scheduled by the contractor for GE called for larger mini-hopper scows. They were going to be almost twice that size. What was actually used was the smaller sizes. I think the report says they were 3'9" high -- the measurements were different. These are pretty much the right dimensions.

For tugs, they had 13 600-horsepower tugs, 4400 horsepower tugs, and they had three or four utility tugs, using carpenter
(inaudible) they're called. They were boats used to move the many hopper scows around.

This is a picture of one of the smaller dredges, a one-yard dredge bucket on the 320 CAT along with one of the mini-hopper scows. You could see the tires hanging over the sides. These were just conventional car tires. There were walls two feet high. It's a steel beam around that scow, basically the bases are less than a foot.

This is a picture of one of the large hopper scows. They ran these scows where ever they could, where ever the draft was deep enough. All of the material transported was transported in these scows, not the mini-hopper scows.

A number of factors affected the dredging rate in Phase 1. Perhaps the largest one really, the tail that wagged the dog as far as maintaining high productivity is concerned, was
that scows were unavailable to the
dredgers for many hours because of the
inability to unload the scows at the
same rate they could be filled by the
dredges. Another issue was the
presence of slab wood and debris. I
will talk to each of these
individually as I go through this
talk.

The mini-scows had relatively
limited capacity. There was an
underestimation of the depth of
contamination requiring many passes,
and there was fine grading to meet
very tight cut lines.

I would like to speak about the
scow unloading issue. This is a
picture of a trommel screen, the blue
device. This is an excavator, got a
five-yard bucket on it. The scow
being unloaded is on the back of the
excavator. You can't see it, because
it's in the canal. The top of the
scow wall is below grade. In the
operation of this system, the
excavator, we retrieve a bucketful of material out of the scow, put it here. This is a twelve-inch grizzly screen. Now, that screen is mounted over a box, similar to the dump box on a dump truck, a 10-yard box. They drop this material from the scow into the screens, the grizzly. Whatever went through fell into the boxes. The grizzly was pitted upward vertically to the right clock-wise. The grizzly would pick up vertically. The dump box under it would then pivot, and tip up in the other direction and dump the load into the trowel. The cycle time was one cycle per minute from dumping the grizzly, and dumping the scow box into the trommel. They were not loading directly into the trommel.

This bucket requires a 20-inch depth of cut to fill it. It's a five-yard bucket. If you had 21 inches or more of material in a scow, you could fill the bucket with one bite.
The design of this thing, the manufacturer's rated capacity is about bucket every minute. Actually, the manufacturer says a 50 minute hour, a 45 second cycle time.

They're using a bucket a minute for a round figure, because that is the cycle time for this trommel operation. You should come up with 300 -- 5 yards times 60 minutes, that's 300 yards an hour. Knocking it down to 50 an hour, giving the operator time for a break, you get 250 yards an hour.

Now, this operation went seven days a week, about 250 yards an hour, even if you used a 20-hour day to make shift changes and down time for equipment and refueling, you would be able to do 5000 yards a day of unloading. The fact of the matter is, it could never achieve that.

The big problem from my point of view -- and I think GE would agree -- if a scow comes in here and it has 5'7
in it, you can fill that bucket and
get about 5 yards in a cycle. As the
sediment level of the scow drops down
to 14 or 15 inches, a foot, you are
filling the bucket about half way.
The upshot is on average, they are
only getting about 100 yards an hour
out of that machine.

They had two processes. When a
scow came in loaded, the first thing
they did was pump out the water with a
2250 gallon pump. They get most of
the free water out, but, of course,
need a foot and a half or so of water
depth around the pump intake to
prevent vortex, and you were always
left with some water. If the material
in the scow was well drained, you
could unload it directly into off-load
dump trucks and haul it off into the
storage area. If it wasn't well
drained, it was mud, silt, clays,
what-have-you, you had to run it
through the trommel to separate the
water and larger material out, get the
clay and the silt and other pines over
to your filter presses ultimately.

So to get back, because of the
strain on the scow, it couldn't keep
up with the amount of the dredge
material coming in. The max unloaded
by this machine was 17-18,000 yards in
a week. The average volume required
for Phase 2 is about 22,000 cubic
yards a week. You will have weeks
when you have more dredging than
others, because this is the way things
work. You want to be able to handle
more than your average, so you can
handle the peak days. I think the max
volume required in Phase 2 will be
probably around 25,000 cubic yards a
week for unloading. Clearly, you got
to increase the capacity on the
unloading system, whether to add an
additional one, change the design,
something has to be done.

Now let's talk about dredge
operation time. We had 12 dredgers,
11 working most of the time sitting on
the river. We had 12 available. The dredges worked six days a week. They dredged about 165 days a season. If you subtract Sundays, where no dredging was done, you are down to 144 days, round figures about 140 days amount of time you could have been dredging. Excluding a few holidays, you may have had other problems, but the dredges were there 24 hours a day, but you had about 30,000 hours, probably 35,000 hours if you start saying, well, you have six days a week, times 140 days, 24 hours a day you have 40,000 hours of dredging equipment sitting here. But it was not always usable. You have to have time to move the dredges around, you have breakdowns, fueling, shift changes. So when you come right down to it, the effective time dredges were loaded up, staffed, sitting on the river ready to dredge, GE estimates they had about 18,125 hours total dredge time. That's the whole dredge
fleets, whatever was available.

Now, during the whole season they lost 382 hours to storms and fog. Lightening storms would typically shut down dredging operations. Fog was a problem for at least a couple of days for a few hours.

This, by the way, is numbers, the Weekly Summary Report prepared by GE each week when they talked about how many dredges were available for the week, how many hours of dredging was done, how many yards of material was moved and they also summarized on the back of that report any delays that occurred, problems that had to be overcome.

A copy of the last summary report, the running report, the last report that I used was dated November 4th. It's in with the EPA Design Analysis Report for Phase 1. It provides a list of lost time. It covers the storm/fog information.

Resuspension. About 6 percent
of the 18,000 hours were lost because
of job was shut down because PCB
concentration on Rogers Island
exceeded 500 nanograms per liter.
High flows, particularly in the West
Channel of Rogers Island, the flows,
the velocities were causing problems
maneuvering large scows, moving
mini-scows. So they reduced the
criteria for which flow they could
dredge down to 7,000 cubic feet a
second. For awhile it was 10,000 in
the program. That cost them some
time. They lost about 1,090 hours.

MS. HOLLAND: Tim, do you have a
question?

MR. THOMPSON: I do. I would
like to explore this just a little
bit. To be clear, the total available
hours of 18,000, is that total workday
hours?

MR. MULLIGAN: These are hours
that a dredger was actually on the
river staffed up, ready to work. It
excludes from the 40,000 total hours
he could have dredged for any time he
had to move it upriver to down-river.

MS. HOLLAND: John, hold the mic
up closer. Thanks.

MR. MULLIGAN: In any event,
high flows cost them about a 1,000
hours. The biggest loss of time item,
was the dredges that sat around.
After they sent a loaded scow away,
they would have to sit and wait for
the scow to come back.

MR. THOMPSON: I didn't hear the
answer I was looking for. I have to
interrupt you; excuse me for that. I
think you said it does or not include
the time they were on the dredge barge
and the time involving moving the
barge, repositioning the barge?

MR. MULLIGAN: Those were taken
out as ineffective hours.

MR. THOMPSON: These were 1,800
that --

MR. MULLIGAN: That you didn't
have a scow or your were told to stop
due to resuspension and (inaudible).
MS. HOLLAND: John, you need to hold the mic closer. We can't hear you.

MR. MULLIGAN: 18,000 total available, yes.

MR. THOMPSON: 18,000 total available? There were crew is on --

MR. MULLIGAN: The crew was on, it was gassed up, you were off the lunch break, you were ready to dredge.

MR. THOMPSON: You were ready to dredge?

MR. MULLIGAN: You were sitting there trying to dredge. Theoretically, this shut-down for the dredge is 18,000 hours.

MR. THOMPSON: Okay. I think I will wait for GE to answer. All right, thank you.

MS. HOLLAND: Greg?

MR. HARTMAN: The effective time, are these hours here, these are the hours waiting for the barge, no scow; was that considered not the effective time and dredging was
MR. MULLIGAN: I didn't give you an effective time. GE has details that are quite extensive in the report. They will tell you what was lost for shift changes and at the beginning of the shift, and so on.

They came up with a number of 18,125 hours of time when you presumably could have been digging, not moving the dredge from site to site, not flipping the barge or moving the dredger, or off for lunch, whatever.

It's when they should have been digging.

MR. HARTMAN: Okay, thanks.

MR. MULLIGAN: In any event, when you are tracking the lost time, you are down to 10,878 hours where they actually dug sediment.

I should mention in GE's Weekly Productivity Report, they listed another lost time issue, lost delay issue, and that's when they were...
digging clay.

The river bottom has in many areas, has a consistent clustering clay area that's very thick. It's native soils. If you get into it, what you are digging out pure Albany, Lake Albany clay. It's a loose, wet clay. It comes out looking like was boulders in the dredge buckets, big chunks. You really don't want to dredge that. If you give the dredger a cut line and say go to this line, and your two sample cores are used to drill that line 80 feet apart, the clay comes up between the cores, you do a straight line, the clay comes up in a hump, you don't want to get into it. When that would happen, they would slow right down. They would try to follow the top of the clay as best they could, so they wouldn't be removing the clay.

The clay created a lot of problems in the off loading. The balls were rejected, went through the
trommel screen as rejects, and/or got hung up on the grizzly, and it wouldn't go through that. Downstream the processors, the clay fouled up the thickener tanks, slowed down the cycle time on the filter presses. You can read about this in GE's report or our report. They created a problem. They don't have an effective way yet to deal with clay if they get into it. And they certainly will have some of this in Phase 2.

It became a big problem in Phase 1. They started getting into a clay layer and that kind of slowed things down for them. I know there was lost time, because they were dredging; it's not lost time. But some of that problem probably resulted in not having available scows, because you had six or seven scows at the unloading site. They were figuring out what to do with them. They were showing time lost because you didn't have an empty scow.
Average dredging rates. They had a few dredgers, of course, and they were generally digging, dredging about four of the five yard dredges. If you take the 10,078 hours of actual digging time, you come up with after subtracting the lost time from the time, you could have been digging. You divide it by the amount of time dredged by the five yard dredgers, you find they dredged 46.7 yards per hour, on the average, not a very high rate. The three-yard dredge did about 24.7 yards an hour on average, and the one-yard dredge did about 15.6 yards on average, per hour.

Now, if you go back and divide them out, it was dredged by 5-yard dredges by 18,000 hours, you come up with, for the time that dredge sat there ready to work -- although you might not have had the scow, you might have been shut down because of high flows -- you find out you only accomplished 18.28 yards per hour.
a five-yard dredge based on a total available times dredged. I think the numbers you really want to look at is the 46.7 and 24.7 and 15.6 for the whole fleet, the total number of hours you dredged with your fleet of dredges, divided into the total amount you dredged in Phase 1, you come up with 26 cubic yards an hour. So that's what they averaged per dredge.

MR. BRIDGES: John?

MR. MULLIGAN: Yes.

MR. BRIDGES: Can you describe how buckets of different sizes were allocated? I mean, what went into that process of determining where to use buckets of different sizes?

MR. MULLIGAN: GE will give you a better answer than I can, but I will tell you when can get a big scow into the system, you would use the five yard buckets. If you had deep cuts, you use five yard bucket. If you wanted to dig out six feet, you'd use a big bucket.
They had a lot of areas, particularly the West Channel of Rogers Island where the available draft was only 3 feet. You couldn't get the 385 scow on that barge because the dredge -- it's a heavy machine and you had to use a smaller dredge, either one of the 320's with a one-yard bucket and also had to use the mini-scows.

Now, the mini-scows, you use the five-yard bucket, you fill it up with five or six bucket and you were done. So you use the mini-scows for small dredges and the big scows for the large ones. Where possible, you use the big scow with a smaller dredge if you had one available.

You always had to keep one large scow available at the sediment transfer location down at the south end of Rogers Island so you could service the mini-scows that were coming down from the small dredges. You had six of those babies working,
and if you didn't have a place to
transfer the material out of these
mini-scows, all systems shut down.
You prioritize the transfer station.
You keep a scow there and as soon as
the scow is filled, you get an empty
back. That may mean somebody else
didn't get a big scow, but you got to
keep that operation going, or you shut
down six dredges.

MR. BRIDGES: Okay.

MR. MULLIGAN: Going back to
this unloading issue, this target
reduction rate of 89,000 a month,
again, the accurate production number
was 78,300 to 78,600 or something, and
we rounded it off to 78,000.

Time lost awaiting empty scows,
max production occurred I believe
between July 7th and August 5th, a
30-day and 15-hour month that GE used.
In any event, during that same time
period when they hit the maximum, they
lost, according to the Weekly
Productivity Summary Reports, 1400
hours waiting for empty scows at the various dredges. So you see if you had scows available for that 1400 hours and you could have kept the dredge working instead of sitting around three or four hours waiting for the empties to show up, you only did 26 yards an hour, because I don't know where would have been, you know, whether it was a scow being serviced by a one-yard dredge or a five-yard dredge. But if you use a 26 cubic yard per average, theoretically you could have dredged another 36,000 cubic yards in that 1400 hours than what they actually dredged, which was 114,000 yards. That is way above the 89,000 yards you targeted. It's above the maximum monthly amount you need for Phase 2 under the higher dredging scenario where you dredge for more years. I think this shows that you could -- the dredging equipment was adequate to meet the Productivity Standard. It was an unloading issue,
among others, that killed productivity.

The second factor on the list that I gave you things that delayed dredging was the presence of debris in the water. This started with buckets coming out of the river filled with sticks. You can't get the bucket closed. They were filling a mini-scow at this time and the dredger would reach down, tried to close the bucket, he wanted to close it, but the console said the bucket was closed before he filled it up. With all these sticks, he couldn't close it. It's hydraulically operated, but you couldn't sheer those sticks off and crush them; there were just too many of them. So the dredger might make two or three attempts to close the bucket before he lifted it off the bottom. Because each time you open and close it, you are causing more resuspension, presumably. So, ultimately, you're pick it up and dump
it in that scow.

Next slide, please. Here is a picture of -- it's not unusual as to what came out of the river. See all the junk in that mud? When you got that, you will have problems closing buckets and getting a full scow.

The other thing I want to talk to you about while this picture is up is these mini-scows with these two foot walls, had a neat capacity. If you filled them just level to the tops of the walls, it was about 35 yards. You can mound them up in the middle as the picture shows, but you could not have more than about a foot of water around the outside edges as in here in the scow. Because if you did when you went to move it to the transfer station, the water would slop over the sides. So they ended up maintaining a foot of freeboard here to hold water. The upshot of that was that most of these scows probably only carried about 25 yards of sediment, and it was
a half hour trip or so from CU-5 or 6
in the West Channel of Rogers Island
down to the transfer station. The
scow was taken away. You wouldn't get
an empty back for an hour, hour and a
half, and the dredger's log would say
hour and a half down time waiting for
the scow to come back.

These could have been bigger.

In fact, the super mini-scows, which
are 52 feet long, could carry 50, over
60 yards. You wouldn't wait as long
for the scow to come back. It would
take longer time to unload once you
got to the transfer station, but that
time is probably minimal compared to
the travel time coming back.

Unfortunately, with a 52-foot long
mini-scows, the drift arm, the arm on
the dredge machine couldn't put the
material in the scow evenly. They had
to move the scow ahead at least once
each time, because you don't want the
material on one end. It would become
unstable. So there's no really neat
fix or clean fix. They had to have
more mini-scows.

Another major factor in the
dredging production was the impacts of
understated final design line, cut
line, and also the fine grading that
went along with that.

How much more time do I have?

MS. HOLLAND: Half hour.

MR. MULLIGAN: Underestimating
VOC, as you heard yesterday, created a
need for additional passes over the
CU's, usually three to four passes,
and one time five passes, to get it to
grade to a clean sediment layer. They
lost time in mapping, sampling, and
getting lab results back, deciding
what to do for the next pass. They
kept the CU open for a longer period
of time. At the end of each of these
passes, the dredger would try to hit
his dredging target, plus or minus
three inches on a 10 foot by 10 foot
grid. He did a little surgical
dredging for a few days trying to hit
the line before he notified GE he was ready, he was at his cut line and they should map it and, of course, it reduced production rates. All of this kept the CU open longer and introduced resuspension.

CU-1 was an anomaly. They were designed for 13,000 cubic yards and ended up taking out 49,000 yards. It was an anomaly as to that point of view. CU-1 was at the yacht basin in Fort Edward. In 1974 and again in '76 it was dredged to a depth of 14 feet and it refilled to about six feet or five feet by the time the dredging, Phase 1 Dredging Project started. Nevertheless, the refill, presumably, was all contaminated material that washed downstream from the Old Fort Edward Dam. But the initial cut line shown by the sediment sample analysis had us take out two-and-a-half feet, which is what they did, and, of course, they sampled and they found they had to take out more. They did,
and sampled again, and had to take out more. Ultimately, at the very end of the job, they did two tests and found out what was left, found out at the bottom we hit native soils down there around elevation 100 when they started at elevation of 111 and 112. They had to go down 12 feet overall to get all the way to the bottom. They might have anticipated knowing that they had dredged in '76, and anything that came in after that would be contaminated, still would be contaminated, but for whatever reason, it wasn't.

I would like to walk you day by day through CU-1. Recognizing this is not probably, you know, a typical dredge, but it will show you what I have been trying to talk about.

The first dredge pass in CU-1 began around June 1st, and it continued through until about July 13th. They took out their targeted sample of about 13,000 yards.

Now, what this slide shows,
among other things, earlier in the week, you start out with -- by the way, they used a five-beyond dredger initially at this site with a large scow. The large scow was, I guess, hindered in what it could do, because just south of this site, there was a shallow spot in the navigation channel with only a four foot of draft. Even though you're using a scow that could handle an 11 foot draft overall, you have to get it over the shallow spot. So they were only they filling the scows to a three foot draft. It was about a 45-minute transfer time to this scow down towards Lock 7 before they bring it back up. Once you put three foot of draft in this scow, you are waiting an hour and a half for an empty to come back with an empty scow to continue filling.

GE decided not to deepen that piece channel to allow a deeper scow in to get material in and out. They thought, well, let's try this, see how
it works. They dredged, beginning of
the week started out 600 or 700 yards
in a day. This is daily production.
Most of these things show a decline
over the week. Well, that's the
result of being able to start out the
week with a bunch of empty scows
sitting around, because you have the
empty scows on Sunday when you didn't
dredge, but about Thursday, you have
seven or eight scows loaded with
sediment backed up at the unloading
dock waiting to be unloaded, and the
number of available empty scows was
falling off. So you see this pattern
of relatively high production rates in
the beginning of the week and dropping
off by the end of the week and, of
course, as the dredger approached the
final cut line in the last three or
four days, he wanted to be sure he was
right at target on this dredge cut
line, plus or minus three inches. The
dredge was surgical dredging. We
wrote the performance standard and we
anticipate the GE would be able to cut immediately to the cut line. The technology is there, they did a good job. I'm not in favor of surgical dredging. If you spend three or four days getting a three acre CU to where everything is at grade, or within three inches of grade, and find out it's in the wrong spot, you have to do this all over again. This happened at the end of this dredge pass. At the end of the first pass through this CU -- I will use the term "initial inventory dredging" -- we used to use dredge pass and I didn't like when we started using this term, but now we're stuck with it -- at the end of the first attempt to remove the CU down to grade of the initial cut lines, they sampled, they took a -- well, first, the contractor notified GE that he believed he had achieved his cut lines. GE then ordered OSI out to make a map. They produced a map. They gave a map to Dave King in the
Hudson River Field Office of EPA, and said, here is the map where we were within the three inch plus or minus tolerances, and here are the squares. We are places where we are off a bit, mostly an inch, a quarter inch, an eighth of an inch, but in this 10 by 10 foot square, we think it's close enough. Dave would say he would agree. He would get the map in the morning and go to a meeting at three o'clock in the afternoon, and he would say he agrees, you met your lines, and give us samples. GE didn't have to get Dave's approval for the sample, just acceptance. And then it was, wait a minute, each of the three or four 10 foot squares are too far out of compliance. They would really have to have an agreement with EPA that they have a cut line. Maybe that cost them six or eight hours. They get the sample results back, they looked at it and, at end of the first period of dredging, the samples results came
back and they said, you are pretty close to 1 ppm, but averaged less than six. We think what is left here is a minimal six inch residual layer still back with the dredge bucket with debris in it, we don't have a lot to go, but we'll do a six-inch two residual passes as issued by the original performance standards. So we take out six inches that we think will be there.

So they dredged through this July 13th until after August 10th -- August the 15th or 16th to remove a six inch layer. It was six inches plus or minus three -- well, a six-inch cut, but they didn't get very much production. The average production was somewheres around 100 cubic yards a day with a 5 yard dredge doing this. There were days they were moving around and getting production time off, for whatever reason, no available scows, what have you, they pushed up over a month here with
residual passes.

I am showing you this because there has been discussion that if you really have proof of a six inch residual, do the cut lines right at the 1 ppm level and you dredge it, you are left a few spots that were hot, you probably would have to go back and do a residual pass over at least parts of that CU. And if you do that, you can expect to be in the 50 yard per day to 150 yard per day range for your production. This is the only CU that I have that I could show you where we had a true residual pass that lasted any length of time and covered the entire 244 acres of the particular CU, and that is why I used this slide rather than the other CUs.

Once this residual pass was finished, they went out and collected samples. This time it was up around 10 or 11 on that. So EPA said the requirements are high, you better analyze the full 24-inch board in
six-inch segments. So they go back
out, analyze that, come back and say,
geez, the bottom of the 24-inch core
is still above, all over the place,
not in the entire CU, but in most of
it.

They then developed a new cut
line, gave the dredger a brand new
drawing, said you have to get a couple
of feet out of here. Here is your new
cut line, load this into your dredger
and go out and get it done. He starts
dredging again. Again, you see
generally a drop off in the beginning
of the week to the end of the week.
There is a week where it increased for
whatever reason. There is a gap in
here where nothing was happening. I'm
not sure why, whether it was a
shutdown or storms, whatever. Towards
the end of this period, you end with
another four or five day stretch, he
is doing fine grading to try to fine
tune the cut lines and tell GE he is
ready. When that happens, they are
into mid-September. GE went out, did a map, got acceptance that everything was right, they had gotten their cut lines. They had a discussion for a week that said what will we do here? We are not at the bottom yet, we are running out of time. At that point GE said, you know, we're sending these scows out here with three foot of draft, and that's not helping a bit. Why don't we dredge out the high spot in the channel, so they did something. They accessed the dredging right here (indicating), two days they took out about 1500 yards of sediment, got it out of the navigational channel -- not sediment targeted for dredging. So they dug it out so they could get out of here with a fairly well-loaded scow.

Now, they come back, they are rushing, because they are at the end of the season. They get up to 1400 yards per day and actually got a second dredge in here for part of
this.

MS. HOLLAND: John? (Indicating
the time left.)

MR. MULLIGAN: Okay.

When they finished that pass,
they, while they were finishing it,
they started sampling subsets of the
CU. They didn't want to get to the
end and fine grade it and sample and
make a map, so they sampled it in
advance. And they did one more pass,
and did this patch. They shut down
for the fall. They didn't get down to
the bottom where there was high
concentration of PCBs.

Next slide. So kind of in
summary, I believe if they had enough
dredges on site, enough scows on site,
you could meet the Phase 2
productivity requirements as far as
production goes if you figure out a
way to best address the uncertainty in
the depth of contamination so you
don't have the start-stop, start-stop
efforts where you go back of the same
five acres to define a new cut line.

You must improve the scow unloading or you will be plagued throughout the project. You should minimize the fine grading at the end of the first pass to get to the tolerances specified. It's fine for the last pass, but in the first passes you spend three or four days removing spuds and things from a dredge scows, some little hump where you've got six inches high, and you are not getting production, you are moving all over the five acre CU to address the 10 blocks here, there, and everywhere, and you're not getting anything accomplished.

Sample first. If you have to take out a draw a line two feet lower, at least you didn't waste your time; you can do that.

Conduct access dredging where you need to. It would have been better -- and I think GE would agree in hindsight -- had they dredged out
the shallow spot in the canal in CU-1, 
they would've been better off. 

I would like to turn this over 
now to Dave King to make a couple of 
closing remarks before you guys start 
the questions. 

MR. KING: Thanks, John. 

I don't have any slides -- I 
will spare you that. This is the end 
of the presentation that EPA's making 
over these two days, and I have some 
brief observations of what I have 
seen. We have covered a lot of ground 
in two days, no question about it. 
There are huge boards and tons of data 
we were looking at. We looked at some 
things in fine detail and look at 
things as gross generalizations. This 
is the nature of this kind of a 
process right now, but we sort of look 
at the Engineering Performance 
Standards as a backdrop or context to 
be set. So we can look at a lot of 
these items we have been discussing in 
detail and design, because that is how
we will solve the issues in the design
for Phase 2.

We will deal with operational
changes, procedural changes, some
structural changes, perhaps, when it
comes to the scow unloading. But that
is where we will resolve a lot of
these.

But I have seen in our
discussions, there is a lot of common
ground here. We all want to reduce
the number of dredge passes to get the
inventory out of the river for a host
of reasons, resuspension, getting down
to proper residuals, et cetera. We
want to reduce the time it takes
between dredge passes, to review this
to look at the data, and that has
eaten up a lot of time. We need to
reduce that, like we need to reduce
the time it takes for the CU approval
process. We need to use the dredges
and all the equipment out there
effectively and efficiently.

As John said, there is plenty of
equipment out there. That wasn't the issue. It's how effectively we can use it. We all want to reduce the resuspension from our operations in the river. We want to limit the time for Phase 2, five years, and while it's not part of the Engineering Performance Standards as Ed and Joe pointed out the other day, we need to do the work we're invariably doing. So while our approach to these items may differ significantly, in some cases if we had the right backdrop in adjusting standards, we can work out the details in the design, and I think we can get to an effective Phase 2 design.

Phase 1 showed us the conditions that we were going to run into in Phase 2. There is a lot of bedrock, a lot of clay. We will have to deal with that in design and procedures to make sure we can handle that effectively. Like any other project of their size, we are going to come up
with things totally unexpected. Murphy and his laws are in full effect when it comes to this.

Bob Gibson from GE always calls this "Hudson luck." If things were going great, things would drop on us, and it's, like, here we go again. That is the nature of construction, the fun of construction, that you have to deal with this on a daily basis. We did and we will continue to do that. At the end of each year, we will sit down and do what we need to just to keep improving the operations. Again, that is the nature of a project of this size.

The details of our position and details of GE's position are in the reports. Once the reports are final, you will get a chance to dig into them in detail. We look forward to sitting down with you in May when we come back for the three days. That will be a different discussion for sure.

Again, on behalf of EPA, we
would like to thank you for participating in this process.

MS. HOLLAND: Thank you. Now we have an opportunity for questions on Productivity. We have up until 9:45 if you guys want to take that time.

Okay, Paul, then Rick.

MR. FUGLEVAND: I have a couple of questions. The first is on the Performance Standard, one month production. Could you explain to me what is actually stated in that Performance Standard and what is, what is the explicit requirement? Is it 89,000 cubic yards a month? Was it written as, let's see if we can do it, or was it written as an absolute? Can anybody quote the Performance Standards.

MR. MULLIGAN: Let me take a shot at it. I haven't re-read this since I wrote it eight years ago. The thrust was during Phase 1, you should demonstrate your dredging plan, your dredges and de-watering
system, the whole system you set up to
do this job can work at what rate for
30 days, a 30-consecutive-day period,
then demonstrate you could meet the
Productivity requirements of Phase 2.
If you are trying to dredge 47,000
yards as required each year in Phase
2, you are to take that, divide that
up to so many months and come up with
a monthly rate. The original
Performance Standard, I believe,
envisioned about six and a half months
of dredging. We had a number around
77- or 78,000 yards -- it's all in
there. When GE said, well, we are
designed for five and a half months'
dredging season. You have to bump
that up. You have to dredge more each
month. They produced the 89,000 yard
number.

I don't look at it as an
absolute. It's a test of your
equipment and plant. You didn't meet
it primarily because you could not
unload scows consistently at a rate
that would allow you to keep the

dredges working.

MR. FUGLEVAND: The place I'm
not clear on, I'm used to Performance
Standards that say this is something
you need to meet. If you don't, it
then has a consequence.

I'm real confused because on one
hand I hear people talking about an
absolute that there was a Performance
Standard, and part of what we are
reviewing is the performance standards
and did they meet it? And what we see
is that they didn't.

I'm not hearing anybody say that
there was a Performance Standard. I'm
hearing people say, well, here is the
reasons why not. Seems to me, if you
just read the sentence, they didn't
meet it.

MR. MULLIGAN: That's right.

MR. FUGLEVAND: Did the
Performance Standards ask they do a
detailed evaluation to see if they
bought enough scows, or can they do
it? I hear a lot of discussion of
throwing stones almost. It almost
seems like they are backing away from
the Performance Standards. Was it a
standard or not?

MR. MULLIGAN: The standards
have demonstrated your plan, overall
plan, dredging, unloading, and
processing can work at a rate
sufficient to complete Phase 2. We
had to prove this over a 30 day
period. It was a test of the system.

MR. FUGLEVAND: So didn't they
prove, didn't the project demonstrate
they cannot achieve that?

MR. MULLIGAN: Yes, given the
conditions of the design at present.

MR. FUGLEVAND: I don't think
that's what the Performance Standard
said. Doesn't -- it sounds to me like
they didn't meet the standard, and I
think they are making a case that from
a productive, productivity
perspective, maybe there is too high
of an expectation on a production
rate. And I think that rather than hearing everybody throwing stones about "they could'a, should'a," I thought the standard said "demonstrate," and if they gave it a good effort and couldn't meet that, I think it has a different implication -- again, to me this was like a public whipping of GE. I don't think that was appropriate from what I know of environmental dredging. I think it's realistic to have an expectation of productivity and it wasn't met, I think that needs to be considered.

MR. MULLIGAN: Well, let's back up. You are saying is this a true performance standard as written into a contract as demonstrated X number of gallons a minute?

I think at the time we wrote it, it probably was, but there is no penalty. There is nothing in the Performance Standard that says if you don't meet this, we will fine you.
None of that. I personally, and I know EPA, has not thrown stones at GE because they couldn't meet 89,000 yards a month. But the purpose of Phase 1 from our point of view, it was to show you that you either could do it, or you couldn't do it. Now, if you couldn't do it, it was impossible, and with your best effort you couldn't do it, there's nothing you can do to change things, maybe we should change it to, say, you need six years for Phase 2.

I didn't see that. I saw you didn't meet it, but another unloader would've taken care of the operation. You got probably one dredge coming here, probably dredging in 2011, you have all summer to get another unloader up here to work on the dock to get this taken care of.

There are other issues out there as well. You may want to go out to where you have cores that are incomplete, and push a few different
sample tubes down there and see if you can re-define the line a bit. There are a number of things you can do to help you out in the first year of Phase 2. You will probably learn more then and maybe decide to make other changes.

But there is no intention here to throw stones at GE for not hitting the original 89,000 number. The original standard I think was 78,000 and they hit it. There's no penalty.

MR. FUGLEVAND: So my second question is, we heard lots of discussions about lots of surprises unanticipated conditions and changes that need to be made. One change I heard everybody talk about is five years. Five years seems to be cast in stone, but it doesn't seem to necessarily be kind of to match the site conditions. Is the five year thing a number in the ROD or is it a number that is administrative? What is the basis of the five years?
MR. MULLIGAN: Would you object if I turn it over to EPA? I would rather have Dave answer that.

MR. KING: If we look at the total project of the six years, including the first year of dredging, that number really gets back to the whole discussion of a bottle of -- you know, the quicker you get it done, the shorter the impact would be on fish, because that is the main risk issue associated with the PCBs in the river right now. So I think that is really where this came from.

Since then I think the idea -- and GE has said it, we said it -- we would like to finish Phase 2 within five years.

Because of that and also because that's an expectation out there now with the public also. We want to get this thing done as soon as we can to do it, effectively.

If we can hold it to five years, that would be great. If it turns out
through all of the things that it
takes an extra year, it will take an
extra year. That is still our
targeted objective, to get it done in
time.

MR. FUGLEVAND: Again, so I
understand, there was an understanding
that when the ROD was written on what
we thought we could do, and now
there's been a tremendous amount in
Phase 1, it seems to me revisiting the
five years from the perspective of how
long it would take to do it quickly
but well, and I think that's one of
the things that would be worth
considering, because yesterday the
five years has always seemed like it's
cast in stone and arbitrarily cast in
stone.

MR. KING: It's not certain.

It's something that has to be looked
at. But if we can do it in five
years, we would like to accomplish
that.

MR. FUGLEVAND: I have one other
final question. We heard a lot of discussions from EPA saying, "Here is what GE could do to improve."

I'm curious to hear what EPA could do in the next five years to improve productivity and performance standards, and not kind of say what GE could do. I'm curious what your thoughts are in that regard.

MR. KING: Yes, I think that is an interesting perspective. We touched on it several times that we need to streamline the approval process. I mean, we need to make sure that we can look at the data along with GE collectively so we can reduce that time in between the dredge passes. I think that is one thing we can do to get that done.

In the field we worked a lot together on a daily basis trying to address issues, and I think that it's incumbent upon the EPA to do that. I think that is why we had a significant team in the field working with the GE
team to -- you know, this is something
we have to get done collectively. We
need to focus more on that and we
will. We haven't specifically laid it
down in the standard, but that's a
good take away from this discussion.

MS. HOLLAND: Rick and Greg and
Todd.

MR. FOX: Switch to the last
slide. I'm following up with Paul's
question.

John, you talked about
minimizing fine grading. What
specifically are you proposing here?
Are you talking about relaxing a
standard for GE to meet in order to
get to the sampling phase, or are you
talking about over-dredging? I don't
really understand what the
recommendation is here.

MR. MULLIGAN: I haven't made a
firm recommendation here. I made a
report on Phase 1 and what I
suggested. This is not a firm, hard
recommendation. I'm open to
suggestion from anybody, that before
you spend three or four days a week
trying to remove the lifts off the
bottom making sure you met your final
grade before you get your samples, it
may very well be when the samples come
back, you will have to re-draw the
line and all that time will be wasted.

I think that's a procedure that
doesn't impact the standard, as
written. You might want to change the
flow sheets in the standard site,
start sampling the sub-sections of the
CU while you get them close to grade.
This is probably as much of a
contracting problem with GE as it is
for EPA to administer the thing and
watch it. Because if they start
sampling before they finish dredging
the CU, they could foul up the
operation in the area, that this is
something that GE will have to
consider. Toward the end of the
project they started doing this. They
would go into a five area CU and say
we are down here and grab the samples
on the upper end to make sure that's
correct.

MR. FOX: It's almost like we
talking about very small amounts of
material, picking fly crap out of a
pepper shaker. To me, perhaps it
could go to a percentage of compliance
on a CU basis, or something like that,
because what I would submit if we went
right to the verification samples and
we passed, why should we go after the
humps.

MR. MULLIGAN: We probably would
put the backfill over it. Because we
want to know what we have before we
put the backfill down.

MR. FOX: So you are saying
those little humps don't matter.
There should be a consideration of
what does matter, and reset the
standard that way.

MR. MULLIGAN: What does matter
is if you do a sample and it's below 1
and it comes back that half of these
samples are below 1 and half of the samples are 15 or 20, the hump didn't matter either because you're probably going to end up having to test two or three feet of where the samples are high and you waste your time.

MR. CONETTA: We are talking about fine grading and the Standard. Fine grading is not part of the standard, it's part of the spec.

What we are trying to say is we learned some things from Phase 1. These are one of the things we need to look at and try to address.

MR. FOX: Right, and the fine grading is so they can meet --

MR. CONETTA: The cut back.

MR. FOX: Right, so they meet what you guys require in order to get to the point where they can get a verification sample.

MR. CONETTA: Yes.

MR. FOX: Perhaps there is another way you can look at that to its completion.
MR. CONETTA: It is looked at in terms of a CU basis on a 10 feet by 10 feet grid, plus or minus tolerances.

MR. FOX: But all of them have to be on --

MR. CONETTA: No, no. You have to be more below than above. The sample has to be negative. So what we've learned from Phase 1, the DOC has obviously been underestimated. There is not much point in doing that. Why do fine grade when you still are looking at the inventory?

MR. FOX: I think you have to look at the standard, though. While we have the DOC close, is it still worth the fine grading?

MR. CONETTA: It's a good point. Some will be design issues more than standard issues. I think we fully acknowledge that. To us, a fine cut line has proved problematic. How do we address that? That is the next step. That is what we have to work together on and find out. There are
two issues to this; there is areas
that seem to be well-defined cores.
We have different ideas on that and
some that we don't. It's a complex
system out there. It involves working
together with GE on that.

MR. FOX: One more question. On
the first bullet, I think we were
dancing around a bit on what the
specific recommendations are to get a
better DOC.

We talked about it yesterday on
the Residual Standards. Does EPA have
a firm recommendation? Are they
talking about sampling in the low
confidence areas?

MR. CONETTA: We have a couple
of recommendations in there. Our
report is still getting fine tuned.
There were questions yesterday and
today that we will try to address. We
will try to give you a road map as far
as where we are going with the data,
how we will evaluate it. In terms of
do we have a recommendation, we do for
complete cores. Incomplete cores, we

can do something, as well. They can

range from 20 inches to who knows how

depth? If it's in a debris field, you

need to dig through it. You take

samples at the bottom at the end of

the day. The debris fields are full

of PCBs. Do we recommend sampling?

There are targeted areas where you

have incomplete cores, the sampling

may make sense. John may have

mentioned this. If there is an

uncertainty with the DOC, I'm not sure

you will get a better DOC with

sampling equipment.

    We need to address the

uncertainty. There will be a process

with EPA and GE and, hopefully, we

will come to an understanding on that.

    MR. FOX: We should try to tend

toward proactive rather than reactive

especially in the low confidence areas

to try to get some better data. It's

not possible, I understand that,

over-dredging -- just a blind
over-dredging to me, doesn't make sense.

MR. CONETTA: We made the conscious decision not to do a blind over-dredging. I don't even understand it, because I wasn't involved in it. But over-dredging in and of itself, we understand might be a problem. But we are not asking them to take out clean material. That is not our intent. Our intent is we need to get to the ROD remedy, we need to get to a certain level. How do we get there? Phase 1 will help us learn from that. Where we have clusters of incomplete cores, take a bucket, dredge through it, see what is there, that kind of deal.

Those are the things in the field we need to address on a day-to-day basis sometime.

MR. FOX: Thank you.

MS. HOLLAND: Next, Greg, Todd and then Victor.

MR. HARTMAN: I have two
questions here, one on the clay material. When you get the clay material brought up in the bucket, did you stop; was that clean material below that?

MR. CONETTA: Typically, there were some areas that dredged to clay lines. Once you have the clay, you are supposed to stop. The problem, as John mentioned, there is an undulating surface. It may be in clay here and you may be in sediment here. That is part of the process. You will get clay sometimes anyway. We will have to deal with it on the other end. Also when we are actually dredging this clay, we don't want to take six inches of clay. That wasn't the intent. You may have residuals on top. Can we address those? Maybe not.

The standard talks about bedrock and clay areas. We're allowed to cover with a cap depending on the residuals or contamination. We
certainly did that. But certainly in bedrock areas and clay, we need to be certain that is what it actually is. That is why we took like a month in CU-5 and CU-6 to find out what the next step was. Then we had a process obviously in CU-5; there was a flat area with strips in it. That is not something we could do well. It took us awhile to get to. CU-6 was a boulder field. While we were able to probe and get sediment in there, there were certain areas that you couldn't do much with, but still a lot of sediment in there. Maybe part of the process is maybe we need to cover those, but we did get a lot of material out of that. Was it a large area, no. But it was part of CU-6. It was boulder. Dave said they did it. I think they did as well. I'm from New York, from downstate. These guys are from up here and they're working on it. Every once in awhile my two cents is welcome, but they
worked very well together trying to
get a decision. Talking about
processes, we do want to change the
processes. They are too long. That
is part of what we can do.

Typically, when we got data, we
made decisions at the table at 4:00
o'clock. If we weren't able to
evaluate the data, we tried to make
the decision so it didn't stall the
process. Can we do better, I hope so,
but we did the best we could.

MR. HARTMAN: In terms of
resuspension, residual control, as
well as production, did EPA specify to
the contractor the method of removal,
whether they would remove from the top
down?

MR. CONETTA: John is going to
answer this for you.

MR. MULLIGAN: GE prepared the
design and EPA reviewed it. They went
back and forth for a few years and
finally got approvals. GE didn't like
everything we asked them to do and
they didn't do them all, and that is
the nature of the beast when your
doing these approvals. The only thing
we tried to discuss and GE, I think,
agreed with, you want to dredge as
close to downstream as possible. That
is one of the standard issues -- we
wanted to the demonstrate, do some
testing, see what would happen to
grade fine, fine sediment areas in the
Griffin Island area. We moved
downstream from the major dredging
effort and worked on two CUs down
there. We did it purposely to see
what would happens in fine grade
areas. But generally speaking, they
should be working from upstream to
downstream, in that direction. That's
in our Performance Standards. We
would like to hold onto that if we
can, but we recognize it won't always
be possible. Sometimes you block the
canal if you try to dredge side by
side, you know?

MR. THOMPSON: John, I was
really asking specifically was the
operator required, in the removal of
the contaminated sediment, to dig down
to a certain depth and were they
required to take the dredge cut down
first, and take a one to two samples
or were they instructed on how to do
that?

MR. MULLIGAN: The spec was not
clear, it was more of a navigational
tool. The spec just said get it to
grade, here are your tolerances.
Unlike most navigational dredging
specs where it would say I need to get
to this line, and we'll pay for it, it
just said, here is the line that would
be acceptable to GE -- and they wrote
the spec -- we'll accept plus or minus
three inches above or three inches
below. But on any given acre, you
have to get the full volume out of the
acre. So you have maybe three inches
below that and often it's another half
of an acre. So that produced these
maps are 10 by 10 squares. I don't
think anybody was happy from the EPA.  
We had to keep this job going. There 
are some things GE may wish to change 
or may wish not to. 

There was no definition that I 
know of. Maybe somebody at GE will 
correct me if I'm wrong, saying you 
have to take up a foot and then go 
back and an extra look and pick up 
still back, nothing like that in the 
spec that I know of. 

MS. HOLLAND: We can address in 
that the next presentation. 

Greg, do you have any other 
questions? 

MR. HARTMAN: No. 

MS. HOLLAND: Next we have Todd, 
then Victor, and then Rick. 

MR. BRIDGES: John, you 
mentioned at one point during the 
presentation that you're all in favor 
of surgical dredging, and I'm hoping 
that comment was something that was 
said tongue in cheek. It's only 
reasonable comparing dredging to
surgery, you'd be talking about surgeons whose tool of choice is an axe.

MR. MULLIGAN: (Laughing) I agree.

MR. BRIDGES: But there was a statement in the Draft Report we got that referred to, I guess, the desire for additional equipment that would be available to remove between bedrock outcrops or boulders. When you are talking about, in the EPA report, talking about pulling stuff out of nooks and crannies between rocks, I think you are approaching an operational definition for surgical dredging. I mean, that would be my definition of it. I know it's not everybody's.

And further, on this point, I think the reason why it is important -- I know the "surgical" word is something that should be avoided, but in the EPA 2005 Guidance for Contaminated Sediment Remediation, and
I quote, "Contaminated sediment cannot be removed with surgical accuracy even with the most sophisticated equipment."

So I guess you can comment basically, since I made this comment, but I think it more important when we do receive the final report from EPA that EPA is very clear about what your expectations are with respect to what the equipment can achieve, what you want it to achieve, and what you think it needs to achieve in Phase 2 with regard to these issues you encountered in Phase 1.

MR. MULLIGAN: Do you want to speak on this?

MR. CONETTA: You can.

MR. MULLIGAN: With regards to the surgical dredging, I agree 100 percent that it doesn't make sense to work to tighten the tolerances.

On the other hand from EPA's point of view, if GE says they will dredge to 10.2 at this location and
they dredge to 10.8 and say, well,
it's sampled, it's still hot, it's
okay, we will just cap it," what do we
say?

Normally, I would say if you
dredge to 10.0 and you end up four or
six inches below, so what. And GE
says, we don't want to send excess
material out all the way to West
Texas, we're going to write a very
tight tolerance as to what the
contractor can do. If he dredges
over-cuts, it a problem for them.

That's where I think the
surgical-type dredging comes in, when
you are actually grading and, you
know, you are at the one ppm, you
don't take out two feet, you try to
set it up so you don't take out a six
inch lift, because that is what's
needed. And, of course, we learned a
lot. No matter how carefully you push
a probe in, if you cannot find a one
ppm line, that 10 inch nugget having a
difference to where the one ppm line
is, 10 inches, that's spooky. I mean, what do you do, go 10 inches deeper or halfway in between; what do you do?

MR. CONETTA: I think that is what you have to do, judge the tolerance.

Actually, I think if you knew what the DOC was, you can get to it, that's fine. But with a dredging project, you wouldn't know what the DOC is with certainty.

One of the things you mentioned in bedrock and boulder areas, we understand. We don't say you have to go crazy and dredge. We need to learn from the process in Phase 1 and make a clearer recommendation than is in the draft. We understand that.

Hopefully, we will do that in the next week or so.

MR. MULLIGAN: You have another part of the question. What we ran into in some of the CUs, undulating bedrock surfaces.

We have a stone the size of an
orange, that's all you get in the one yard bucket and so they go out with rebars, GE had, and they were banging on rock here, but over here they went down to four feet in sediment. We have to find the low spots. Some were 50 feet long, 10 feet wide, five feet deep, and they dug it out. You try to do this with a 2-yard bucket or one yard bucket, I wouldn't spend a lot of time doing this. But maybe geophysics or something would show it if you're in a rocky area and you get into undulating surface that you should be dredging. That certainly would be nice to fool around with a rebar to find out if we have sediment or rock to find, try to find the 500 yard parts of sediment in the rock.

MR. BRIDGES: I guess my follow-up is a comment with respect to as you finalize your reports that come in -- this would be true for GE as well, and I know the people are somewhat casual the way they speak
about the issues -- but I think you
spoke about kind of the surprises that
occur in construction projects and
quoting Bob Gibson, "Hudson Luck" -- I
have to remember that one, but in some
respects comments made yesterday and
some of the wording and some of the
reports suggest a maybe fatalistic
attitude with regard to uncertainty in
the project. That creates some ill
ease with me with respect to the scope
of this project, the fact you are
talking about a billion dollar
project, given the implications of the
uncertainty with the environment and
for human health, for the length of
the project, for the cost the
resources we consume.

It seems to me that there would
be some information that could be
extracted from Phase 1 that could
allow EPA and GE to develop a more
comprehensive "uncertainty management
strategy" rather than say, well, stuff
will happen, mud will fly in the fan.
I know that we are being casual here
in the way we talk with one another,
but I hope to see that in some form or
fashion within the report.

How are you going to address
uncertainty in a comprehensive way in
Phase 2?

MS. HOLLAND: Todd, you are not
asking for an answer right now, are
you?

MR. BRIDGES: No, I'm not asking
for an answer right now. We are
talking casually. That is what I want
to see in Phase 2.

MS. HOLLAND: You folks note
that, because I want to get to some of
the other questions. Do you have any
other questions?

MR. BRIDGES: I do, but I will
let others go.

MS. HOLLAND: All right, Victor,
then Rick.

MR. MAGAR: I was interested in
the some of the issues with the scow
productivity -- and you did identify
at one point the trommel, unloading.

Were there others? Is there a transportation analysis that is looking at how the scows are moving through, and is it a number of scows, or I assume there is more information, but there is down time waiting for data also.

MR. MULLIGAN: There is an amount of data we haven't had a chance to review at all. GE maintained a traffic control station, GPS equipment on each of the scows. You could look up on the screen on the wall and see wherever a piece of equipment was moving, where it was, and there's reports that you know where a scow was at a given month, time, where the dredge was, where the scow was. They did a first-rate professional job keeping track of all of this information.

With the total data bases, you can make an analysis. GE has done some modelling of the moving of the
equipment through the locks, as much
for showing the canal people you
weren't going to consume all of the
lock time and slow down the
recreational traffic. I do know from
personal experience watching the job
that quite a bit of time is lost, when
you're transporting scows,
particularly in the channel. You
can't take a big scow out of there
filled and bring in another scow at
the same time. You have to take one
out and it would take 45 minutes and
start coming up with empty if they had
one. It would be an hour and a half
or two hours before you got the empty
scow past CU-3 and 4 and up to CU-1
where you are working. This is
something you try to manage as best
you could can. Maybe you could have
brought an empty scow up and used a
small tug or a smaller tug to place
that up against a dredge. There are
things that could be done, but doing
them on the fly and trying to analyze
them after the fact is tough, too.

MR. MAGAR: Filling up more

scows that can't get through the

system doesn't make it quicker.

Somebody should be assessing where the

pinch point is.

MS. HOLLAND: Victor, maybe you
can ask the questions again in the

next presentation.

MR. MAGAR: I will do so.

When you talk about CU-1, what

role did deepening the draft have in

allowing more productivity? I imagine

there was somewhat of a limitation.

When they were starting CU-1, there

was a shallow draft, then they dredged

several feet, then they brought bigger

equipment in. Was there higher

productivity or was it a

transportation issue?

MR. MULLIGAN: The shallow draft

area was not in the area targeting for
dredging. It was in between the CU

which was between the Fort Edward

Yacht Basin and Lock 7. You had to go
across the area not dredged, but you
go through four feet of waste. The
dredging didn't lower that. You
didn't get more draft. That was one
of the issues. When they started,
they were taking a scow out with two
foot of mud in it. To get over that
hump, they'd go over to the
de-watering site and now you're trying
to unload two feet down to six inches.
The dredger didn't unload the scows,
the contractor's did. Sean Reynolds'
job was to get the scow with under
2000 or more than six inches of water
and turn the empty back to dredging.
That is at least how it started. It
changed halfway through the job to
allow them to return all the scows
back with one foot of water in them.
But trying to get from one foot to six
inches with a bucket, that requires 21
inches of fill to fill it. They put a
bobcat in the scow, swung it, a guy
had a joy stick, and they did whatever
they could. They were hard at work
trying to improve the productivity at
the unloading area. You can only do
so much when you are dredging. They
did everything they could, but they
couldn't get that up to speed.
Finally, and later on in the project,
they said we will take the scow with
two foot of mud through Lock 7 and try
to unload it for two hours and try to
get one out and send it back. They
said we will bring it to the transfer
site, load it up and send it. They
did the management steps, what they
considered best management practices.
But the unloading was a definitely a
tough point.

MR. MAGAR: The recommendation
that the scows be filled, more so the
bucket could be filled more, or to
change the bucket sides, I mean --

MR. MULLIGAN: This is an
engineering design issue. My
recommendation is you put a second
unloader there so at least if you are
unloading at the dump, construction
scows could be unloaded, but there are a number of ways to approach that. This is a materials-handling issue. GE will have their engineers handle this. I'm sure they know this. They don't want to start Phase 2 with the limitations they had in Phase 1.

MR. MAGAR: You talked about the dredging of the canal, as part of this process that they deepen the canal to allow a deeper draft if I understand correctly, of the scows moving through as something that came later in your draft in the last phase.

MR. MULLIGAN: EPA's only --

MR. MAGAR: The answer is probably obvious, but what happens to the material? Was it processed through the facility? If there is a broader recommendation, which I think I was hearing from EPA to do more in the canal, better canal management, maybe better dredging to allow passage, is that part of EPA's
recommendation? Has anybody done a volume analysis or cost benefit analysis? For that matter, is there a cost benefit analysis to allow the upgrading recommendation, whether it's improving a week of productivity or an entire year of productivity that would come out, I think, in a cost benefit analysis.

MR. MULLIGAN: You have a lot of questions in there, Victor, I will try to answer them.

MR. MAGAR: Sorry. Starting with the canal dredging, I was asking how is that being managed, and how is that impacting cost and volume? Other things like that, variability, people looking at the cost, and impacts to the overall project.

MR. MULLIGAN: Starting with canal dredging, GE is under no obligation to dredge the canal unless it's contaminated. In Thompson Island Pool, the section 1 area is targeted for dredging. If it's in the canal,
that is part of the remediation. If
the canal doesn't need that, you don't
dredge it. Maybe you do it halfway,
because that is what happened between
CU-1 and CU-2. It was 1100 feet
reaching the canal. It was not to be
dredged, but it was very, very
shallow.

Now, elsewhere in the system
behind some of the islands, you have
very shallow water, a couple of
feet -- I estimate you have two feet
over a sandbar to get into some spots.
So the Performance Standards
anticipate some "access dredging" we
call it, not in the canal channel
itself. Its off in the shoals, the
mud flats. You have the spot here of
five acres in shallow water. Getting
to it, you have to cross a sandbar and
that gives you two feet of draft. You
have to dig a channel through that.

For the most part GE is
processing and sending it to a
landfill, because they don't want to
make the effort to prove it's clean
before the shipment. It's easier to
dig enough of a scow to get a
reasonable size in there and do the
dredging.

I haven't done a cost benefit
analysis. I have no cost data,
whatsoever, on this job. I don't even
know the contractor's pay, you know,
measure of payment schedule. GE
considers that proprietary information
and hasn't released it -- can't blame
them, not my business. They are
paying for it. I don't know what the
arrangements are, or the costs. I am
hesitant at this time to make that
analysis. I can certainly make one
based on generalized dredging prices
and moving materials prices, but I
don't think that is my job. My job is
to say you have to dredge this,
because it's hot. The ROD says get
down to one ppm, and show us how you
will do it, and we will discuss it.
That is what we have been doing and
what led to the design of Phase 1. I think it's relatively successful. We sound pessimistic about the uncertainty, but, you know, they went in to dredge 265,000 cubic yards. They dredged 282,000. They did it in a year with extremely high flows on the river, 30 inches of rain in a month where we normally get six in June and July. They just had a lot of problems.

MS. HOLLAND: Victor, we are about five minutes left and I want to move ahead. Does that answer your question?

MR. MAGAR: Yes.

MS. HOLLAND: Rick, do you still have a question?

MR. FOX: No, I will ask the question of GE.

MR. SCHROEDER: Have you evaluated whether or not you think the sediment processing facility is adequate in terms of bell filter press and, whatever, trommels?
MR. MULLIGAN: Yes, I put it that in EPA's Evaluation Report of Phase 1, the Productivity chapter, Chapter 3 of the report. I said this is what it's designed to handle, and this is the maximum amount they could handle successfully.

Generally speaking, everything works pretty well, providing you're dredging sand and gravel and, you know, silty sands and gravels, and not dredging pure clay.

The last couple of weeks of the job, as I mentioned earlier, they hit clay, big balls of clay. It created havoc. They fed it into the trowel three or four times before it would go through the screen, and then it plugged everything else up downstream, so another procedure has to be developed.

MR. SCHROEDER: The final materials that you -- from Griffin Island, for example, for one that didn't pose any problems?
MR. MULLIGAN: Not to my knowledge. They have 12 filter presses with two plates in them, six by six plates, and each one delivers 600 cubic feet, 200 yards per cycle.

There are 12 of them. There is one point where they had to test all 12 for a day or so, but most of the days they were running half of them for Phase 1.

MR. SCHROEDER: So the only limit at the processing facility and possibly if they were handling clay in the sense they were going through the trommels and stuff --

MR. MULLIGAN: I may change the trommels up. They had a broken beam and structural failures had to be repaired, but GE has good engineers, they will resolve that by strictly an engineering basis before Phase 2. You might ask them what their plans are. If it were me, I would add another unloader and try that, something that is readily available. You don't want
to spend millions and millions of
dollars. I think the water plant
worked fine. They had a severe
problem throughout the end of the
year, because of rail transport. They
got around it by building a
supplemental materials storage site on
the land they have there. They did
what they could do. They made a super
human at Fort Edward to keep the job
going. Some things had to be
corrected for Phase 2, certainly.

MR. SCHROEDER: That is part of
my concern. Also they weren't able to
do the 95,000 cubic yards a month, so
if we weren't able to meet everything
at 78,000 maximum --

MR. MULLIGAN: Your question is
is it correctable?

MS. HOLLAND: Two minutes.

MR. SCHROEDER: Would it be able
to handle the additional 20 percent or
less than that?

MR. MULLIGAN: The treatment
would, the trommel system wouldn't.
Everything else in the system would.
You may have a peak day and have a
problem for a day, but certainly you
will have to be able to send rail cars
off the site at some point. You can't
have a landfill that would not take
waste for three months because we got
a landslide or a broken machine.

MS. HOLLAND: Paul, did you get
your question answered? Sorry about
the microphones. This one we're going
to quit using.

Todd, you have about a minute
and a half.

MR. BRIDGES: Okay, it's a big
project. You used a popular word,
"unprecedented", you know, clean up
project. Can you comment on what
relationship, if any, you think there
is between productivity and worker's
safety. There are a lot of moving
parts in this project. I understand
you had a fatality this year. I don't
know about injuries and such, but what
is the status of that?
MR. MULLIGAN: GE is very concerned about worker safety. This is something every morning we go out in the river, there is a safety briefing every morning. This is not something GE or EPA takes lightly. There was a fatality and you can speak to GE about that. It's not related so much to the dredge as to the archeological surveys. The more equipment you have on the river, there is more of a chance of an accident. We had about 90 vessels at one point.

MS. HOLLAND: We are out of time, so why don't we go ahead. Does that complete your question Todd?

Okay, thanks, everyone. We will take a 15 minute break, and we will get started right afterwards.

(At this time there was a 15-minute recess.)

MS. HOLLAND: Our next session is going to start with Bob Gibson from GE; are you ready?

MR. GIBSON: Yes.
MS. HOLLAND: We have our panel here? Thank you.

MR. GIBSON: We are getting close to the end. I just want to follow up on what EPA said earlier regarding the processes that got us here. We started the predesign activity back in 2002. Since that time it has been a process, the work plan development, execution of the work, reporting out on the results every step of the way. These documents were developed by GE and ultimately reviewed and approved by EPA. We've had a very rigorous process to get us to the point of Phase 1, and every step of the way it was a red light, green light process that got us to a final EPA approved design that we implemented over the past year. Yes, we did a lot for Phase 2 to make things happen to the best of our ability. As John said, "super human efforts." We tried real hard. In the end, the key part of the
standard, the 89,000 cubic yards, we
were not able to achieve.

What I will do today is share
our experiences on the Phase 1 Project
relative to Productivity, talk about
the key factors we observed that
influenced our ability to meet the
productivity stages and implications
for Phase 2.

Now, John got into a lot of
detail on a lot of specific aspects of
the project. Behind me I've got the
GE team, and our contractors that were
out there day-to-day that analyzed the
productivity data. I will take a
different tact. In my point of the
presentation, I will focus more on the
relationship of our standards and the
impact on productivity. After we get
to that, when we get to the Q and A
part, we will answer questions for
you.

I will go through a presentation
now and turn it over to John Haggard
to wrap. So let's get started.
Again, this process started back in 2003 with the AOC for Remedial Design. I have been working with this project on the Hudson for the past 10 years, seen it from predesign to ultimately the design and to the past dredge season. For those of you who were able to join us this past fall, I think you probably realized this project is really unprecedented in the amount of equipment, the level of activity out at the site. We're dealing with great challenging areas, shallow water dredging in high velocity areas where the stage of the river is changing on a daily basis, really low productivity work. We had 12 dredgers working at any one time being supported by dozens more vessels, the barges and all the support vessels, and all of the monitoring equipment, just a beehive of activity. This project ran 24 hours a day, six days a week. Towards the end as we were running out of the
season, we went to seven days on a
number of occasions, but it was full
out. As John said, we tried a lot of
different things to try to improve the
productivity, but ultimately we
weren't able to.

Just to say something about the
operations themselves, when we were
out in the field we worked with EPA
meeting twice daily going over the
types of information being collected
from the monitoring of data,
performance data on the project, and
making real-time decisions on what we
do next. We were basically struggling
to do this project within the
limitations of the Engineering
Performing Standards and Quality of
Life Performance Standards. Each and
every day there was something new. We
tried something on one end to increase
productivity and now we have air
problems. So it was a continuous
process to try to attempt different
adjustments to the project to find
that point of optimal performance.

Now, I wouldn't dwell on this too long, but I do want to make a few points. We really feel the key portion of this standard is being 89,000 cubic yards, because that, in essence, is what we need to sustain that on a monthly basis for five years to get the Phase 2 project done. That's based on the original understanding of the project prior to implementing Phase 1. As you heard EPA say, there are some estimates that suggest the volumes could be greater, which means this number will go up even more.

The five-year criteria, we agree that is important for the reasons that Dave King stated, but also a projection of the benefits that ultimately was the basis for collecting this remedy were based on the project's duration, and, you know, with it drawing the project longer extends the impact further, whether it
be elevated fish concentrations or increased load.

So, again, where did we end up?

Our numbers are pretty close to what the EPA presented. We estimate during the one-month period, we were up to removing 77,300. Again, about 13 percent shy of the 89,000 cubic yard number. We also removed less PCBs than what the design called for. For the deeper contamination that we got to, we got 8 of the 10 certification limits that had been targeted in the design. As EPA pointed out, we removed more sediment than originally thought, more than 86,000 cubic yards. More importantly, we took out more sediment that contained less PBC's than the design called for. So from the efficiency perspective, this was a less efficient operation than what we had intended.

As you can see on the note here, and John Mulligan alluded to this, we were required to also complete the
backfill cap work and ship off all of
the dewatered sediment by the end of
the year. We weren't able to do that.
We had difficulties with the landfill
that prevented us from shipping all
the material offsite.

What I want to do now is take a
little closer look at how we did
relative to that one-month
productivity schedule. What we are
looking at here is our monthly
productivity. Over here on the Y axis
here is the monthly total dredged
volume in cubic yards, 0 to 140,000
cubic yards per month. What this is
is essentially a rolling total of our
month. And what we're doing is we
prepared this to see if that previous
month hit our regular average of cubic
yards. Over this is a black line,
which is a similar measure, but here
we're talking about PCB mass removed
in a month in thousand of tons from 0
to 14. The horizontal bars --

MR. FUGLEVAND: I have a
question. I don't understand what
that says, your rolling basis; what do
you mean?

MR. GIBSON: This value here of
37,000 cubic yards would be June 1 to
July 1, the volume.

MR. FUGLEVAND: It's a 30 day
moving?

MR. GIBSON: Yes, moving. So
superimposed we have, again, that same
metric, 30 day removal for PCB mass.
The horizontal lines here is 89,000;
that was the Phase 1 part of it.
Above that there are two additional
horizontal lines, 90,000 and 109,000
cubic yards.

What this represents is the
possible range of what the volumes
could be if some of the estimates in
the EPA report were ultimately found
to be what Phase 2 was going to be.
They also assumed a dredge schedule in
the report that we think was
unrealistic. It stepped the season to
165 dredge days. Starts early in May,
continues until the middle of October.
If we utilized the assumptions we made
it in the Phase 2 intermediate design
and look at a more reasonable project
duration for each season, this target
band arises even further up into the
120 to 140 range. So what you can see
from this graph here is 77,300. After
this point, we never got close to the
standard. I will talk a little bit
about why. We will see a series of
these charts that are similar.

The blue colored bars is the
design inventory. That's the sediment
that had been removed to the design
cut lines. The red bars are the
redredging passes that we did,
re-characterizing the inventory, plus
any residual materials that were
accounted for. As you can see through
the dredge season, we started early in
June ramping up our production,
increasing our productivity, dredging
primarily dredged inventory within the
original dredge prisms. At this point
we got to our peak and began to see trailing off of the inventory and increases of the redredging passes. As we were increasing our productivity, the mass of the PCB we removed was also increasing. What we were observing in the environmental data was water volume concentrations were beginning to increase until we hit the maximum rate, the maximum sediment removal rate in early August and experienced the first PCB exceedance of the 500 ppd standard, and we were shut down for two days. At the same time during the two during the shutdown, we sat down with EPA, developed a plan for starting back up, which EPA reviewed and approved, that had basically staging our start up where we began to dredge within areas that had structural control in the East Channel of Rogers Island and down at the sheet pile area down at East Griffin Island, and then gradually added dredging's back in. At the same
time we were implementing a number of
project adjustments that EPA had
directed us to make. You may have
heard some of these discussed during
John Connolly’s presentations
yesterday, talking about prohibitions
on bucket decanting, prioritizing
dredge areas where we only dredge in
high concentration areas, if we can
also dredge in low concentration area,
active sheen control around dredged
operations. All of these project
adjustments taken by themselves may
have had a modest impact on
productivity, but when taken in their
entirety, the impacts were actually
substantial. And can you see after
the shutdown, we had a reduced level
of productivity.

Moving on --

MR. THOMPSON: Can you give me a
sense of at the peak of dredging what
CUs you were actually operating in,
and whether actually the fact that you
got past CU-1, what influenced your
ability to (inaudible.)

MR. GIBSON: We were in C-1 for the entire season. At this point our operations were spread far and wide. I think we may have been in all of the CUs. They may have all been open.

MR. KRUPPENBACHER: We hadn't opened up C-4 at that point in time.

At that point in time we hadn't finished coming down the East Channel. C-4 was not active at that point. And we hadn't gotten CU-8 yet. CU-1, 2, 3, 4, 5, 6 and 7 and also CU-17 and 18 were active. CU-17 was nearly complete. That was one of the first ones we finished.

MR. THOMPSON: Great, thank you.

MR. GIBSON: So after phasing back the operation from the resuspension shutdown, we can to see we began to see a change in the type of dredging we were doing. We were going through this process with EPA, where we were surveying, sampling, re-delineating, approving these next
dredge cuts, and these redredge
volumes began to increase.

At the same time you could see
the sediment removal was also
decreasing as we were getting into
these redredging passes. I think this
leads back to what Dr. Connolly had
said regarding the amount of PCB being
removed in the first pass, certainly
the first two dredging passes.

So basically if we take a look
at where we're headed, what we learned
in Phase 1, the Phase 2 project if we
believe what the Phrase 2 estimates
from EPA were, and we apply a blanket
nine-inch over-cut, the annual ranges
for production could be anywhere from
540- to 600,000 cubic yards. We did
286 during Phase 1. The monthly
average, 100- to 110,000. We did on
average 52,000 per month during Phase
1. Now granted, that includes a ramp
up period that was designed into the
schedule. We wouldn't have as large a
ramp up during Phase 2. But certainly
on an average basis, we have to double
our sediment removal production that
we achieved in Phase 1. Even if we
look at our best 30 days or our best
one month period where we achieved
77,300 we would have to achieve that
day-in and day-out throughout all of
Phase 2 at a rate of 1.4 times what we
did in our peak production phase.

Now, on EPA's production phase
on Phase 2, John had said a couple of
things different than what we read in
the report. What we read was there
assumptions for Phase 2 is that
dredging would be for five and a half
months from May 1 until October 15,
dredging 24 hours a day, seven days a
week for a total of 165 work days.

I heard John say that, in his
presentation, the number is supposed
to be 141 work days, and they're not
proposing a seven day a week dredging.
That is a relief to us, because we see
the seventh day as maintenance, that
being a critical component, and also a

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day we can use to make up if we fall behind. But even more importantly in the Phase 2 assumptions that EPA has made assumes we wouldn't have any difficulties dredging early in the season associated with high flows, that we're not going to be shut down due to resuspension, and there wouldn't be any weather impacts. From a design perspective, you would never try to design to the best possible outcome.

In Phase 1 what we achieved was a total of 134 days where we actually worked starting on May 15th going until October 27, and we did that by pushing out our original dredge schedule by about 30 days in order to get a number of the CUs that were continuing to be re-dredged closed before we finished up for the season. We can't be assured that we will have the opportunity to dredge that far into the season in the future. In fact we heard Canal Corporation say...
yesterday they went to an extra effort
to accommodate us during Phase 1 to
keep the canal system open longer than
it's intended and they would not be
able to do that during Phase 2.

So when you look at what we have
to achieve up here and you start
looking at this from a more realistic
perspective in terms of what our
dredge will release, our ability to
hit these figures is even more
challenging.

Now, I will turn now to some of
the factors that influence our ability
to meet productivity. First, as I
spoke to you earlier, elevated PCB
concentrations caused shutdowns. They
causd a shutdown on one occasion
where the whole operation was done for
two days. We also had additional
shutdowns where portions of the
operation were shut down due to
elevated concentrations. There was a
direct impact associated with that,
but there was an indirect impact as
well. As we attempted to try
different things to reduce
resuspension, we found those project
adjustments caused a reduction in our
overall productivity. As John
mentioned yesterday, structural
controls were utilized in over 60
percent of the volume that was
removed. Here is a picture of the
sheet pile that we installed down at
East Griffin Island. There are
obviously are schedule impacts
associated with regard to removal of
this type of equipment. As John
showed yesterday our overall project
resuspension rate was about 3 percent
with these included. If you took them
out, the overall resuspension would be
about 4 percent. So they didn't
result in a substantial reduction in
our overall project resuspension, but
they do have impacts.

Here are the types of
adjustments that we implemented during
the course of Phase 1 at EPA's
direction to improve on our
resuspension performance. Some of the
efforts early on in the project were
successful in reintroducing the
resuspension and primarily were
related to the flow-related
restrictions in the West Channel. As
John Connolly said yesterday, by
putting a rock dike in the East
Channel, we essentially were putting
an additional one third of the flow
down to the West Channel. So
velocities were higher and during high
flow conditions, the velocities
increased tremendously. You see
fluctuations in river stage of a foot
or two over a very short period of
time. As a result we had to use
mini-scows as John referred to in his
presentation and basically setting up
a trans-load operation, because we
couldn't dig our way into the West
Channel because we were in bedrock.
All of these had impacts on our
activities.
The flow restrictions, flow-related restrictions in the West Channel did help in terms of diffusing some early tug-related resuspension that was observed, but that was taken care of within the first three days of the dredging project.

Some of the other things like prohibition on bucket decanting, alternating the dredging areas, and sheen containment, really were of limited value in terms of their reducing resuspension, and, again, they impacted our productivity.

MS. HOLLAND: Tim?

MR. THOMPSON: You had to know this question was coming. I want you to address the question raised by EPA about scow availability. This is the only page where you mentioned the word "scow". I thought I would jump in right now. EPA estimates you lost roughly 4,700, almost 4,800 hours due to not having scows, and a correction rate of 2600 cubic yards an hour --
did I say 26? Sorry -- one hundred twenty-three-five additional cubic yards. So this is pretty substantial. I don't see it in the presentation, so I have to ask the question.

MR. GIBSON: And there is a reason for that, Tim.

MR. THOMPSON: Okay, I anxiously await your answer.

MR. GIBSON: I will give you the higher level answer first and then the details of the scow efficiencies. Basically, what we want to leave you with here is that resuspension is what is controlling productivity. Yes, we had scow availability issues associated with also our processing facility. But, remember, back three or four slides, we were shut down due to resuspension as we max'd our productivity and our mass removal rate.

As John Connolly showed you yesterday, PCB mass removal and velocity seemed to be the key drivers
for resuspension. Without having to
deal with the scow issue, resuspension
already shut us down and put a strain
on productivity.

MR. THOMPSON: I just need to
make sure I understand that. I
realize you can't look at these things
in a vacuum, but I need to address the
substantive issue, did you not have
sufficient volume in your scows such
that if resuspension wasn't an issue,
you could have actually hit your
target?

MR. GIBSON: Later in my
presentation I touch on that. If we
look at this independent resuspension,
are there things we could have done to
increase the productivity, yes, there
are. We agree we can do some of the
things, but that's really irrelevant
if getting to that rate, up to that
productivity rate, forces you to shut
down due to resuspension.

MR. THOMPSON: I'm sorry, Bob,
you still haven't answered my
question. Does, in fact, EPA's estimate, independent of the resuspension calculation, if you would, that you could have had another 123,000 cubic yards --

MR. HAGGARD: Let me address the --

MS. HOLLAND: Would you give your name to the reporter?

MR. HAGGARD: Sorry, John Haggard.

Let me address the scow availability issue. We agreed that was an issue because of, primarily because of the off-loading. We had an issue in Phase 1, which were the mini-scows. We had to go into some very shallow water and we had areas, particularly in the West Channel with water levels that would fluctuate just a couple of feet every day. The mini scows were all we could use. We didn't have many of those. That was a pinch point.

Again, we're not certain we will
see in this part of our design as we
move forward areas quite like the West
Channel. The West Channel is part of
the navigation channel in the Hudson
River. That area was a very difficult
area to work in. The issue with the
unloading facility, you know,
theoretically, sure, we can off-load
in mud, we can talk more about the
details of how we might do that, but
that is more of a design issue if we
need to do it. I think Bob's point,
fundamentally, is can, theoretically,
we put more mud in scows, can we
unload them faster? Yeah, we should
be able to do that. Whether that
equates with being able to hit a
production rate of whatever the EPA
number was per month is only a
theoretical exercise in the sense we
will be limited based on the
experience we had in Phase 1 by the
resuspension.

So setting that aside, can we
get to some point higher? Sure. At
what point, as we heard from Carmella
from the Canal Corporation yesterday,
at what point do other concerns come
into play? You have to look at all of
these things. Sure, theoretically you
can increase to some extent of the
amount, but can it be 1.3? I don't
think that's possible.

MS. HOLLAND: Can we remember to
keep the clarifying questions to short
clarifying questions during the
presentation. Tim, if you want to dig
deeper into this one -- no pun
intended -- we will come back to that.

Paul, did you have anything you
wanted to ask?

MR. FUGLEVAND: No.

MR. GIBSON: The second factor I
want to talk about is the redredging.
As you heard in the residual
presentation, we took redredging
passes in all CUs, four or more, in
four of the CUs. Again, it comes back
to project efficiency. The first pass
removed 90 percent of mass being
removed. As you saw going through the process of CU acceptance, every time we take an additional pass, we go back, do the redo the process, go back through the survey sample analysis and decision and approvals. The more redredging we do, the more the schedule is extended.

I think there was a good discussion earlier this morning about bedrock issues and clay. We acknowledge those are problem areas and we think it's unproductive and would add very little benefit to the overall remedy. From a percentage prospective, what we encountered in Phase 1, bedrock and cobble areas accounted for about 10 percent each of the total dredging footprint in terms of acreage. And, in particular, that banging on bedrock up in the northern end of the West Channel on Rogers Island was very unproductive, it took us a significant period of time to resolve how to address those issues,
and I think we are quite encouraged to hear that EPA is willing to engage on when we encountered these types of situations, we dredged to refusal or the cut line, we cap and get out of there.

I think John Mulligan touched on the clay issues in terms of problems that were created in the processing facility. The analysis for trying to quantify this is somewhat complicated. At the same time we were redredging areas that encountered clay. We were also implementing EPA's project adjustments where we were putting more water into the barges, because we were no longer decanting. So less sediment was getting into the barge, more water. Productivity at the processing facility was backing up and that cascaded back out into the river.

Air was a big issue for us.

Although this is an Engineering Performance Standard, the quality of life standards have an air standard
that was implemented for commercial
and a residential value. It was
exceeded 105 times during the course
of Phase 1. And each time there was
exceedance, we were required by our
agreement with EPA, to propose
mitigation, discuss those mitigations
with EPA, and then move forward with
the mitigation that ultimately was
selected by EPA. We tried things like
putting a layer of water over the
barge, topping off barges that
contained high PCB sediment, moving
them to another dredge area that had
lower PCB sediment, topping off with
that, aggressive sheen around the
dredged areas. After the resuspension
shutdown, we were required to put
absorbent and containment pools around
each dredging operation, whether or
not there was a sheen. And we had to
maintain those throughout. For
certain CUs, like CU-4 and CU-18, we
had to have an on-site spill response
contractor ready to respond. Now, we
had an on-site spill response contractor engaged 24 hours a day, but he was there for a different reason. Fortunately, we didn't have a significant spill-out of the river, but their role was chasing the transient sheens during the course of the project, and, you know, as Ed had said yesterday, it was a very frustrating experience. You would have these sheens that would come up to the surface. Sometimes they would come to the surface 50 or 100 feet downstream of the dredging operation, outside of the containment area. And they would come and they would go. We would be out dredging and we'd get a call from EPA and they would say there is a sheen out there, and we would stop and go look, and it was very small. A very large amount of our time was trying to chase these sheens.

Let me touch upon one other thing. We also experimented a little bit on tarping of the mini-hoppers.
This ended up being something that we stopped very quickly for safety concerns. We, actually, having to put a man on the edge of the mini-hopper, we had a man overboard issue associated with this. After talking with EPA, we got relief and discontinued the use of the tarps. So our experience in Phase 1 tells us that the things we tried to mitigate were really not very effective, and they obviously had large impacts on the productivity. In the end, I think what we concluded was air emissions were directly related to the concentration of the material that you were removing from the river.

EPA in their report had a number of recommendation that they touched on that could be used to enhance productivity. They focused on the enhancements in terms of adding more scows, having a second off-loader, enhancing the processing facility's capacity. And as John said earlier,
these were all things that we can and
will consider during the Phase 2
design. But, fundamentally, the issue
that we found constraining was
compliance with the Resuspension
Standard. Sure, adding a backup
disposal facility, that's something
we'll look at. And really whether we
get a second off-loader or not, that
depends on where the standards end up
being modified. What is the
resuspension standard going to look
like? What is the residual standard
going to look like? So until we
understand where we're headed, to
assess the need for and feasibility of
these items is something we need too
weigh.

There were a couple of
recommendations -- again, we touched
on a number of these during the last
two days -- that we think conflict
with the others standards. But,
again, I will take a couple here, the
prescriptive over-cut seems to us that
will enhance the amount of clean clay 
material that we will remove. It will 
enhance overall the clean material we 
will be moving, and the process and 
capacity we would use for contaminated 
sites. One of the recommendations is 
that we will remove water from the 
barges out on the river, off-load 
water so we can put more sediment in 
the barge. On its face, it looks like 
a good idea, but it conflicts with 
some of the direction, with some of 
the things that we did in trying to 
comply with the air standard and the 
bucket decanting issue. So these are 
some of the things we need to resolve.

In the end -- and I just want to 
put this chart back again -- this is 
John Connolly's chart that shows PCB 
concentration in nanograms per liter 
over time, the dash lines being what 
we experienced in Phase 1, the PCB 
concentrations, and a simple scaling 
up in terms of the max we anticipate 
to remove during Phase 2, relative to
what was moved in Phase 1.

As you can see there are significant portions of the dredge system where we are over the 500 parts per trillion. And this is the point with I want to leave you with, is that if we can't operate with the 500 parts per trillion standard, enhancements to the processing facility to improve our operation are irrelevant. I think you heard EPA say earlier the amount of equipment we have out on the river is sufficient to get the volumes we need, but it's ultimately constrained by this.

MR. THOMPSON: Quick clarifying question, this is, again, in the Thompson Island Pool?

MR. GIBSON: Thompson Island, the first station, downstream dredging, yes. Thompson Island.

So our conclusion, again, for the reasons I stated at the beginning of this talk, we believe the five year duration is a critical component of
the project. It really is the basis for which this alternative, this remedy, was selected. We believe as we move forward we need to use our Phase 1 experience in Phase 2 to make reasonable assumptions on Productivity. We believe EPA is being overly optimistic in their Evaluation Report.

In the absence of resuspension constraints, we may be able to enhance our productivity, maybe 75,000, maybe 100,000 per month. But, again, these are things we need to look at within the context of the changes to the other standards and, ultimately, it puts constraints on resuspension.

That's really the theme of our presentation to you in the past two days is that we need to balance these standards. We made recommendations to you about modification to be made to the Resuspension Standard and the Residual Standard. We think if those changes are implemented, if we can
implement those, the results of the
project will be positive.

At this point I will turn the
presentation over to John Haggard.

MR. HAGGARD: Thank you, Bob.

Actually I will go back to this slide.

Thank you for being here for the
last couple of days. I know we have
some time to go yet. I want to
discuss and summarize our
recommendations for changes to the
standards, but, you know, before I do
that, I just want to respond to
something Bob said about sort of
fatalistic sounding presentations over
the last couple of days.

While that may be the case, I
think, at least, personally, myself, I
come away with this, that we learned a
lot. In that respect, Phase 1 was a
success. It helped us to figure out
where the problem areas are, what sort
of things needed to be changed. The
changes we think need to occur are in
the standards.
This is not about making incremental changes in the design. This is not about making small design changes or having scows or changing the process in the facility. There are some fundamental changes that need to occur with respect to the standards.

Before I make those recommendations, I want to take a step back. Many will appreciate when you look at resuspension, stepping back in time to when this remedy was chosen and when the standards were accepted, this was a decade ago. And if you step back, when you think about what was our state of knowledge in this remedy issue and the standards, essentially, you have to go back to the 1990's and the information that was available to us in the 1990's.

I think there was a lot of debate going on about what dredging technology could do with respect to the resuspension for one thing. And
there was a lot of discussion and a lot of discussion where there wasn't a lot of fact or a lot of information.

I think a lot of the belief on the ability of this technology was based on hope and not on actual fact.

Now, we've come along way. I think there's been a lot of information generated, and, fortunately, we are in a better position to, I think, bring facts to bare and replace some of the assumptions with hard information.

Unfortunately, what we've learned is this: Resuspension is real. It's difficult to control. We did the best we could, and it's still here and it's going to be here in Phase 2.

We've seen the same thing, box river, pilot studies that have gone on, there are similar rates with the resuspension with this dredging technology. There is an independent group, National Research Council, independent of EPA and independent of
the industry who took a look at this
and concluded resuspension is real.
That came out in 2007. I think for
most of us that practice in the field,
we know that is not a big surprise.
But that was the first time we had an
independent body firmly conclude that
resuspension and other issues with
dredging could compromise the benefit.
And certainly the group out in Utah,
the Four R's Program by the Corp of
Engineers, dove into it more deeply
and recognized what the technology can
and cannot do. Now, on top of that we
are fortunate in that we now have the
best monitor dredging project ever.
The amount of data we generated in
Phase 1 is tremendous. Again, it puts
us in a position to replace the
assumptions with pure fact about what
this technology can cost. When we
step back and say how did we do
against the standards, we could not,
did not meet the standards. The
standards could not be met in Phase 1.
Unless there are a fundamental changes
to the standard -- and I will review
those -- we wouldn't be able to meet
them in Phase 2. Again, I want to
repeat, this is not about design.
This is about changing fundamental
standards.

Now, I just want to talk a
little bit about what did we learn, to
summarize it, and before I do that,
years ago I was at a presentation you
had given, you brought up about the
context of uncertainty, the Rumsfeld
quote, the known knowns, what we know,
what we know, or what we think we know
on a given project, the known's and
unknowns and things we know are a
problem but there are things we don't
know about it, they are uncertain, and
the unknowns, things we don't have a
clue about until the Hudson Luck kicks
in. A great example of that on this
project was one day of -- and usually
things happen on a Friday night or a
weekend -- we discovered 4,000 sticks
of 100-year-old dynamite while we were
constructing the de-watering site.
That's one of those things that falls
into the unknown-unknown. That was
just a complete surprise, and we'll
have more of those going forward. I
will come back to this.

We do have uncertainty. As we
went through Phase 1 we understand
more about the uncertainty. A good
example would be the bumps of the DOC,
what's the actual depth of
contamination. That is not completely
an unknown, but it's an uncertainty.

Are we going to have those, have
high floods? Sure, sure, that is not
completely unknown. The question is
how can we develop standards that
address the uncertainties in a
positive way? We can do a project and
it can be a successful project, but we
have to come up with things to deal
with the uncertainties.

What will happen in the Phase 2
that will reduce the uncertainty? We
have a good understanding of
resuspension and how much resuspension
we will get. It's related to how much
PCB mass we will remove. We are
uncertain of that, but we have a good
understanding of that. Can we
describe exactly X amount of PBC's
lost as we are dredging the sediment?
I don't think so. Or a tug moving
out, no. And I don't think we need
to. I think what we really need to
say is we had an operation going on.
A dredge is a combination of pieces.
It's a tug, it's a spud, we have
support vessels. You have all of that
together. We lost three or four
percent of what we were trying to
dredge. That's a good understanding.
That allows us to go to Phase 2 and do
predictive work of what we can do in
Phase 2.

The EPA did what they did to
hold down resuspension factors. Some
of them were, frankly, more cosmetic,
but we did them anyway. They were
fully utilized and as Bob and others mentioned, we had resuspension controls, engineering controls, yet we still had significant PCB loss.

What we've seen is also consistent with other sites, and then there are other factors that came up. Are they critical to understanding resuspension, decant water and sheens, as an example. In our report we described these in detail. These are secondary factors. They are not advancing our understanding a whole lot. They were important to look at. We made sure we looked at them, but it's very importantly the load -- and this is probably the most critical factor -- again, driven by resuspension. But the load standards are critical. We exceeded it and we exceeded it by two to four times.

The other issue is on the redredging, very inefficient. We spent a lot of time and a lot of effort trying to close out CUs. We
were chasing ever increasing amounts of PCBs, which impacted productivity, and in Phase 2, this will be an important issue for one very important reason. If you look at where we dredged, we tried to limit ourselves upstream to downstream. We were operating in three separate areas in Phase 1. We wouldn’t be able to do that in Phase 2 in many areas. We can operate the East Channel and we can operate the West channel and then we were miles downstream doing the tests. But in Phase 2, it will be much more important that we close the CUs up as quickly as possible. We will be in the linear structure of the river where we have to move upstream to downstream primarily in one location.

We also learned about clear relationships among the standards. I think there was a discussion of conflicts in relationships. There were conflicts in understanding. The more we dredged when we reached
productivity, we exceeded the resuspension limits. That is a conflict. If what we want to do is keep resuspension to a certain level, 500 part per trillion (sic) is one we think we should have kept, then we only have a certain amount of production goal. If you try to increase it, that's a conflict in the standards.

The residual, again, very little productivity in second, third and fourth passes. Then on residual keeping the areas open, there is a general agreement, we can't tell you how much resuspension occurred as to having them open, but the general agreement is we need to get these closed to help control one element of resuspension.

Now, what does this tell us about Phase 2? Obviously Phase 2 is bigger. Bob showed you some information where Phase 2 is now going to be twice the amount of dredging.
The intensity of the dredging, we have
to remove PCB at twice the rate we did
in Phase 1. That is going to create
resuspension problems, and, you know,
based on the estimates we have for
resuspension, we are going to greatly
exceed that load standard.

Again, going back to the point
raised earlier, to have a good
understanding of how to estimate or
extrapolate from Phase 1 to the Phase
2, load estimates. We have a
reasonable understanding, not perfect,
but a reasonable understanding to make
judgments.

MS. HOLLAND: I'm sorry, John?

(Indicating time.)

MR. HAGGARD: As Bob mentioned,
and you folks can refer to the
modifications, I'm sure to some extent
you can, but, again, coming back to
this relationship. You can't do that
on the back end. You really need to
focus on looking at all of these
standards together before we can opine
and make changes to one of the standards. But there are standards you can make to increase productivity.

I think the biggest uncertainty that comes out of everything we learned in Phase 1 relates back to the PCB load, and as John Connolly went through with you, we don't know what the acceptable load is, and that is driving us, what potentially would we do in Phase 2--

MS. HOLLAND: John, could you hold your microphone closer?

MR. HAGGARD: Yes, sorry.

So what we will need to do is really in the first instance, we need to try to figure out what is that load. If we send too much downstream, we will modify the benefits of this remedy. So overall, I think we are in a good position to make informed judgments. We learned a lot in Phase 1 to be used to help us do that.

We were talking a bit about this yesterday, but in a little more
detail, I think the recognition is that we need to change the standards. One of the things we looked at is what can guide us in changing the standards. We talked about protecting the benefit of the remedy. One example we used is making sure we don't send more PCB downstream than would otherwise occur without dredging. And that goes back to the slide over here on the left of the poster. You want to reduce fish levels and reduce water levels, and we will do that in away that minimizes what goes downstream in terms of PCB resuspension. That is why the performance standards are there, to protect the benefits, and, again, any standard we try to put together, we need to evaluate the interactions, the conflicts, and to reconcile the conflicts and balance them so they work together. That is something that we think is important to take a look at. Thus, being practical, the
standards have to be implement-able, they have to be based on technologies that are available. Phase 1 is a test or was a test. Phase 2 is not a test. Practicality is and efficiency is important. We want to get into the river and get out of the river in an efficient way, not have waste in effort.

One thing I want to emphasize is the amount of equipment we have to have in the river is pretty amazing. I don't think there is another dredging project that is as quite as complex. We are dredging thin cuts with big machinery over a thin bottom, not deep cuts. Orchestration of a lot of equipment, inherent logistical problems and inefficiencies -- we need to be efficient. Lastly, there is another thing to be considered here, not necessarily for the panel to consider, more obviously the EPA. Once they do finally set standards, they have to make sure the whole
overall remedy is still effective. So
keep talking about the load. I will
get to the overall recommendations,
but the load is important.

If you look at the load it's a
pretty simple algebraic equation. How
much PCB load gets sent downstream
which is a primarily a function of the
PCB mass, and our resuspension rate.
During Phase 1, we saw three to four
percent on average. We had lengths
higher and lower as John Connolly
mentioned, but we had extensive
controls. I don't think we will do a
lot better than that.

In fact, as we move downstream,
as we get closer to the far-field
station in Waterford, we wouldn't have
the declination that occurs, so we're
going to have even more problems.

So if we look at the two
different approaches that are being
discussed, EPA's approach and our
approach, EPA's approach said it's
okay to send three times more PCBs
downstream. We want to change the
goal, move the goal. We want to
increase the load.

We don't think that is the right
way to go. We think that compromises
the benefit of the remedy. We have
gone over that yesterday.

Our proposal is that we need to
set what is the right load. Then we
need to work towards that load in
allocating where we dredge, where we
take the PCBs from, so that we can get
the benefit that we need without
impacting the benefit of the remedy.

Again, protecting the benefit of
the remedy is key here. We think we
have a series of performance standards
that do that. Again, we are not
suggesting 500 and change. It's a
number that is intended to protect the
public drinking water system and it
should remain. Again, on the load it
needs to be set. It's not a number
that has been determined yet, but it
needs to basically keep the amount of
PCB's that go downstream, bioavailable PCB's, less in natural attenuation.
And EPA needs to use their model -- and EPA's models need to be upgraded to determine for you, to see what is the acceptable load that can be set for this project. It is not the percentage of what can be taken out of the river. That's not a risk-based approach to do that. Updating the EPA model will allows us all to get actual numbers that would protect the intention of the remedy.

Then during design, we can really target for removal those areas to get the maximum benefit. On the residuals I think there was a general agreement, we need to streamline the approach. We spent way too much time digging and re-digging. We got 90 percent of the mass out of the first one or two cuts. This comes back to what do we know and not know? How do we deal with uncertainty? Based on what you have heard from John Connolly
and the data taken on Phase 1, we can
manage it in high confidence areas.
We found we could have PCB mas removal
with a high level of confidence with
the first cut. In low confidence
areas, we were still able to get 90
percent of the PCBs with two cuts.

Our proposal is we go to the
design guides, low confidence areas,
for example, we will re-characterize,
re-cut and then dredge. That will
allow us predictability. We're not
going to over-cut, not generate
tremendous amounts of unnecessarily
clean material that will become
contaminated in the process. We will
also then be able to effectively
sequester the PCBs. Also as Bob
mentioned, redredging rock or clay,
that is an inefficient process. It
not only slows us down in the field,
but slows us down in the
decision-making process.

Productivity. We want to keep
five years. We think it's important.
We have seen PCB levels in the water and fish increase. We want to limit the number of years this occurs. So the five years we think should be retained, particularly with the revisions. This needs to be done as a group, not as an individual.

I will leave you with this, certainly, I appreciate the opportunity to address the panel. If you have any other questions, obviously, we are here to answer them. Going forward, we will work through with the contractors in addressing any comments you have going forward and any information or questions. Thank you.

MS. HOLLAND: For the panel, after this opportunity for you to question GE on productivity, we have an hour for overall panel questions. If some of the questions you are thinking about, you also want to hear from EPA, maybe just hold that one, we can end the just GE Q and A earlier,
and you can shift more time into the
last question on everything for both
EPA and GE. Focus on the questions of
just what you want to hear from GE on
Production, and then we will move into
the next segment whenever you folks
tell me you are ready.

Any questions?

MR. BRIDGES: I ended by asking
EPA a question they didn't have time
to address, and that is worker's
safety. There is no doubt you'll are
committed to worker's safety. From
all I have heard, and I'm not asking
for you to prove to me that you are
committed to worker's safety, but I'm
more concerned with just the reality
of a project of this dimension and
size, the pressure, just pressure
inherent to a project of this size to
meet productivity standards, how that
might or does translate into
implications for risks to workers.

MR. GIBSON: GE has a world
class safety program. Over the course
of construction of the facility in the dredging of Phase 1, we did had in excess of 1.4 million man hours during the course of that. And we had our first loss time incident late in the season with a worker stepping off of a tug onto a barge and onto a dredge platform. Did it all year long, and at that time his footing was wrong, he slipped, and he had a ruptured Achilles tendon. So I'm very proud of the safety program that we've accrued during dredging.

We had a very unfortunate event that occurred with a fatality in November. This was a contractor working on the design for Phase 2. We were finishing up Phase 1 dredging already and moving forward in design, and it was a late in the season activity, something we were trying to fit in before the season ended, and it happened after the canal closed. And you are right, this project is going to be more dangerous in the, early in
the season and late in the season.
And that is one of the drivers, that
we're saying when we make a reasonable
assumption on productivity, we have to
do something that minimizes time
trying to dredge in overflow
conditions, and minimize the time
trying to dredge in cold weather
conditions.

Imagine a dredge platform in a
barge with ice on it, you know? So
there is no question there is
attention to safety on productivity
and for the duration. And I will tell
you, we wouldn't make the choice for
productivity, but we would err on the
side of safety.

MR. FUGLEVAND: I have questions
on productivity. The appendix to your
report about detailed discussions of
productivity, there is a pie chart.
The pie chart shows the distribution
of working time for Phase 1 dredging.
So one are the components is called
dredge prep, it's 7 percent. What did
dredge prep mean?

MR. INGLES: Paul, that is essentially a scow change. It is the term used for that. It's prepping the scows to be taken from the dredge and the time it took for the scow to be taken and the new scow to arrive.

MR. FUGLEVAND: Thank you.

So then on the same chart then it shows between barge prep time, 7 percent, waiting for mini-hopper, 11 percent, and waiting for hopper barge, 13 percent; that adds up to 29 percent of the working time. That is, by my experience, a significant amount of time. And I don't think you have really spoken to that and explained that, rather you keep saying that is a design issue. But there are several factors that come into play that effect that. The traffic on the water, all the different equipment, and just EPA said how awful that was, and I haven't heard you come back and say, you know, here's what drove that,
and it wasn't just incompetence. That is the sense we got from EPA, that it was incompetence. I would like you to address that "incompetence."

MR. KRUPPENBACHER: We will break that down a bit. We talk about the prep time. The other two big numbers that are percentages, one that's 13 percent for mini's and 11 percent for hoppers, the mini's -- and as John Mulligan said -- these were the shallow draft barges. You raised the traffic issue as well. Taking it one at a time, the mini's, the down time or wait time on the mini's is associated with the 320's and trans-load operations. That happened in the West Channel predominantly. It's the time spent waiting for the mini's to get back up to the 320's, dredging in the rock and cobble areas and clay in CUs 5, 6, 7 and 8.

Based on our analysis of the mini's, we had seven mini's and one super mini. It appears to us that we
were short from mini cycling. It wasn't the transportation, the trans-load operation, just the numbers, the balance of the number of dredges we were working on and number of mini's transferring back and forth in between.

On the hoppers, the situation is different from what we've seen. It's not related to a transportation issue. It's predominantly related to the unloading operation, by and large. We have been looking at the unloading operation. We haven't completed all of our conclusions on the, but basically there were five factors entered into that that related to the barge, the time it took us to cycle hopper barges.

First of all, about 55 percent of the volume of the material came out of the East Channel of Rogers Island. As John correctly pointed out, every time we went to East Rogers Island, we had three contiguous CUs that we were
working on, and we typically had to
move an operation to the side in order
to take a hopper barge past to get to
the north end to the upstream side.
This gets to working upstream and
downstream. What we did this year,
very unique and challenging, was that
we had to go over un-dredged areas to
get to the areas we were dredging in,
or we had to pass dredging operations
in the East Channel in very narrow
water. There was a movement to clear
the area.

Another item that everybody
talked about earlier, John was going
over, was the unload rate. The unload
rate at the unloading wharf was lower
than had been anticipated. But that
is not the only factor. We also dealt
with 53 percent of volume of water in
barges. This took us more time.
There were ultimately adjustments made
with EPA's approval during the year.
We added de-watering positions as prep
positions to the actual sediment
composter. We took out as much of the water as we could.

We also were challenged by the fact we were putting water into the barge intentionally to deal with air issues. So on one hand we had to deal with the unload operation and the stability of the barges during transport, and the other thing we are dealing with the quality of the air.

We also dealt with scow change at the unloading position. That was one of the things that consumed a fair amount of time. In the end when you look at the analysis of breakdown of time related to the unloading operation, it took us, on average, an hour plus once we got good at it moving the scows at the unloading position. So that also is a factor in that.

Then the impact of the materials that we were working with affected the unloading rate. What would happen when we were unloading clays, we
typically had a clean-up cycle we had
to go through with the mess that it
made in the trommel ed areas. There
was down time from that as well.

So those are factors that kind
of impacted what happened with that 11
percent for the hoppers. But the
mini's themselves were purely
recycling in the West Channel.

MR. HAGGARD: Can I add one
thing. Just one thing that I puts my
hackles up a bit -- I know you're
doing it as a way to elicit a
discussion here, but I think what I
heard was that Phase 1 was a test. We
designed it to try to get all of this
material out. We had a very good
contractor who did the work according
to the approved plans and oversight of
the agency. We learned a lot. That
was really the intent here.

When you look at the cycle times
we had and the efficiency, that's
where we are now able to take that and
say, how do we become more efficient,
what did we do and learn, and, obviously, that is going forward to improve the efficiency. Based on what we learned, part of what happens in Phase 1 is we had to have a lot of flexibility on contracts and with the contractor to respond to whatever happened. So I think at the end, I think John Mulligan concluded, we may have had more than we needed. When you look at the efficiency of the equipment, it tends to support that view. So, obviously going forward, if we take what we learn, certainly we will become much more efficient. And the standards will also help.

MR. FUGLEVAND: Can we circle back in on this figure that shows, first on waiting for mini-hopper. On that topic, I heard two things. One is you were given very shallow areas which were not characteristic of the rest of the project. There wouldn't be as much need for mini hoppers in the next phase, so that might not be a
factor going ahead. And the second
factor, you might put in more
mini-hoppers; is that correct?

MR. KRUPPENBACHER: Yes, that is
correct. There are shallow areas,
that we do have to work in those
areas, you know, going forward, and
that's being looked at as part of the
final site plan.

MR. FUGLEVAND: And putting more
mini's in cycle would help in lessen
the down time waiting for mini's.

MR. KRUPPENBACHER: Yes, that's
possible. Looking at the size of the
mini's, the mini's were a collection
of flexi-floats. You know, so it's a
matter of at that, balancing the
draft.

Something else, not just the
shallowness of the area, but one of
the issues that comes out, the high
fluctuation and water levels in the
area. It cycles on a daily basis 12
to 24 inches, typically a 12 inch
range, but you lose that much. You
have to watch that when designing the vessels. The water you have at ten in the morning is not necessarily the water you have at four in the afternoon.

MR. FUGLEVAND: The 13 percent average waiting for hopper barges, it sounds like you were talking about issues that will improve that at the drop-off facility. Do you sense that will be less in Phase 2, waiting for hopper barges?

MR. KRUPPENBACHER: Yeah, that would be the intent, you know, of the changes that would be proposed. We are looking at that as part of the design. That's something that, like I said, the evaluation is still underway as to where the pitch points are.

MR. FUGLEVAND: All right.

MR. SCHROEDER: I would like to follow-up on what you have learned and how you have projected those impacts in the second phase, such as, you know, various things you said were
limitations. You just discussed some of them, that there will be wider areas for navigation in terms of passing barges, maybe less disruption. There is the possibility, again, of increasing the number of mini barges to reduce your offset or down time. Also the possibly a second off-loader or something going on there.

Is there an overall estimate as to how production could actually be increased over your actual production of Phase 1?

MR. KRUPPENBACHER: I think Bob actually pointed out the things we looked at.

MR. SCHROEDER: He showed 75,000 —

MR. KRUPPENBACHER: Yes, 75,000 to 100,000, right. And resuspension and residual issues aside, we believe that is something that attainable.

MR. SCHROEDER: The percentages that Paul had quoted were almost 30 percent of the time that could have
improvement it would appear, in which case that would be almost a 40 percent increase in productivity if you could eliminate all of that, which I'm not sure that's possible.

MR. KRUPPENBACHER: You're not going to be able to eliminate all of it. As I said, we are evaluating what the factors are, that attributed to that. Not all of that will be wiped out. You will not make that to zero.

MS. HOLLAND: Greg, then Victor, then Todd.

MR. HARTMAN: Did you have a systematic way of removing the material that's top down or from other than just specifications of the total line and depth to be found?

MR. KRUPPENBACHER: There was — as was correctly pointed out, this spec did not have a descriptive process for the contractor. We relied on the expertise of the contractor we hired to determine that. I can tell you they developed a protocol followed
by the operators. When we were in
deep cuts, they would take larger,
full bucket bites to take it down to
near grade. After the bite at grade,
there was a second bite at grade.
This is prior to what John Mulligan's
talked about, that he would prefer.

MR. MAGAR: I have two
questions. One was a comment that was
made that as you have more production
cuts, you go to a third and a fourth.
This becomes, your productivity
becomes less efficient.

Now, taking out the down time
part of this process from bathymetry
to sampling and the work that you're
doing for your surveying and sampling,
there is no fundamental reason why the
third and fourth cut would be less
productive than the first and second,
or are they actually less productive?

MR. GIBSON: In the case of
dredging bedrock, our -- obviously,
our cubic yards per hour went down.

MR. MAGAR: That is very
understandable. Bedrock aside, because you had some third, fourth, and fifth cuts, we're just talking about volume productivity and then realized that efficiency, the PCB removal might go down. Does your productivity change? Is there a possibility you can go deeper, and does it increase with the bigger buckets?

MR. GIBSON: No, I mean either re-dredging passes where we were taking thinner cuts, there was more water. The more water at the barge, those are the type of things that showed an impact on productivity. The ability to take material out, you know, aside from bedrock, was there a difference there? I would defer to our productivity experts here. I don't think that is the case.

MR. MAGAR: Is there an opportunity -- I don't know if you can answer this now, think about it, maybe, not -- alone the quantity of
the cuts, but the quality of the cuts, I can appreciate that. Statistically the quality of the cuts is decreasing as you go from first, second, third, fourth and fifth, but maybe there is a uniform rule the first two cuts are most efficient. But the quality of cut, getting bedrock, seems like there was a real inefficiency for all of clay you just spoke about, you can get out of picking up clay and putting it in the trommel. Can you sort that out and do you think about that regarding in the final phase?

MR. GIBSON: I think we can do that and get back to you on that. I do want to make a point, though, relative to the cut and the accuracy of the cut, and some of the discussion about surgical dredging.

We had a three plus or minus tolerance on the dredging cuts and the contractor did a good job at that. They were taking tiny bites. They were taking a six inch pass. Part of
the problem we had initially, and we
learned from this very early on in
CU-1, was we were trying to get
compliance with elevation on a 10 foot
by 10 foot square. And so we would go
out, they would do a survey, and you
have a half dozen squares above the
cut. They go out and do their thing,
and go and resurvey again; it's
another six in a different location.

What we were seeing is the
impacts of debris in the base of the
cut sticking up. We would see impacts
associated with placing the spuds in
the dredge area. And in the end we
realized we were chasing our tails and
we needed to move away from that, and
we did. So the characterization that
we were spending a lot of time
throughout the dredge season nibbling
and taking small cuts, I just don't
believe is correct.

MR. MAGAR: When I say quality,
I don't mean the quality of your
contractors, but the things you are
targeting. If you could go back to what John said, if you could reflect on when you encountered these different things that are more predictable, how do you plan to encounter the various situations from debris and different kinds of debris, and how does that change your approach to what you're removing and whether, you know, and so that you and the EPA can have a better and more rapid decision to approach that?

MS. HOLLAND: Victor, are you asking for that in their report or now?

MR. MAGAR: If that is appropriate, yes.

MR. HAGGARD: I think that is just a great comment and another indication we need to learn as much as we can to make this project more efficient going forward.

That point that came up before -- hasn't really come up, but trying to get the 10 foot by 10 foot average,
one of the recommendations the EPA has made in their report is to change the 10 foot by 10 foot average to now a 1 foot by 1 foot average. Instead of having over an acre with 400 opportunities, you're going to 40,000 opportunities to have to go back and nibble. And that's something that was a recommendation -- hasn't been brought up here, but it's in that report to actually change that to a 1 by 1 foot compliance, which will drive us crazy.

MR. MAGAR: I see them nodding their heads.

MS. HOLLAND: That might best be put to our next session.

MR. HAGGARD: The next point, I think about the efficiency -- you really need to go to the next slide -- how many cuts we can take and the quality of the cuts and what does it mean. This is not about removing sediment for the sake of removing sediment. We have a very focused
program. It should focus on how
efficiently do you focus on the mass,
and that is what we will learn from
Phase 1.

MR. MAGAR: Can you go back to
the productivity slides? That one is
good.

This is interesting because you
had a resuspension shutdown clearly
when you peaked right at around 79.
But if I look at the overall
productivity, you know, it's pretty
flat from around 8-1 and beyond,
around maybe 65,000 cubic yards.
Looks like a fairly steady
productivity around that rate. You
only had one shutdown. I realize it
goes more day-to-day, but this is a
30-day average, but as the
concentrations have gone down that
might affect that. Could you see an
increase in productivity without
impacting the resuspension standard?
Did you stress it other times where
you got close and pulled back, or is
it just one incident that you are
stressing a lot of the argument on?

MR. GIBSON: We did have further
stress with challenges of meeting the
standards later in the season if we
had exceedances of the 550 ppd
standard. They resulted in partial
shutdown of operations. For example,
we had one where we were dredging
really highly concentrated material in
CU-14 and CU-18. After we were told
by EPA to stop dredging those areas,
move to lower concentration areas.
So, yes, there were impacts using that
standard. Even though we were
dredging at a lower rate, we were
never able to get back up to the peak
volume we got because we ended up
dealing with these redredging issues
and the bedrock and clay issues.

MR. HAGGARD: The point you made
that we had this one incident, I think
when you step back and look at it the
incident of the shutdown was helpful
in helping us to learn what was
happening, but it is the entire data set. Every day we were gathering PCB information during the operation. We knew what was going on. As John Connolly said, we mined the entire data set to understand what it was in terms of PCB loss, in terms of what was in the river. You can't look at one point in isolation as our main learning point.

MR. MAGAR: That comes to my last question. I don't know how challenging this is, but is there an ability to balance high and low concentration areas to maintain productivity?

MR. HAGGARD: Well, that's an area whereby pushing the pieces to the side of the plate, sooner or later you have to eat the pieces. There are ways to do it. Ultimately, we have to get out, and -- sooner or later, you have to get the mass out before you decide not to take that mass.

MS. HOLLAND: You have about 10
minutes for this phase of the
questions. I have Todd and Tim and
then Paul Schroeder.

MR. BRIDGES: I shouldn't call
these things questions. Sometimes I
make comments.

MS. HOLLAND: If you want to
make a comment, let them know you
don't want them to answer. It will
save time.

MR. BRIDGES: I would like to
see this addressed in some fashion in
both of your reports as to the
fundamental issue of Productivity. It
seems to me the way it is structured
now is the standard is treating this
whole project as a dredge project, and
not as a remediation project. What do
I mean? If you are looking at this as
a remediation project, your definition
of productivity is how many CUs I
closed per unit of time, not how much
stuff leaves the river in a period of
time. That is the kind of definition
of productivity that we use in
navigation dredging.

    And that obviously has
ramifications for several ways in
which you approach the project, that,
you know, in regard to CU-2, for
example, one of the factors that had
been mentioned, but it's not within
the focus of much of the discussion,
there appears to be almost as much
time spent resampling in between
passes and decision making relative to
that, and the redesign of prisms as
there's actual dredging. So, you
know, that's the largest contributor
to what my definition of productivity
is, how many CUs you close in a period
of time.

    MR. GIBSON: We agree with that,
but while it's not a specific
productivity metric, the number of CUs
closed is one of the things I wanted
to show you. We think we are reducing
the uncertainty and addressing the
number of redredging attempts in the
residual standard, it will allow us to
move more efficiently. I think that will address exactly what we are talking about.

In terms of Phase 2, units 2, 5 and 6 were our poor orphan children that had bedrock in them, that we had a tough time coming to a conclusion on how we would deal with the issues. It's not so much the example of those three CUs, the sampling and survey and analysis, but it was trying to reach an agreement with EPA on having a solution how to close those CUs out. I'm encouraged to hear over the last two days there may be a way to avoid that in the future. You are right, CU-2 was a problem for us.

MS. HOLLAND: Tim?

MR. THOMPSON: I will follow-up on Greg's question. For informational purposes in the beginning of a dredge on a CU, your contractor would go through it and more or less equitably take off one or two feet in one portion and dig a relatively steep
hole. How do they maintained slope
cuts that would cause residual of the
slope?

MR. GIBSON: The dredging
contractor laid out the dredge plan.
They essentially set up planes in
roughly 40 feet lines? They moved
upstream to downstream taking bucket
bits the width of a lane and moving
south.

MR. THOMPSON: Good, I wanted to
hear that. I wanted to be sure we
would be able to see those in a report
that suggests you have a dredge pack
of data on that. Will we be able to
see the bucket prints or do we have to
go out and look at data that is there?

MR. GIBSON: I think you need a
dredge pack in order to see the
procedure.

MR. HARTMAN: Was that in the CD
that you gave these guys?

MR. GIBSON: No, the CD came
with the data compilation report. The
mysterious CD we were talking about,
basically on that is every document
you need to understand the planning
and design that went into this
project. Everything from QAPP to work
plans to the Intermediate Final
Design, the Culture Resources Report,
everything from soup to nuts.

MR. INGLIS: It's just a
real-time view of what actually
happened so if you want to sit there
and watch exactly how the dredge
behaved in the real-time view, that's
what you will see. Seems like you're
looking for cut lane, layouts and the
dredging technique.

MR. THOMPSON: The actual
footprints I would hate to have to
reconstruct everything. I thought
somewhere along the lines you would
have that.

MR. INGLIS: We can take a look
and supply those.

MR. SCHROEDER: Since, you know,
your presentation certainly emphasized
resuspension is going to limit
productivity based on what you have seen at this point, there are several things being proposed in essence to reduce resuspension in part by speeding up the closure process for individual CUs. Do you have any modelling or predictions, because I know you were estimating when you say 3 percent of the materials are resuspended or lost, and I don't believe that we have any predictions as to how we tease that apart in terms of how much is during active dredging from a particular CU, how much is going from waiting until we go to the final closure, backfilling or capping. Do you have any idea as to how you would break this down, or potential improvements in resuspension could occur if we change the residual standards?

MR. HAGGARD: Let me have John Connolly address that.

MR. CONNOLLY: That's one of the things that we are in the middle of.
looking at. We don't have an answer yet. We do see if you remember towards the end of the project, you see a lot more resuspension than we can account for based on the removal. At that point everything was pretty much open in September. We are starting to close things, that maybe some of the things we see there -- and as we continue to analyze the data, we are going to use that part of the project to try to get some sense of what it might become. Before May we will give you a more substantive answer to that. As of now, we don't understand it all that well.

MS. HOLLAND: Paul?

MR. FUGLEVAND: I have a question that of something that may be helpful for me to look at. That would be tape 1 of the CUs, maybe a simpler one, if there was a simpler one. And a series of possible graphics. The first graphic is one of John's orange maps that showed areas within a dredge
and the depth of dredge, then
ultimately the next dredge plan, the
dredge lanes and bucket, and come back
and just -- then, you know, through a
series of a couple of figures for each
pass, you could see what your course
said. And I think one of those we
will see that, apparently, the second
pass had dredged out a square out of
the CU, there might have been that you
had three or four sub-areas to do, and
they will think it's more complex than
maybe appreciated. Maybe a series of
graphics that shows the first cores,
how much you took off, maybe. I know
we are asking for something that may
take some time -- in the next month
would that be realistic?

MR. HAGGARD: One thing we can
do in the next hour, we got graphics
for one of the CUs, maybe two. We can
walk you through that, maybe that
would be useful. Of course, as time
provides. Do we have time now or --

MS. HOLLAND: We don't have time
now. We have one minute until we need
to segue into our general Q and A,
maybe time to shuffle chairs.

MR. FUGLEVAND: Maybe you can
e-mail it to us.

MR. HAGGARD: If the panel wants
to hear it in the next hour, we would
be happy to provide that for you.

MS. HOLLAND: I would like to
propose that we are coming up on the
hour for panel questions on the
overall presentations. Let's take a
minute, let the folks do a chair
shuffle. You guys, if you have to go
to the bathroom do so quickly, and
come back in three or four minutes,
and we'll have the EPA, we will have
the key presenters at the table, and
behind you have your support people in
the chairs so you can call on them
easily.

(At this time there was a
10-minute break in the proceedings.)

MS. HOLLAND: I asked the panel
be clear who they want to answer the
question first. They told me they are quite open to hearing from both entities on each question, but there will not be rebuttal.

So if they ask EPA a question first, GE can also respond, but EPA cannot go again. You can each answer one time unless the panel wants to initiate another round. So they are in charge basically, and I'm the referee. We don't have tennis balls and racquets.

So we have Tim and Todd. By the way, we will take a full hour and we will carve it out of lunch.

MR. THOMPSON: This is indeed a question for both EPA and GE, and I will start with John.

I think there's considerable confusion on our part on where the 500 nanograms is applied. I have heard EPA say at the water intake, I've heard you guys suggest that it's at the end of the Thompson Island Pool. I can't -- frankly, I went back to the
Resuspension Standard, and I don't see
that as clearly as I thought I would
like to. I think that is a
fundamentally important question for
our understanding to say where, in
fact, that applies. I will start with
John because Ed is tardy I noticed.

MR. CONNOLLY: Fundamentally,
the 500 is to protect the water
supply, but the way the resuspension
standard is set is that we monitor
that at the first far field station
and the shutdown criteria pertains to
the first station, so it is the value
at the Thompson Island Station to
determine whether we had exceeded it,
and whether they would have to then
shut down dredging operations.

MR. THOMPSON: Then EPA, is that
your interpretation?

MR. CONETTA: Yes, that is
essentially correct. It is to protect
the water supply. Obviously the first
station is the most important.

MR. THOMPSON: Okay, thank you.
MS. HOLLAND: Todd, then Greg
and then Victor.

MR. BRIDGES: I would like to
ask GE first and then EPA to make a
brief comment, a minute or so, about
what I'm about to ask. Further, I
would like to see this question
addressed in some fashion within the
final reports. Here is the question:
How, to what extent and how do the
approaches, principles and directions
provided in EPA's Contaminated
Sediment Remediation Guidelines
published in 2005, apply to, you know,
how does that relate to either the
existing Engineering Standards or
those that you are proposing, given
that the activity levels and RODS,
those standards were produced prior to
the publication of that official
guideline?

MR. HAGGARD: Obviously, the
guidelines is a guidance, and it was
issued after the decision. There are
things as you are well aware of, Todd,
that are germane to this. There are recognitions that when you look at sediment sites, it's not one approach at any given site. It's a combination of natural recovery, removal, very site specific determinations, but typically it's not less removed mass. The focus and guidance is to remove viable mass, it's not digging sediment or taking sediment out. What you're hearing from us, at least, is supported by the guidance that has been issued. Whether or not the remedy that is issued is consistent with the guidance is best for EPA to make a judgment on.

MR. CONETTA: The short answer is we will try to answer that in the reports, Todd. I don't happen to have a really good answer for you at this time.

MR. HARTMAN: I have a problem with the dredge, clay dredging, and I would like to address with GE.

Basically how was the clay
dredging accomplished, and was that clay considered a clean material?

MR. GIBSON: It was considered a clean material. It was recognized -- when the dredger identified clay, he was to stop and notify a construction manager to come out and verify and bring in the EPA on that.

MR. HARTMAN: When the operator was making the cuts in the buckets, you basically had, like, an 8-inch to 16-18 inch cut, and he would take the bite. That bite would hit the clay and pull it up and you'd see it was this bucket. You just know the material is in the barge and someone would come and say, yes, you don't need to dig deeper here?

MR. GIBSON: Yes, that's right. If you look at the design, they delineated clay elements where we'd have an estimate of the elevation we anticipated, and they would design to that, set up their dredge plan for that, and they would stop at that.
elevation, or when they had visible evidence.

MR. HARTMAN: But they wouldn't stop.

MR. GIBSON: They would stop if they hit it first, or they'd dredge until they encountered it.

MS. HOLLAND: Tim, is your card up again or still up?

MR. THOMPSON: Yes.

MR. FUGLEVAND: Excuse me, I want to clarify on the comment when we were at the site visit the 1st of October -- I can't remember where we were -- and the dredger was bringing up clay putting it into the barge, and I said, what is going on, why are you digging up clay. And the comment we got was we have to dig up at least six inches. We sat and watched. This was the 1st of October, we sat and saw them dig up clay. We still saw clay being dug up in October.

MR. GIBSON: What you were seeing, you saw a subsequent dredge
pass after we collected sediment cores
and found PCBs in excess of the
standard. The rule said go back
again.

Yes, we made a six inch cut,
and, no, it didn't make a lot of
sense. But the standard directed us
to do that.

MR. CONETTA: I think for the
most part you hit clay, you stop. I
think what happened in that particular
instance there were two CUs where
there were a couple of areas where
there was some clay. We actually took
core samples. And the core samples
were sandy and not clay. And,
actually, a level or two below that, a
segment or two below that, we still
didn't identify clay. So, ideally, it
worked better, but the data said it
wasn't a clay area. Obviously if
you're starting to do that, something
has to be done. We shouldn't hit
those kinds of clay, but,
unfortunately, that's what happened.

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MS. HOLLAND: Victor, and then Tim.

MR. MAGAR: I have a few questions.

MS. HOLLAND: Remember to tell us who you want to answer first.

MR. MAGAR: Sure. I will start, I guess, with GE for this. I'm not sure who would answer best.

Are there estimates of what the deposition and increased exposure would be? We might call that changes in surface sediment chemistry in undredged areas. One of the things I'm challenged with when we talk, the Resuspension Standard are all in grams per day or kilograms per year, rates, which are a metric that I really don't have a context to understand. I don't know what 2000 grams or kilograms through the life cycle means in terms of a risk or exposure. But I do understand concentrations in water or changes in surface sediment concentrations. So is it your model,
GE, or EPA, but does the model have
the ability to tell us that? And how
do we get a better understanding of
those risks?

MR. CONETTA: The models had
have the ability to tell us that.
They haven't been looked at in that
way. As EPA indicated, they believe
their model has a low bias in it, so
that you wouldn't want to rely on its
current predictions. But I think
that's an important issue that would
be looked at were the model corrected,
in order to evaluate what the load
means in terms of impacts on the
water, et cetera.

MR. MAGAR: I would be in
agreement. I don't know if there is
an opportunity to do that, or if EPA
thinks they should look at that, but
it's very important in terms of
overall changes that we are going to
be seeing.

MR. GARVEY: The model that we
run, as part of the standard, did look
at loads to the Lower River and looked at calculations as to when the loads were delivered to the Lower River by the emanation area with equal load delivered to the river by dredging, and the pay back point, the catch-up point, if you would.

It also looked at the impact of those loads to the Lower River, though it was not quantitatively used to set the 650 kilograms. In fact, in the Lower River during one of the scenarios, we actually delivered almost a 1000 kilograms to the Lower River and showed no impact beyond 10 years of the completion of dredging. So it didn't affect by the model run the long-term risks imposed on any fish in the Lower River.

MR. MAGAR: No impact in what it --

MR. GARVEY: Yes, fish tissue concentration.

MR. MAGAR: -- had in terms of fish sediment concentrations?
MR. GARVEY: Yes, this was a Lower River model, an adaptation of Kevin Farley's model of the Lower River. So the settling on the load, if you would, was not strictly risk or strictly engineering. It was a compromise between the two. I'm not sure in 2004 when you guys were sitting there if we set up things in front of you and said we needed to release 4 percent, that the panel at the time would say, yeah, that's about right. There were only a couple of numbers at the high end, but also numbers at the low end, so between risk and engineering.

MR. MAGAR: Does that estimate change now or has that judgment changed based on the changes and what we're seeing from the more realistic numbers in the last year's experience?

MR. GARVEY: I think it changes in two contexts. One, it seems the rates of release are on a scale of a percent or two in terms of engineering
controls. There is also the other factor that most loads run much, much higher than the model forecasts. So the pay back point is going to be, in terms of quantity, will be at a different point, not 650 kilograms. The pay back point will be very different, because it has already delivered 2000 kilograms more than we thought it would just over the last 10 years and that trajectory would continue out through the future. We need to evaluate what the trajectory might be and then examine the loads. But both factors have to come into play.

MS. HOLLAND: Victor, did you want the second part answered by GE?

MR. MAGAR: Yes.

MR. HAGGARD: What we did observe this year in terms of what the load and resuspension caused, in the Lower River there were samples we collected and there was a 40 or 60 percent increase in the smaller fish.
What we will see next year, we will get the data in the spring and see what it is downstream. One of the important things we hopefully emphasize and tried to make clear what we need to do, as Ed said, figure out what the new break-even point is. I think your question is what does break-even point mean if we hit, down river, concentration. The concentration should be straightforward, but we shouldn't forget the 40 miles upriver and the impact that has also. I think that is part of what John was saying, what do we know about what is being re-deposited in the 40 mile stretch? How is it going to impact in the recovery of the 40 mile stretch? I think that is something else we should consider in going forward.

MR. MAGAR: I agree. I didn't mean to exclude that. I was thinking more broadly in the river where it was being deposited, there was some
hypothesis. We didn't have
information to go on what that
information will be and what the
impacts will be.

MR. BRIDGES: My next question
relates to what Victor is talking
about now.

MS. HOLLAND: If you want a
segue, let me know your question is
off of that. Remember to ask who you
want to answer first.

MR. BRIDGES: We will go with
EPA. I will be a bit more emphatic
about this than my colleague who is
being a bit deferential, I think.

This is critical in my mind,
because what I heard in the last few
days and what I have seen in the
reports, there is a considerable
amount of uncertainty of what this
"load" is and now we are talking about
potentially following EPA's proposal,
 tripling that load based on estimates
of inventory of 2000 kilograms in the
life of the project. I'm not sure --
I don't believe the panel can evaluate
the technical sufficiency of
Engineering Standards without some
understanding of the implications of
that load, either within the Thompson
Island Pool as it is now, or
downstream of that, that relates that
load and the redistribution of either
particulates associated with PCBs
within the system and the consequent
effect it has exposure to risk. I
guess you can respond, please, GE
first, and then EPA respond. And I
would like to request that that is
addressed in some detailed,
quantitative fashion with evidence,
data modelling results of what these
relationships are in the final
reports, because I'm not sure how I
could make really useful comments or
can reach conclusions about standards
without understanding the implications
of what you have been telling us for
two days about the load and
uncertainties in connection to the
load.

MR. HAGGARD: We fully support that. We will put as much information as we can in the report, and certainly between now and May, whatever additional analysis we can formulate available through the proper channels to get you 100% support of what you are suggesting.

MR. CONETTA: We don't disagree. It's critical. But we will try to walk you through what the standards envision, the export rate, because it was set at an export rate, the possibility of increasing mass, how that might affect it, actually, in the standard. So we will try to walk you through why it was set the way it was, why we think it was okay. Obviously in the report we will try to sort of -- obviously the MNA issue is off. There's a lot more going off to the river -- we're talking about a lot more load. I think we have shown with the fish issues -- I have to agree
with John that, you know, the levels
in the Lower Hudson near Waterford are
okay, but I also disagree on the
baseline loads, because we just got
data last Friday and the baseline
loads are back to norm. But the river
is actually going back to where it's
supposed to be. The last impact to
the Lower Hudson we have not only GE's
data, but DOH did a substantial amount
of data and collected at water, at
water intake and had an infiltration
surface water near Albany, and it
showed no impact in regards to
baseline loads to the river. Those
are all pieces that need to be brought
in. We understand it. It makes for
the big mix. We will try to do that
in the report.

MR. FUGLEVAND: One on the same
issue we had, we saw a graph in one of
the presentations that said, check
surface sediments by 7 centimeters
PCB, locations downstream of Phase 1
dredge areas.
MS. HOLLAND: A GE graph or who are you asking the question of?

MR. FUGLEVAND: GE graph, and I will ask John Connolly and ask EPA to respond. It shows a significant increase of the co-located cores, one case from 4 to 18, and another case, it goes from 3 to -- looks like 15 parts per million. So they kind of raise the issue about what's going on in that first 40 miles, not what's going down past the 3 percent losses. It's giving a sense there is a loss of more than 3 percent when you start to really bring in the increases in PCBs and surface sediments from 40 miles.

Then you also talk about setting a trap data with elevated PCBs of 50, and we know the elevated PCBs in a sediment trap doesn't reflect really what's on the bottom. I relay that as groundwork to a related question on, you know, GE has proposed to re-run the model as far as what is an acceptable amount of load, but I think
also the overall impact. Is there a way to re-run the model that looks at the impact within the 40 mile region, as well, and would that require some additional surface sampling to see what was the impact in Phase 1 within the first 40 miles with a visual surface sampling of co-located cores provide some additional insight to what is the impact of dredging to the increasing surface sediment concentrations possibly over the 40 mile reach.

I know it's a long, extended question. But it's asking about an issue, how to better understand the impact of dredging in the first 40 miles.

MR. CONNOLLY: Well, I think it's a great question, one of the biggest concerns for us that came out of Phase 1. And we don't fully understand it. We certainly have evidence that we have, in fact, sent PCBs downstream, and it was deposited
on the river bottom. There long-term impact is not clear. One of the things that we really need to see is what happens. For example, in the spring, we have a high flow event. Do we send a lot more PCB downstream than we had in the past high flow events, which will be another signal we have high stuff at the surface. I think the models do have to address that. They do have to take the resuspension information that we obtained in Phase 1, as well as obtain some additional samples and try to make projections of what happens if we continue to dredge the way we are dredging, or the way we propose to dredge on the 40 miles of river on the Upper Hudson as well as potential impacts on the Lower Hudson.

MR. CONETTA: I will mention a couple of things, and I think some of the things that were brought up yesterday, as well, something that Todd had mentioned and he was trying to get through about the baseline and
background.

We, unfortunately, don't have a background on the sediment trap data. We don't know what the normal situation would be, because there is no background.

We heard there are some older samples from the nineties or late nineties that have 1 ppm. I think we have samples that show from the '98 time period, that some TSS samples around 25 ppm. So there is a disadvantage.

While the co-located cores are interesting, I don't know how much they can tell you about actual dredge release. There are substantial variabilities between co-located cores anyway. There are added influences from bathymetric surfaces; the river is very dynamic. We found that out. We lost at least 35,000 cubic yards of sediment in just the ten CUs that were dredged. That sediment has gone away. Where did it go? I'm not sure, but
it's not there. You know, and those are a couple of pieces, and Ed might want to add a few more.

MR. GARVEY: In terms of --

MR. CONETTA: Sorry, the other thing about high flow, it's interesting about high flow, but we do have actual information about high flow. But we do have data from 2006 regarding a high flow event. I don't know how you can compare the two, but we had levels as high as 260 nanograms per liter at Waterford. That's half the drinking water intake. How do you compare that to what you find at issue, I don't know. I think the only thing with can look at right now based on the levels, looks like they go back and forth. Any impact is probably minimal. If you look at the amount of actual contamination that is still there, and what you are depositing on top, it's minimal. I don't know how you make the stretch saying it's from the sediment trap distribution.
MR. GARVEY: I have a microphone.

I guess one other thing to put in context is this: While certainly the release of material downstream has the potential to contaminate a lot of areas, the river sort of dumps and transports hundreds of thousands kilograms of PCBs throughout its length over the last 40, 50 years. The areas, when we delineated river sections 2 and 3, GE spent a lot of time coring areas that defined what was above the thresholds we have concerns with above, as opposed to areas below. Despite the passage of time, the vast majority of areas of river section 2 and 3 were not particularly contaminated relative to the standard. Yes, some of the particles were disseminated in those areas, but if the river has taken 40 or 50 years and hasn't been able to develop a significance inventory or significant veneer of material, the
short-lived things will not create a 40 mile blanket of contamination. That said, we will have re-contamination in various targeted area of dredging. For the same reasons those areas are targeted, they will get probably get additional material, because that's where the fine grain sediment sets up. Is that a quantitative field, not, it is not. To your concern, one will wonder how far it will go and there are different ways to evaluate that, but I give that as a second thought.

MS. HOLLAND: Tim?

MR. MAGAR: Well, I had another question of Ed. Tim, are you going to comment on this?

MR. THOMPSON: No, I was not. I am always patient.

MS. HOLLAND: All right, Victor.

MR. MAGAR: Thank you. I wanted to ask about the capping process and some of the decision-making behind the capping.
When I think of the dredging that had been referred to as the mass removal approach, and we were moving a lot of PCB mass in the system, probably the biggest work force in terms of actual risk reduction, is the cap material we were placing, and are we creating a clean sediment surface? There are two differences that perplex me, (1) capping with a single width which seems to be go against at least the last ten years of experience with cap placement approaches, and (2) why is there no sampling after the capping, which is to a relatively clean surface. So maybe you can help answer what could be a variety of questions from re-deposition, but also I think there were assumptions in the mixing of the cast which were very conservative assumptions, and I don't expect nearly that much mixing of the capping materials placed. I have to point who that is going to go to, so I will start with the EPA if you can.
help answer that. I assume some of
the decision making on capping is
yours mand I will ask GE if they have
a vision how this could be improved if
it needed to be in your opinion.

MR. GARVEY: I guess I can
start. The decisions to place --
we're not talking backfill right now
but capping?

MR. MAGAR: Well, to be honest,
where both are on one-foot of
material, I'm not really
distinguishing the two. You might
have different surface and different
armoring, but they're going to provide
a lot of the same functionality. You
can talk to that in terms of backfill
or caps in terms how its placed and
why there is no monitoring after the
capping and the dredging passes have
been done.

MR. GARVEY: The intention with
the back full, I do -- and with
respect to the standard, I think we
need to distinguish between the two --
the basic requirement is if you call it a cap, it has to be maintained. If you call it backfill, it doesn't have to be maintained. I thought that is an important distinction in the ROD, that we were going to place backfill, but not require maintenance of it. It would form an isolating layer initially to be deposited on later, but also an expandable layer, if you will, something that if in the event of erosion you would provide a diluent for the material underneath it, so if it eroded through, you would already be eroding the cleaner materials around it, you would have that veneer, if you would, of concentrations of the surface once the backfill was eroded away. That was the original anticipation.

The placement of the cap on the other hand is spelled out by the Residual Performance Standard as to what's required with respect to different concentrations, averages and
individual core concentrations. In both instances, there was no requirement to test unless you went to a 20 acre average where you begin to backfill areas that were borderline of what we thought needed to be capped. So that's the basis for the logic. Have I answered the first part of your question?

MR. MAGAR: So -- and I understand that logic, but what you have given me are the various assumptions that entered into the Performance Standard. In my opinion, those assumptions were never tested in the last year.

MR. GARVEY: Right.

MR. MAGAR: The mixing rates and the things that you test.

MR. GARVEY: No, they were not. We don't have the data to test what you're suggesting. I suppose some of the information could be gathered by going back to the caps and backfill areas and sampling them. They are
still there.

MR. CONETTA: As part of the
program that will be developed, I
don't know if it's in target or
non-target areas, but it's been five
years since we put the scope together.
We haven't worked on a plan yet.
There are areas that we'll be looking
at for sediment areas for testing. I
don't remember if they are target or
non-target areas.

MS. HOLLAND: Are you satisfied
with their answer, Victor?

MR. MAGAR: Yes.

MR. HAGGARD: Let me just say as
a matter of fact, we followed the
existing procedure for determining
when to place a cap. So if we hit
certain levels or after we dredged so
many times, we could use a cap. So we
followed the rules in what we did in
deciding if the cap was in compliance
with the standard in all areas. There
were non-data collected post dredging
and capping on top of the surface.
And part of the logic there was we'd backfill what we were leaving behind, in variable concentrations to begin with. But you are right, there was no confirmation that the surface itself would be tested. The end assumption was what we would encounter that we'd see that, and it has, the capping has replaced them in multiple. By the time you get to the second lift, the material is clean. But, again, that was an assumption, and we need to confirm that was the case.

One thing the backfill and re-capping were very productive. Once we were able to begin, we were able to get a lot of material in the river quickly and accurately placed. That part of it from a productivity standpoint, Tim and the others, would like to, perhaps, have changes they would like to see from a, a location standpoint. But it was getting to be where we could say, yes, we'd put a cap on and backfill it in.
MR. MAGAR: You did it.

Somebody said it was placed in 12 inch lifts.

MR. HAGGARD: The backfill.

Just the backfill, but not the cap.

MR. KRUPPENBACHER: The backfill, there was a question yesterday about the backfill. It was placed in a 12 inch lift, obviously, multiple bucket passes to place a 12-inch layer. I'm not sure what you are looking at, a lift, if we placed it and surveyed it and placed it again. The typical process was with the larger, with the 385 equipment, the bucket did a sweep essentially over the area and did multiple sweeps over the area in order to get the full accumulation of the material in place on the river bottom. We only surveyed it at the end of the process of placing the material.

MR. FOX: When it did multiple sweeps, it did not move, it stayed in the same area?
MR. KRUPPENBACHER: Yes, that's correct. It took multiple buckets to get to the area, so it would work in the back to get the excavator.

MS. HOLLAND: We have 30 minutes for the last Q and A. I want to make sure you all get a chance to ask your questions. Try to ask multi-part questions, that's okay, then come back. Some of you haven't had a chance to ask anything yet.

I'm not giving you a hard time, Victor.

MR. FUGLEVAND: It's okay, you can give him a hard time.

MS. HOLLAND: Next is Tim and Rick and then Greg, okay?

MR. THOMPSON: I was waiting patiently, then the next thing I get is restrictions by you.

MS. HOLLAND: Sorry.

MR. THOMPSON: This is going to largely be directed at GE. I think one of the things that reached out to all of us on the panel is the issue of
characterization. At this point it seems like going forward you certainly have done a fair, a phenomenal amount of characterization. We heard proposed potentially one way of approaching it, "let's not go back and do proactive cores, do reactive cores, let's push the hole and see what we have there."

John, I think you said yesterday you guys were looking at possibly doing some proactive coring, recognizing, I'm sure, that the payback -- or a better characterization, even if you spend a million bucks, the problem would end up being a lot more. So I'm curious. After looking at the sample program, why did you end up with a Ross filter type core, which in our experience is one of the most inefficient samplers you could use?

Have you ever considered these fiber core pistons, geo probes, have you looked at those at all?
John has a smirk on his face.

MR. HAGGARD: It's just a smile.

When we started, we took 50,000 samples on the river bottom. We looked at how can we best get this. We also did geo-tech work. We had core rigs up there, a huge, very slow process. We ended up having to make, to meet the requirement of the sampling. In our agreements we were required to process about 300 samples a day. To get 300 samples a day, we had three -- no, five coring rings out. If we tried to do the other types of techniques, we would never have made it.

We followed the agreements with the agency, and we then provided the data to the agency. They looked at it and said, let's go back, let's re-sample. So we would go back and re-core and took all the data, which we can provide to you -- they are very interesting reports, the dredge after the delineation reports, Phase 1 and
Phase 2, compiled the data, talked about core uncertainty. There was uncertainty recognized by the agency. The agency approved the cores.

Now, the question is do we -- should we go out and proactively versus reactively do a core? We can certainly get a core rig out there and take a sample or two in the area, but can we get 80 foot cores in most of the low areas? If you look at the standard, we try to address that uncertainty of the core depth by the way we want to approach the residuals in uncertain areas. If we go in and use the existing data to the cut line, recognizing we will then have to go back and do the samples and, hopefully, remove it, and going in, based on that we cut, to that, re-define that, and then we will put appropriate backfill and capping on. So if you follow that approach, we probably don't need to go up and do additional coring at this point. But
if there is some other approach that
is more prescriptive, doesn't really
address the residuals in that way,
then coring may make some sense. We
have to see what the other options
might be.

MR. THOMPSON: I think we would
like to see the SSAP core logs and
confirmation field logs and core logs
for just Phase 1. I don't want to go
over all of it. I want to look
through a --

MR. CONNOLLY: It's a huge about
of information; it's a thousand cores.

MR. THOMPSON: Yes.

MR. CONNOLLY: We can provide
you with that. We have 40 percent low
confidence that equates to about 180
acres. So at eight cores an acre, we
are talking about 1440 cores in those
areas. Our ability to go back with
the technology that would be slower,
we can, at most, sample a very small
area to inform us going forward. We
are looking at that and looking at
alternate technologies, but we are
really limited in our ability to
re-characterize such a large area and
keep on a schedule of getting Phase 2
up and running 24/7.

MR. FOX: You only have to do
2011 stuff this year and in subsequent
years.

I understand what you are
saying, I'm not trying to trivialize
it. Can you do your sampling on a
yearly basis?

And one question just to
clarify, after you are done dredging
will you characterize a full extent of
non-native material after dredging, or
go after the two foot cores?

MS. HOLLAND: Also Rick, we
haven't given EPA a chance to respond
to Tim's question. Could you hold
that one and repeat it later, because
I'm trying to be fair here.

EPA did you have a response?

MR. CONETTA: Yes. Some
additional thoughts on our end in
terms of the amount of cores that are
required, it was a monumental effort
by GE; I understand that. I don't
know how many we required a day.

MR. CONNOLLY: 60.

MR. CONETTA: But it was a
metric to get where we need to be for
a design. Uncertainty was looked at,
uncertainties, but were not implied.
We had a, quite a large disparity in
terms of the uncertainties, I think,
and we'll get into that further.

A decision was made at this
point and arguments made that they
were 50 percent more likely to get
clean, as dirty, material. So
conscious of costs, conscious of
taking out material, I think the
uncertainty issue was not missed and
certainly addressed. I think what we
have seen in Phase 1, that had some
dramatic impact. I don't believe in
any case we dredged clean material. I
think in a lot of cases we had to
dredge a lot more dirty material, PCB
contaminated material.

Some nomenclature issues that get into the nitty-gritty of the standards, while there are issues about dredging clean material, I will remind you those sediment cores and the results, very few of them, if any, were non-detect. A lot were try plus PCBs, some as high as five or ten residuals, total PCBs, which could have been left, depending on what the ratio was for backfilling or capping of cores; we took an average. So to say they are "clean" I think you have to look at a much closer -- one of them, one of the suggestions from yesterday on John's table at taking out about 12 inches of clean material, that's the way I read that table. I don't think we ever got that. But part of the metric on that was changed as well. The metric was what was the tri plus surface, and what was the total PCB? The metric in the tape will change to what's your NPA, and
that's a different standard as to
which areas should you be dredging. I
don't know that is an applicable
evaluation.

We can look further, but that's
a little bit of changing the goals.
They have to look the same. We need
to look at certain points to make our
points clearer. I think we are
confident in looking at our cores, our
level 1-A cores on how much deeper you
have to go. I think it was a minimum
of 6 inches in 75 percent of the
cores, a minimum of 12 inches in 50
percent of the cores, and 40 percent
or 30 where you were greater than 12.

So what we did not recommend and
what we'll have to do a better job of
in the actual cores, the non-complete
cores. But there were other issues
with the non-complete cores that I
think have to be addressed.

The debris fields, we made a
recommendation on what we need to do.
We need to get to the bottom. If it's
bedrock, that's not a non-complete
core, that's not an issue because you
will hit bedrock and stop. So even if
you set the DOC deeper, it's okay. If
you hit clay in these areas, that's
another stopping mechanism. But John
mentioned yesterday they had up to 20
inches of additional material there,
and that needs to be factored into
somehow. Because at the end of the
day, our project needs to be
productive in the amount of PCBs we
take out, efficiently. And that means
taking them out quickly, with fewer
passes -- not less passes, and I'm not
trying to trivialize -- it's an
immense project, I understand that --
but if there was no load standard, I
think you could cull away -- and
that's not the right word, go away and
take away, go away and take away, go
away and take away.

MS. HOLLAND: We have more
questions?

MR. CONETTA: I'm sorry, can I
just answer one other question about
the what was mentioned, the debris?

    MS. HOLLAND: Very briefly,
because we are getting short of time
and there are a lot of questions.

    MR. CONETTA: The one by one is
not what we're recommending.

    And just as a correction, you
know, I think John understands that.
What we were asking for is the
data-metric surveys, one by one grids.
We have different areas that have
different metrics for evaluation. You
cannot evaluate them on a 10 by 10
foot grid. Also the one foot by one
foot grid gives us better surface to
evaluate what was going on. We want
to get away from the 10 by 10 grid. I
don't think we are happy with it, and
I don't think they were either.

    MS. HOLLAND: We have a few
other cards up. If you need come back
to some of this, you can keep your
card up.

    We will go to Rick and Greg,
and, Victor, yours is back up again.

MR. FOX: I will switch it up again. In the first period you were looking at the Engineering Performance Standards and throughout this session, we've talked about the intensive level of data collection. What I haven't really heard through part of this is there is a recommendation in the reports to reduce the data collection activities to data used to make informed decisions and not try get out of study mode, that type of thing.

MS. HOLLAND: Who would do you want to answer first?

MR. FOX: I would like John Connolly or John Haggard or Bob.

MS. HOLLAND: Keep your answers as brief as you can. I want to make sure the panel gets to ask that they need to.

MR. GIBSON: We learned a lot of things in Phase 1, and there are a lot of opportunities to streamline a lot of things. EPA made some
recommendations to that effect. The near-field program was not very helpful in informing us in terms of PCB releases associated in terms of dredging. We think that can be at least scaled back, if not eliminated.

The monitoring for other parameters, metals, we learned that metal releases are not an issue. That data was not effective at any level for the full season. What else, the far-field program worked very well. The monitoring techniques we used earlier in the season showed us a promise and allowed us to show a result in eight hours. That is good as well.

Phase 1, you are right, was an extensive research project from our perspective. We collected a huge amount of data. Now that we have the data, I believe that we can streamline what we have.

MR. CONETTA: We agree with Bob there are definitely areas in the
far-field stations. I think those
need to be where they are. For near
field, there are other things we can
look at, other things to inform us
going forward, as well, but not
necessarily the system that is in
place. We need to make a lot of
changes to make things easier and less
cumbersome. There are a lot of
people -- there are certain areas we
would like to have more information
on, certainly going for releases,
obviously trying to find out about oil
sheens and get a handle on boat
tracking. We have some of that that
we can anecdotaly look at. There
will be a pretty significant piece of
boat tracking that we had. Maybe with
less boat vessels, optimization --
again, I'm not trying to trivialize,
but you have standards to meet for a
reason. And 90 boats is nice, you
need 90 boats, but it causes a lot of
resuspension. Those are things we
have to look at, because everything
affects the water.

    MS. HOLLAND: Greg.

    MR. HARTMAN: This is a design question for Ed Garvey and Bob Gibson. You know, you had an amazing mix of dredges, one yard, two to five yard dredges. In the last few days of discussion, it was based on the depth; you had to have a smaller dredge in the shallower areas. You decided to dredge a short shallow reach to allow a larger dredge in the scow operation very late in the season, in September or October. Are there other locations that limit the dredging, but enhance artery equipment access for the contractor? The question is two-fold. The first question is was that deepening-effect cost in the project effective, and the second is, is there an option to consider the same action that would remain in the project that would enhance, improve the contractor's capability to complete the project?
MR. CONETTA: There is access dredging recommended in the Standard. It's for a reason, to help assist us in getting the productivity rates and dredge done. There are areas in 2 that is needed, not necessarily just to dredge in the canal or the channel, but there are areas delineated that will require additional access dredging to get in there to improve the dredging.

MR. GARVEY: River section 2, the landlocked section of the river where the channel does not go through the level, because it's landlocked, that looks like it will have shallow areas.

MR. HARTMAN: Was the dredging effective?

MR. CONETTA: I think for looking at the access for CU-1, it allowed you to take out more material. Obviously, you have to weigh it with low standard residuals -- residuals are a different animal, but for the
low standards and whatnot, the
production rates can get heavy in the
area for contamination. But
absolutely I think it's important that
if this were to succeed, you need to
have access dredging.

MS. HOLLAND: GE?

MR. GIBSON: Specifically CU-1,
the reason we did that, we planned it
based on the dredge design based on
15,000 cubic yards. Looking at the
dredge plan and sequencing, we felt we
could get the dredging done within the
period in the design. When we found
the deeper contamination and started
dealing with the scheduling issues
getting toward the end of the season,
we needed to get the material out of
there quicker. That is the reason we
did the access dredging late in the
season.

Certainly in Phase 2, if access
dredging is something we need to look
at to get the job done, we will do it
within the parameters. But to
speculate right now based on not
knowing what the standards will be, I
can't give you a direct answer there.

MR. HARTMAN: Thank you.

MS. HOLLAND: Paul?

MR. FUGLEVAND: My question's
mainly a comment on your final report,
and the charge we have of the panel
that everybody received, one of the
charges is if GE -- EPA or GE proposed
modifying the standard, and we
addressed that, so my requests in your
final report is to be explicit in your
proposals rather than saying we
"might" do this or that. Explicit, as
if we might build a house, and I say
well, are you talking about a 2400
square foot house? The only way to
evaluate a change is to be specific.
I know it's a challenge to you, but to
the degree you can, we need specific
proposals for us to fulfill the
requirements of the panel.

MS. HOLLAND: Thanks.

Todd?
MR. BRIDGES: I want to briefly revisit -- maybe I will point to the report again, but if you wish to respond, EPA, you can. The PCB oil obviously is a matter of concern. I call it a "sheen" and a sheen is an indicator. I find no way to relate to quantity or release, where it went, how much of it there was. I just don't know. What will you do about that? I'm assuming there is some reasonable expectation that that can be repeated, you know, in Phase 2. Maybe there was evidence about that. This gets, kind of gets back to my concern about release and residuals. Residuals, not in the dredged prism, but outside. If you are releasing particles or oil or pixy dust as a result of your dredging activities, and it goes outside of the dredge prism, that is a matter of concern. And it seems to me, for example, the Residuals Standard as constructed now appears not to even recognize anything
that follows outside of the dredge prism as a residual.

MS. HOLLAND: Who do you want to answer first?

MR. BRIDGES: EPA. I mean, I don't expect answers to that now. I'm more interested in from the panel's point of view, in what would the report say with regard to how you get to address this problem. Now there is only speculation.

MR. CONETTA: It's a very good question. We think it's the tip of the iceberg, obviously. We can see what is on the surface, we don't know what's underneath the surface. We have visual observation of the sheen coming up and going back down. I think we need to evaluate how best to proceed and deal with it. They did have some response, the contractors on board, and I think John mentioned that was the purpose for them to be there. The unfortunate thing, while they were there, they had to deal with three
different areas and it was hard to get
a handle on all three areas at the
same time. When you had a sheen
reported, they weren't necessarily in
that area when it blooms up, whatnot.
That was done towards the end a little
bit better, but did we fully collect
and deal with the issue? No.
Obviously if anyone has a
recommendation on how to deal with it,
we would love to hear it. When we
look at some of the water results down
at Thompson Island where you have
levels of 200 to 600, in one sample,
part of us think, from at least this
end, part of that may be due to oil
sheens or oil products or droplets in
the water sample. We don't know.
That is supposition. That may be part
of another piece of monitoring as we
go forth in Phase 2, and what action
mechanisms can be implemented to
control it? We probably will see it
but it's probably in the more highly
contaminated areas, not necessarily
the lower contaminated areas so maybe
we can target those areas, and just be
especially careful.

MR. MAGAR: Just a quick
follow-up question on that. You know
nothing from the sediment that was
actually removed? There was no oil
nODULES, there's no evidence? Did you
inspect the actual sediment from that
area?

MR. CONETTA: I believe from the
SSAP course that there was some
indication, but nothing like we have
seen.

MS. HOLLAND: You need to give
GE a chance to respond to the original
question.

MR. HAGGARD: I don't like to be
quite as fatalistic as EPA. I mean we
do have objective evidence that is
important to the use of the machines.
In this, we didn't have a chance to go
through in terms of where we monitor
downstream of Thompson Island Dam.
When we are dredging upstream, the
material does go downstream, and then
goes over and runs up the river dam
before we sample. So what we have at
the base of the dam are a huge mixture
of things. Yes, there are
variabilities we see in the samples.
The cause of the variability, the EPA
is speculating, could be oil. You
know what, we're very close to where
some of the dredging occurred, and we
had this mixing effect. The fact that
data, pre-produce data, is very good,
indicates it may be a lateral mixing
of what is hugging the shore. So we
could see variability.

I think what's important is we
got a good -- we know what the losses
were, whether or not they're caused by
the tugs you see coming up, each time
we hit the dredger bottom or a spud
moving up or a tug moving around, or
some sheen coming when we are dredging
high levels of material, what we're
measuring are 3 or 4 percent levels.
We did an analysis at looking at the
sheen and are they contributing? Yes, but a small percentage. Can we try to do more in terms of collection? We've done a lot already. These are some odd sheens that come and go at different places. So not sure there is much more we can do there, other than do studies. I think we have a good sense of what the overall losses were. I think the comment you made, it's indicative of -- the sheens are indicators of where we are dredging and the high concentration material and the moving of fairly high masses of PCB.

MR. BRIDGES: Just a brief follow-up, you maybe feel like you have confidence at Thompson Island Dam, but there's as much as seven miles between the dredging and that monitoring collection point where you -- I mean, what's going on there? That's a lot of river.

MS. HOLLAND: You have about four minutes left.
MR. HAGGARD: I absolutely agree that the standard doesn't adequately address what happens to the material between where you dredge and where you monitor, clear evidence. Material is falling out and depositing, whether or not it's in a transitory way or it's going to be there longer term. We don't know yet, but the standard doesn't clearly address that, and we think it should.

MS. HOLLAND: Greg, do you still have a question? No, okay.

Any follow-up? We have three minutes left. Let this be our last one, I think.

MR. SCHROEDER: My question is about resuspension controls. And at this point, you know, you try a lot of things, have done a lot of things. One particular thing that hasn't been tried that would address a load issue is the use of carbons, perhaps carbon curtains. And that may also address, help address, oil losses, as well.
Has any consideration been made in this regard?

MS. HOLLAND: Who do you want to go first?

MR. SCHROEDER: I'd like to hear from GE first.

MR. CONNOLLY: Well, we're not aware of an application of carbon curtains in a project anywhere close to this size. We know it's a concept, we know some companies have developed prototypes for this, but we don't know if it's been applied anywhere. We don't view Phase 2 as sort of a research exercise.

We have some real concerns about, you know, resistance of flow through something that's impregnated with carbon and what that means for the stability of long-term life for such a curtain. So I guess the short answer is that it's a concept, but we have no sense that we could apply it, and that it would be effective.

MR. CONETTA: I think you
mentioned one of the things that we're trying to recommend or at least have evaluated, I don't think we need it for the entire area of Phase 2. I think in limited areas it may be very helpful, especially in high velocity areas. There may be other situations or certain control measures that can be taken. Again, it's all supposition. We don't know. Sheet piles north, and filters south, something, a combination of things. These are things recommended and certainly things going back and forth.

One of the things John mentioned about flow, and this is getting lost in a lot of the load conversations, and whatnot. This year was the second or third highest flow year, well above the median of most any other year. I'm not sure if this is the BMP period or more, but it was a highly high flow year.

Taking that on top of a rock dike on the east side of Rogers Island
makes it a double whammy on the west
side of Rogers Island. Those are
considerations that aren't really
looked at. We are looking at velocity
profiles, but the situation is much
different.

The other thing about where
we've been this year is, unfortunately
or unfortunately, we've been in some
of the most difficult areas to sample
trash. To sort of push that out in
Phase 2 isn't totally, necessarily
fair. I think we have to take a
better look at Phase 2. Certain
things we will encounter, but the
levels won't be so high. We wouldn't
have another rock dike affect flow
rates, and obviously wouldn't have the
amount of debris we've had at certain
areas of CUs, so those are a couple of
things.

MS. HOLLAND: Thanks, everybody.

We need to move onto our lunch
break. I want to remind anyone who
wants to make public comment, you need
to sign up immediately when we break.
We're coming back at two o'clock. We
have a one hour window of opportunity
for public comment. Thank you.

(At this time a luncheon recess
was taken.)

MS. HOLLAND: Everyone come on
and take your seats, and we will get
going. Our next segment of the agenda
is our public comment period for this
afternoon. So we need to gather our
panelists. Hopefully you all picked
up a copy of the ground rules out
front. I went over them this morning.
The way it works, we take you in the
order in which you signed up, although
I have a caveat, a question about
that, in a minute. Then we are
dividing the time available. So we
had seven people sign up, and that
works up to eight minutes for each
person. We had one other person who
came in late today. If there was
extra time, he would like to make a
comment, as well. We will see if
there is enough time in the hour.

So of the seven of you who
signed up, we have one gentlemen Tom
Bronson, he has a flight, he has to
leave at 2:30. Does anyone have a
problem if Tom Bronson goes first? I
don't see any objection. Okay. We
have eight minutes apiece.

The panel will not address any
questions. If you raise questions,
they will be in the public record, but
they can't address them.

We will start with Tom Bronson.
I would like if you queue up next.
John Jermano, please be ready to go
next. You have up to eight minutes.
Steve will help me keep track of time.

MR. BRONSON: Thanks for letting
me go first. My name is Tom Bronson
of the National Oceanic and
Atmospheric Administration. We are
actually trustees for an organization
which actually includes the Department
of the Interior.

New York State NOAA would like
to raise a concern regarding GE's proposed changes to the Residual and Resuspension Performance Standards. GE proposal included a reduction in PCB mass removal and an increase in traffic, and this is a change to the remedy. As noted by the trustees yesterday, the river is much more contaminated and will remain much more contaminated than the ROD envisioned. GE's proposal to dredge less will result in even greater levels of PCB left behind. Regarding capping in the ROD, EPA affirmed that this is a dredging remedy and rejected capping as less protective and not permanent. Phase 1 resulted in 36 percent of dredged areas being capped when only 5 percent was envisioned. More capping will also result in less habitat restoration. Combined with the proposal of less dredging and more capping, this will even prolong, further prolong, the recovery of the river.
In conclusion, the trustees hear in GE's proposal a combination of adjustments to the Performance Standard and a change to the remedy. While we are not opposed to reasonable adjustments to the Performance Standards, such changes should not be used to change the remedy.

Thank you.

MS. HOLLAND: Anyone who wants to turn in your written remarks, please do so to Steve in the back, who has his hand raised by the end of the meeting today if you have more remarks than you said. Okay.

Next we will have John Jermano, then Manna Jo Greene.

MR. JERMANO: Thank you. My name John Jermano and I am representing the Canal Society of New York. I wish to read a letter from the society signed by our president and dated 16 February 2010.

To Whom It May Concern: The Champlain Canal is a crucial link in
New York State's historic canal system, a system that made New York not only the Empire State by the Canal State, as well, because New York is the only state in the union with an operating canal network that stemmed directly from ancestors originally completed in 1825 or shortly thereafter, and from that time onward have operated continuously.

New York can further boast that it has the longest artificial inland navigation of any state in the union. In addition to the canal network's robust engineering history and monumental economic achievements, it is the only all-American water route, out from the Great Lakes to the Atlantic Ocean at New York City and all within the solitary confines of our state. Therefore, the importance of the canal to our economic, cultural and quality of life vitality cannot be understated.

But the story and significance
of the Champlain Canal is not about the past. It's about the future, and the success of that future is intimately and most profoundly rooted in bringing the waterway back to its original early 20th Century design dimensions. Without dredging, the waterway cannot be brought back and eventually it will fade into oblivion.

The navigational channel in the Champlain Canal requires periodic maintenance dredging to maintain a 12 foot water depth as specified in the New York State regulations. The New York State Department of Transportation regularly performed such dredging in the Champlain Canal until 1980. At that time the cost of maintenance dredging became prohibitively expensive due to the need to dispose of PCB contaminated sediment. This predicament continues to this day, and the New York State Canal Corporation is unable to restore the channel depth due to the cost.
involved.

Since the Champlain Canal has numerous areas with restricted navigation depth as a result of PCB contamination, the Canal Society of New York State recommends that the navigational channel be dredged by GE concurrently with the next phase of environmental dredging. In addition to restoring navigation, this action will insure a 12 foot channel for the multi-year environmental dredging project and more fully utilize the existing dredging processing plant.

Very best regards, Thomas X. Grasso, President, Canal Society of New York State.

Thank you. May I give you a copy?

MS. HOLLAND: Thank you very much. Ms. Greene, and next is Mr. Tom Kryzak.

MS. GREENE: Again, we're going to prepare more extensive comments based on everything we heard today,
but a couple of important points. One is that there is an inter-relationship between resuspension residuals and productivity. The important thing is the minimizing of resuspension and minimizing the amount of residual PCBs left in the river should not be driven by productivity. It should be the other way around, the emphasis being on the high quality cleanup.

I said this yesterday, but I want to reiterate, the result should not be compromised. We have no objection to taking another year, as long as in the interim all of the steps that have been suggested today about a proactive planning, additional testing, sending divers down doing coring, borings, whatever you have to do ahead of time, whatever EPA and GE have to do ahead of time, to get a better picture so the actual dredging process is not delayed by unnecessary surprises. I think that some of the surprises that we found in Phase 1,
that were discovered in Phase 1, should inform a very proactive investigation. I think that is what -- I have a very strong objection to delaying the remediation of the rest of Phase 1, those additional eight sites, the eight CUs that were not previously dredged for another year to do a Peer Review process, which a considerable amount would be done by June. We felt it was a wasted season. But this season will not be wasted if it's used for the resumption of dredging in Phase 2.

I want to talk a little bit about load. Here I want to stress that we want to minimize resuspension, but what is left in the river will eventually move downstream and may even move down into the Lower Hudson. What I used to say when I was trying to explain to people, there is a cost benefit that, you know, if there is this much PCB in the river, 60 percent will be remediated, there will be a
little bit of cost in terms of
resuspension to get the 60 percent
out. That is when we were trying to
get the ROD passed.

Well, now we found out there is
not just this much, but there is
probably this much PCBs in the river.
Again, what is the cost benefit? I
don't want to see load increases to
the Lower Hudson. I don't want to see
PCBs disrupted, disturbed, end up in
an area not being remediated, whether
it's in the Upper or the Lower Hudson.

So I want -- if we can hold the
load to whatever it currently is, a
fixed load would be fine. But then
we've got to address it with, you
know, with the mechanical, operational
and appropriate sampling,
pre-sampling, so that we go in and do
a really efficient job. I also think
that we need to be more -- I feel a
little dij`vu -- because we think the
Performance Standards are very
reactive and we wanted them to be more

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proactive in terms of protecting each
work area and minimizing resuspension.

So if some of the future planning can
address not trying to address a
problem after it happened, but address
a work area so that if a problem does
occur, it's contained. And I think
that might be the key points that I
wanted to raise at this point, and I
think your questions were really
relevant. I guess I also want to say
that I never got the sense when EPA
was raising issues that they were
being blameful. I think they were
simply raising issues that needed to
be addressed and vice versa. I think
a lot of really good information was
brought forward.

Oh, I do have one more thing.

Just put on your eco-imagination for a
minute. Let's pretend instead of
General Electric having to pay the
bill, which they do, for the
contamination that is in the river,
that they were being paid to do the
best possible job, that is the most
PCBs they could get out with the least
resuspension and the least impact on
the load. That brilliance would then
have an incentive. But what's
happened in this process, they have
their interest to keep their costs
down and the environmental community
and others want to get the best
possible reduction of contamination of
the river for the environment, for
human health and safety. So there is
this rift going on where there is an
apparent conflict. In an ideal world,
we would sit around brainstorming on
how to get the best possible outcome,
and this would be going on. That is
your job, to take the best of what we
all said and synthesize that into
recommendations that will achieve the
most cost-effective, most efficient
remediation, with the least exposure.
It's a great challenge. I thank you
for undertaking it.

MS. HOLLAND: Thank you. Next

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is Tom Kryzak and then George Hodgson.

    MR. KRYZAK: My name is Tom
Kryzak and I would like to provide
information from a project I designed
and completed for the Department of
Energy for consideration in their Peer
Review process. This was new patent
sediment removal technology used at
Knoll's Power Lab in Niskayuna last
year and it was for the removal of
sediments, muscles, Zebra muscle
shells, et cetera, extending from the
channel to the Mohawk River. What it
is, it's basically a vacuum suction
process. We believe it could be used
to remove the residual dredging in the
third, fourth, fifth pass. I have a
brief paper on this and I will follow
it up with more information.

    MS. HOLLAND: Do you want to
submit the paper today?

    MR. KRYZAK: Yes.

    MS. HOLLAND: Thank you very
much.

    George Hodgson.
MR. HODGSON: Good afternoon.

My name is George Hodgson and I'm the Director of the Saratoga County Environmental Management Council, SCEMC. The council is an environmental citizen advisory group advising the Board of Supervisors. I have been employed with the County in my present capacity for the past 36 years, although it seems hard to believe. I was saying this the other day; the council had been involved in reviewing the science of the Hudson River PCBs, first in the assessment and then in reassessment for 32 of the 36 years I have been employed. That boggles my mind. This has been going on and on and on.

The Council is most concerned with the Performance Standards of this project and their relationship to the degradation of the Hudson River resources, as well as the quality of life serving the County's riverside residences.
Of utmost importance to Saratoga County and the SCEMC is the resuspension dynamics of this project and the syntax of two of our down river sources, public drinking water supplies located in the Town of Halfmoon and the Town of Waterford -- actually the Village of Waterford. Between the two of those public treatment water facilities, over 60,000 people are served. So it's not a small issue to Saratoga County and obviously the Hudson is, as it forms the eastern border of Saratoga County.

I would like to thank the peer reviewers for their dedicated efforts in the last two days in increasing the understanding of the Super Fund Mediation Project to get their arms around it and to offer valuable guidance to EPA and GE to meet the 2002 ROD requirements in a manner that has the least impact to an important resource and the various user public.

Following are the SCEMC comments

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prepared by David Adams,
member-at-large, Chief Technical
Researcher for SC EMC. Unfortunately,
David is in Colorado now and he is
unable to be here. I'm sure he is
with you in spirit. I have
incorporated into this some of my
observations based on my attendance at
the Peer Review meeting for the past
two days, which are so noted. These
are Dave's comments below on the
information presented in the draft
reports by EPA and GE.

"Although time did not permit an
intensive review of these lengthy
reports, some major areas of concern
were identified and are presented in
this paper:

1. Mass Load Going Past
Waterford.

The EPA and GE disagree on the
increased PCB load passing Waterford
as a result of the Phase 1 dredging.
While it is important that a sincere
effort be made by both parties to
resolve their differences, because this load is what determines how the dredging will impact the Lower Hudson River, what is significant is that both GE and EPA calculate a greater load than the goal for phase 1.

EPA, in their report, maintains that the goal for the PCB load should be adjusted upward as more material was dredged than the goal for phase 1.

However, the GE report states that in Phase 1, 20 percent less PCB was removed than the target goal of 20,000 kilograms. Because the goal is related to PCB mass, not total mass, it would seem the target load at Waterford should be reduced rather than increased as suggested in the EPA report.

Of greater concern, however, is the contention that the goal for mass load going to the Lower Hudson River should be increased, because there is more PCB to be removed than originally estimated in the setting for the
Resuspension Standard. A key sentence is the last sentence in italics at the bottom of pages 1-27 of the EPA report:

"The acceptable rate of PCB loss and the acceptable water column concentrations are not expected to change as the result of additional data, because these criteria are based on modeling of future impacts and associated risk."

In the first paragraph on page 37, it is stated that the ROD gives the total allowable mass that could be transported downstream as 650 kg, which happens to be about 1 percent of the ROD estimated 70,000 kg of PCB to be removed. Thus the 1 percent that EPA is putting forth as a standard is simply an artifact of the PCB mass estimated to be removed in the ROD.

To carry this point to the absurd, suppose it was found that the PCB mass to be removed was 10 times greater than 70,000 kg. Would EPA then say
that 6500 kg should be allowed to pass
to the Lower Hudson River? If EPA
wants to allow more resuspension and
resulting increased load to the Lower
Hudson River, modeling should be done
to justify the increased load.

2. Deposition in Non-Dredge
Areas.

Deposition of non-dredge areas
of equal, if not greater concern, is
the find by GE that PCB is being
deposited in areas not scheduled for
dredging at concentrations well in
excess of the one mg/kg concentration
set as the allowed surface
concentration in dredged areas.

While based on meager data, the
fact that such deposition is occurring
must be addressed and resolved before
dredging is resumed. This deposition
is obviously a result of not achieving
the resuspension levels expected from
the dredging. It is not clear how the
resuspension can be reduced
sufficiently using the pre-dredging

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techniques. The arguments in the EPA report suggesting that controls on oil sheen and water loss from buckets can give major improvements are questionable given the results of the GE calculations of the total contribution of these sources to the load at Waterford. While again only meager data are available, at present they are the only data.

My comment, based on being here, the EMC is very concerned with the PCB resuspension issue, and we have repeatedly recommended near-field PCB monitoring to help determine the extent of dredged resuspension immediately downstream of the dredging areas. And I note several members of the Peer Review panel expressed concern in yesterday's dialog. I personally found it more than a little disconcerting, Ed Garvey's statement yesterday morning, that near-field PCB monitoring frequency should be reduced in Phase 2. It's totally unacceptable.

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that dredging Certification Units
remain open for a one-and-a-half to
three-month period, thereby exposing
high levels of sediment-based PCB to
both natural and project-related
resuspension factors.


It is obvious that the

procedures used --

MS. HOLLAND: One minute.

MR. HODGSON: It is obvious that

the procedures used in Phase 1 for
determining compliance with the
Residual Standard cannot be used for
Phase 2. The present procedures are
major obstacles to achieving the
desired dredging rate. I won't go
into that any more.


The water supply is more at
issue with the amount of resuspension
occurring, while not so far causing
many violations of the drinking water
standards, it is dangerous to assume
that in the future all sampling and
sample analysis will proceed without errors or in a timely way.

We are recommending that Troy water be supplied to the municipalities using the Half Moon and Waterford facilities.

My closing comments, based upon the excellent presentations by both GE and EPA and the Peer Review questions posed along the way, it seems to me the overriding project is to reach the 2002 ROD mass removal requirement. It is the SCEMC's opinion that this should be accomplished in the shortest possible time frame in the least environmentally and publicly impacting manner. We believe it is wrong to allow increased amounts of PCBs to go into the Lower Hudson. If EPA wants to allow more resuspension and the resulting increased load to the Lower Hudson River, modeling should be done to justify the increased load and it should not be arbitrarily assigned a value of 1 percent of the dredged PCB
inventory.

MS. HOLLAND: You need to wrap up.

MR. HODGSON: One other comment: Several people expressed interest in navigation dredging. The County has been on record with a resolution that needs to be addressed. It's an interesting ROD, it needs to be done, and it's part of the remediation.

MS. HOLLAND: Thank you.

MR. HODGSON: Thank you very much. I want to thank the Peer Review panel. This is the first Peer Review panel I ever been involved with, and you guys, by far, are much more involved with your questioning. Thank you.

MS. HOLLAND: Thank you.

Next, we have Wayne Richter and Kevin Ferrara. Sorry if I can't read your writing. You have eight minutes each.

MR. RICHTER: My name is Wayne Richter and I'm with the Division of
Fish, Wildlife and Marine Resources of the New York State Department of Environmental Conservation.

I want to address the specific issue, which is PCB levels in fish. I want to address that because I think GE gave you an account that's incorrect and excessively dire in its depiction of the facts. Let me remind you that GE said levels were up significantly in all four sections, including the Stillwater and Albany areas. I think they gave numbers in the areas of 60 percent and 40 percent. And they did that using comparison of data from 2007 and 2008 from the baseline monitoring program against the 2009 data talking about the fish, the small Pumpkinseed and small Forage Fish. My figures are much different and show a different picture. That's because of five years of baseline monitoring program data, which looked at fish between 2004 through 2009. GE didn't justify why
they used only two years of data and ignored the other 60 percent of the data. There is a problem here, because it turns out there is a lot of variability from year to year.

If you look at the five years, you see what looks like a bit of a declining trend. You can actual model that, but the salient feature is the high variability. It is far greater than any trend. And one of the things I looked at was fitting a model to these data. You can't fit the progression model to the these data, because they're so variable. You get problems. The data essentially can't predict itself in a defensive model.

By choosing just the last two years of the data, what GE essentially is doing is modeling over-fitting. That is a bad statistical practice. It leads to bad conclusions.

I looked at the full five years of baseline modelling data, and I got a different conclusion. When I
compared data, I found levels went up significantly at Thompson Island, at the Northumberland-Fort Miller area, roughly one and a half times. They went up, but in the Stillwater section and the Albany section, there was no significant difference. There was a small change, but, again, not significant, not even close to significant.

One of the questions you have to ask when looking at these data is what is the causal relationship? Can I actually say, okay, I saw a change between the baseline period, and once they started dredging. Can I say that was due to dredging? One of the ways of doing that is to look at the 2009 data, see how well does it fit the pattern, the variable pattern 2004 to the 2009 data. When you look at the Thompson Island Pool where the dredging took place, the levels in 2009 are well above. There is clearly a change in the pattern. There is
disruption. You got a pretty good conclusion that dredging had an effect.

When you look at the Northumberland-Fort Miller data, they are kind of at the high end, probably, but not certain because it's plausible they are part of the same pattern. When you look at Stillwater and look at Albany, the 2009 data fits right in the middle of the 2004 through 2008 data. They are just well within that range.

So the conclusion here from my analysis is that dredging certainly affected local levels at the Thompson Island Pool, but the data provides no support for any kind of conclusion that dredging adversely affected PCB levels in fish more than a few miles downstream. Just to give you an idea of what type of variability you actually get in the system monitoring the area at the feeder dam to the canal, it's well upstream of GE's
plant. It turns out the Forage Fish, looking at the median, because it's a lot of non-detect, the 2009 level was significantly greater than the 2004-2008 level. And, you know, dredging didn't work upstream in terms of its effect, so you have to take a look cognitively at the variability and be careful in your conclusions.

Thank you.

MS. HOLLAND: Next is Kevin Farrar.

MR. FARRAR: Hello, my name is Kevin Farrar and I'm representing the New York State Department of Environmental Conservation. As you know the state had been involved in the mediation of the PCBs in the Hudson River since the problem had been discovered. We participated in the entire reassessment process throughout the nineties and the development of the Record of Decision. We were directly involved, along with EPA, in the development and design of
the Phase 1 Project.

Over the course of Phase 1, the state had some oversight of the project, and we have several points to raise with you for you to consider.

First, we believe, the state believes, that the overall benefit associated with the removal of an estimated 20 tons of PCB from the river greatly outweighs the short-term impacts associated with the work. The state recognizes that Phase 1 was conceived of as an opportunity to not only perform a significant portion of the dredging work, but to also allow for lessons learned during Phase 1 to assist in guiding decisions on changes to project design, to improve project quality, better meet the human health and environmental risk reduction objectives in the Record of Decision, and to reduce negative project impacts. The state will continue to work with EPA to accomplish these goals and will continue to evaluate...
the results of the Phase 1 efforts and
to work with EPA in developing the
project design between now and the
start of Phase 2.

We recommend that the panel look
at the environmental data gathered
during Phase 1 in its historical
context. PCB concentrations observed
in the water column were similar to
those observed in the early 1990's
when releases from the GE Hudson Falls
plant site were occurring. The state
had expected as a result of Phase 1
work to see increases in the water
column and biota PCB. The state also
expects to see the water column and
biota PCBs decline over time, just as
was observed as the releases from the
GE Hudson Falls plant site were
abated. The state also recommends
that the panel consider the high
variability in the environmental data
over the period of record when looking
at phase 1 data.

The state has developed for EPA
a report summarizing the issues which
were identified during the state's
extensive oversight. The report will
be made available to the panel. This
report includes both the issues which
impacted the ability of the project
work to meet the standards, and
recommendations you address these
issues, which the state believes will
both better allow the project to meet
the standards and improve overall
project quality.

The state believes that an
important element of the panel
deliberations is to identify the
potential changes in project
operations that the panel believes are
necessary and/or appropriate to allow
the project work to meet the
standards. The state, in its report
to EPA, makes a number of specific
recommendations for design changes as
well as changes to the standards to
help improve the ability of the
project work to meet the standards and
to improve the overall project quality. These recommendations will be provided to the panel by EPA.

The consequences of "not meeting the performance standards" was discussed this morning. The state believes that if the standards have not been met, then one of the consequences is that the design team should strive to improve project performance in order to better meet the standards and meet the intent of the ROD. Now is the time in the project before the start of Phase 2 to take into account the lessons learned during Phase 1 and make appropriate changes to the project design to allow the project work to better achieve the standards and to maximize project quality. The state does not believe that the project should be modified between Phase 1 and Phase 2 solely through a change in the standards. The primary basis for having two phases as described in the ROD was a
recognition by EPA that the project design would need to be updated and adjusted as the project progressed. Experience in Phase 1, particularly related to oil/sheen release control and air emissions control showed that the existing design approach and the specified techniques used to implement the design during Phase 1 will need to be adjusted for Phase 2.

The state also believes that it is important for the peer review panel to understand that the techniques used to accomplish the work done during Phase 1 was not necessarily the best possible way to accomplish the project objectives. Rather, they were the approaches chosen by the design team taking into account not only the design team's understanding of site conditions at the time of design, but also the design team's view on what they believed were the appropriate choices given the range of design choices available. EPA anticipated
this when the remedy was selected by
including the two-phase approach to
project implementation to allow for
lessons learned during Phase 1 to
guide improvements to project design.

This is best described in the
ROD. If you read the summary of the
ROD it says this:

"Performance of the dredging in
two phases whereby remedial dredging
will occur at a reduced rate during
the first year of dredging, this will
allow comparison of operations with
pre-established performance standards
and evaluation of necessary
adjustments to dredging operations in
the succeeding phase or to the
standards."

It's right in the ROD. It's not
just a change of standards, it's
detailed in the project operations.

The state also recommends that
the panel consider that compliance
with the elements of the other
ingineering and quality of life
performance standards intended to protect human health and the environment should be given priority over compliance with the Productivity Standard. The basis for the Productivity Standard is removal of the sediment over a six-year time frame (one year for a Phase 1, and five years for Phase 2) as described in the ROD. The six year time frame, as the state understands, is based primarily upon the differences in predicted recovery time frames generated during the FS process. These predicted recovery time frames were generated using a set of assumptions which included what we believe is an overly optimistic recovery rate under the scenario where no dredging would be done, particularly with respect to the annual PCB mass load transported by the river system. The evaluation of the data generated during the baseline monitoring program leads the state to
the conclusion that an extension of
the project duration would be
appropriate if this would result in
better compliance with the standards
established to protect human health
and the environment, the resuspension,
residuals and air standards, as well.

Thank you for paying attention.
I look forward to hearing what you
will say.

MS. HOLLAND: Right on that
little pile there. Thank you so much.

MR. RIVERS: Good afternoon,
everyone. I think the good news is
I'm last your speaker. My name is
Richard Rivers and I am the Vice Chair
of Canal-New York Marketing and
Business Alliance, a private sector,
not-for-profit organization, which was
created to represent the interests of
businesses throughout the canal
corridor in New York State.

Our mission is to serve as the
one organization dedicated to tourism,
marketing, legislative advocacy, and
business collaboration to support the existing and business opportunities within the entire canal system. Those businesses range from major corporations to family-owned retail stops, from hotels to bed and breakfast inns, canal-related companies to Main Street grocery stores and local museums. What is good for one part of the canal is good for all of the canal and when it's bad for one part, it's bad for all the others.

The New York State Canal System as you know is 500 miles of historic waterway comprised of the Erie Canal, the Seneca-Cayuga, the Oswego and the Champlain canals, and the canalized portion of the Genesee River.

An unprecedented marvel in the 19th Century, the Erie Canal opened the nation's heartland to the world and was, more than any other factor, instrumental in making New York City the premiere port on our eastern
seaport. It brought great wealth to
the communities along the banks
through the commercial shipping.
Commercial shipping, unfortunately,
shifted to the railroads and later to
trucks, but the canal and the history
it created and preserved is still an
economic engine for the state and
crucial to all the upstate communities
in New York State.

Canal-New York believes to
realize the full potential of the
entire canal system for the state's
economic revitalization, there must be
positive, productive activity at every
level and every sector; private,
not-for-profit and government support,
and action at all levels is important.
Canal-New York believes the dredging
must continue to maintain the
specified depth of the Champlain
Canal. Since the Champlain Canal has
numerous areas with restricted
navigational depth as a result of PCB
contamination, we also recommend that
this navigational channel be dredged
by GE currently in the next phase of
the environmental dredging.

Thank you very much.

MS. HOLLAND: Thank you very
much.

Okay, so we are -- Paul, we have
about 15 more minutes until Steve was
going to do his wrap-up. Did you want
to say anything else before we do
that?

MR. FUGLEVAND: One of the
things we talked about is maybe seeing
GE's presentation they had on the
dredging plan we talked about this
morning; is that possible?

MS. HOLLAND: Yes, as soon as we
-- can we get this back up on the
screen? Yes?

You have 10 or 15 minutes, max.
You should be able to load that right
up.

MR. HAGGARD: We will see if
this is close to what you were looking
for. Certainly, if it's not, let us
know and we can work with EPA to get
you additional sets of maps.

MR. KRUPPENBACHER: My name is
Tim Kruppenbacher.

What we have done from comments
made yesterday, we took a look at some
of the information from CU-2 and put
sort of the base mapping together as
well as the steps in the process.
This does not include all steps of the
process. It's just on what we put
together overnight.

I will ask Andrew to kind of
walk through and talk to what is on
each one of the documents you put into
the single Power Point presentation
here.

MS. HOLLAND: Panel members, if
this is not focusing on what you
particularly need, let him know to
move into what you do need.

MR. INGLIS: Basically, this is
going to walk us through quickly the
steps in the process. This is an
abbreviated version, right, so this
contains the high points.

The first part I'm reading off, this is the design prism set based on interpolation of total PCB depth based on the SSAP cores we discussed in the last two days. So that is the design prism. The first dredge pass was dredging to the design prism. We went out and did residual samples. One of the critical points to remember is the sample locations were not the same as the SSAP program. They were offset by 40 feet. So the residual samples were taken at different locations and the first design samples.

And we based on that residual samples. We took a look at the surface concentrations. The way it was laid out if the surface concentrations were less, I think 6 tri plus, that, in theory, we were in residual mode and we only had to go down six inches. We only did that once that was in CU-1. That was the first one where we encountered the
situation. We realized that going forward from that, these were not necessarily the residual sediment, it just meant that we were less than 6. From that point forward, instead of looking at the surface concentrations, we looked at the concentrations of depth.

Regardless, the way we set the future dredge prisms, in theory, if it was residual, we would do 6 inches. But actually we would look at the total PCBs and set the prism to be at the 1 ppm level, or if we didn't have that information, we tried to uses the weight of evidence based on bathymetry cores that were nearby and also in consultation with EPA who set a redredge prism. We'd give that redredge prism to the contractor and he would go back out and redredge to that.

And this is actually showing a picture of CU-2, what the design cut actually looked like in terms of
dredge depth. You can see down here we had deeper cuts, in this area, shallower cuts. The deeper cuts here were up to 5 and up in here, we had removal between 7 and 12 inches. Here it was 6.

This area basically, this finger extending down here turned out to be bedrock. When you look at the design cut, it was a shallow cut of 10, what we found off the SSAP program. If a core was not taken, a graph sample was taken. So in bedrock areas, we have a dredge prism design based on a draft sample. So it was a thin cut, and we'd have to go back cover all the rock. So we dredged to that.

MR. FUGLEVAND: Question? So the original SSAP cores, was the mud line an elevation? Did you have an elevation as well as depth, and you have to come back and go down and try to do a to pre-dredge, you'd do a pre-dredge survey and did you dredge to a depth?
MR. INGLIS: Everything was set off elevations. So the DOC was based off the core that was created. And that created a depth contamination that was draped over a 2005 bathymetry and that turned into a basin. So at no point did we have a classic flat surface. This is a continuously changing, 3-dimensional surface.

Everything was draped over an actual bathymetry. And the prism that was given to the dredge contractor was a one foot by one foot prism.

MS. HOLLAND: I just want to check, your card's up. Is that because you want to ask clarifying questions?

Also I just want to mention we need to give EPA an opportunity for feedback after whatever you guys are going to share.

Or if the panel wants, you know, you can have EPA come on up and address the input. But we have about what, 20 minutes, 15-20 minutes.
MR. THOMPSON: I just want to ask you a clarifying question.

MS. HOLLAND: All right, I just want to make sure you give balance and let EPA respond to anything GE says.

MR. THOMPSON: Just for clarification, what is the actual design like? Presumably, design would look something like this, you did this by inverse distance weighting interpolation of the depth cut; but that wasn't my deep question. Actually, I have another one.

MS. BENAMAN: This is the actual design cut. So the prism was set for the most part, except in areas of clay. The prism was set by taking the SSAP cores and we had a measurement of PCBs, a profile for each core. We set layers 0 to 2 inches, 2 to 6, 6 to 12, so on, all the way down and we interpolated total PCBs at each one of those layers. So we'd get a one by one set grid at total PCBs at depth.

We'd select the depth below the
peak and that became the DOC for that
grid cell. That was done across the
entire CU.

MR. THOMPSON: That clarifies
that question then. Thank you.

What did you do for those areas
where you had incomplete cores, how
did you interpolate those?

MS. BENAMAN: The incomplete
cores were treated in different ways
depending on the structure of the
profiles. Sometimes they were
extrapolated using an equation for a
concentration. Sometimes we had to
make some assumptions about what the
concentrations might be. If the
profiles didn't look like a classic
profile, we didn't feel it was
appropriate to extrapolate it. It's
probably best for us to provide to you
all of the details from the data
report and the design report to
properly address your questions.

MR. THOMPSON: Last question,
all seven core samples, were the
elevations the same or were they from
the depth below?

    MS. BENAMAN: The interpolations
were done by --

    MR. THOMPSON: No, no, collected
sediment cores, were they collected
for elevation bathymetry, or were they
just actually reported by the depth
below.

    MS. BENAMAN: When they were
gathered, there would be established
to zero point by draining off the
water, and that was set at zero
inches. Am I not answering your
question? I don't understand.

    MR. THOMPSON: Let's move on,
because of timing constraints.

    MS. BENAMAN: Okay.

    MS. HOLLAND: Do you want to
proceed then?

    MS. BENAMAN: Okay. The
elevation of SSAP cores was
established by matching the cores to
the 2005 bathymetry -- does that
clarify it?
MR. SCHROEDER: One part of my question is you established a mud line. When the sampling was done and the coring was taken, was the mud line established during elevation at the time of the core?

MS. BENAMAN: No, it was established at depth, and then once the interpolation was done at depth. So how there could be an interpolation is that we had a one by one grid, here is the depth of contamination, whatever that CU, and that depth would have been subtracted from the 2005 telemetry to tell us here is the elevation to which you need to dredge to get that cut.

MR. INGLIS: The SSAP program was 2005, so the multi-elevations were the same year that the cores were taken.

This is just an example of the residual core locations. This is CU-2. We came in, this is the offset location -- we enlarged it a little
bit so you can see it better --
showing the surface concentrations.
Essentially, what this indicated, was
that the surface concentrations
throughout the CU were high enough
that we would have to look at the
deeper course actions to reestablish a
second dredge prism that would be
deeper than six inches, essentially.

Any questions?

MS. HOLLAND: I just want to
make sure you get through your slides.
How many slides in total do you have?

MR. INGLIS: I have about four.

I have these polygons are TD
polygons at this point.

MR. THOMPSON: Why the switch?

MR. INGLIS: Just the fact of
the residual standards.

This end looks at the depth.
This area here, this way, is bedrock.
So we sort of had it in a different
color so it's clear to everyone
involved. You can make out that, say,
for example, here you have the boxes
and each box represents a six inch portion of the core. As you go down, this represents a deeper segment. This is what we used in our meetings with EPA to review the data to make decisions and to apply a depth of contamination.

Then this formed the basis for the re-dredged prism. So the depth of contamination was based on the cores, would be then draped over the bathymetry to create a dredge prism that was then given to the contractor for dredging.

MR. FUGLEVAND: When you draped it over -- was there an intermediate step? How did you create areas of elevation? Did you do any kind of interpolation between the cores to give to the contractor?

MR. INGLIS: It was a two-step process. You have the, you create an X, Y, Z using these polygons. You see that the lights here, that would define the area of influence for this
MR. FUGLEVAND: What is the elevation for the entire polygon?

MR. INGLIS: We assign that depth of contamination to that entire polygon. That would then be subtracted from the bathymetry. There would be engineering considerations applied. For example, if you had a four foot cut adjacent to a two foot cut, we put a 10:1 slope between the two locations. That dredge prism, created in a 14 hour period, was given to the contractor, and they put it back into their systems and they would go back out and dredge it. So this in terms of actual elevation type bathymetry, this gives you a better view, a sort of subtle image of the standards, and you can see the colors here represent the depth, this section of the designed prism. I will walk you through this. This is after the first dredge pass, the survey showing the dark areas, the deeper
concentrations.

This is the second dredge prism. It shows the areas we went back to the dredge. Obviously, there's nothing here we had to re-dredge. Then there was the second dredge pass, a survey of the area, third dredge pass, and so on. That is pretty much it.

MR. FUGLEVAND: That was very helpful. Now we understand the process. It was much more complicated than your description. I understand how you did that, and we appreciate it.

MS. HOLLAND: Does EPA have clarification or feedback?

MR. GARVEY: Andrew, if you go back to the first slide, you have the area where you talk about the SSAP results. To put things in context, the area to the north where you ultimately stumbled on bedrock, the anticipated depth of cut was about -- even though it was grab samples for collection at the time, the SSAP
program was ongoing, it wasn't clear
whether they came back with a grab in
the core, and whether you would get a
grab, because it was too thin or it
was too coarse. When you didn't get a
core, you were required to collect a
grab. But in all cases, whatever was
designed for dredging, whether it was
grabbed or cored, it was confirmed by
probing. Because as you probe before
they would call you to get a grab
sample, they have at least six inches
of material. In areas less than six
inches, those were identified
basically as rock and taken out of the
picture.

Another point about the
bathymetry issue with the core tops,
the cores were collected, I believe,
in this area primarily in 2002 and
2004. There were some supplementary
ones done in 2005 but, we didn't know
how to draw the line here. There were
another couple of cores here but most
of -- the bulk of the sampling was the
year before the bathymetry was collected -- or more.

Now, go to the Tyson one. The main reason this was done with Tyson polygons is the speed. One of the anticipated things in the field is to, again, to minimize the turn-around time. We did this fancy interpolation model during the SSAP design program, but there is no time in the field running an interpolative model to connect the dots. This is the EPA interpretation, and the way it was written up -- sorry, I thought it was in the ram clock that we settled on this -- but in any case, I thought it was, but then GE and EPA agreed to do it this way during at the time, because this would allow for rapid assessment of the depth so we could all agree what it was and we could move forward, and it was relative and unambiguous, recognizing there were problems with, you know, joints, if you would, where you have one location
that's 2 feet and one location at 4 feet, but, nonetheless, trying to arrange for sloping, those kinds of calculations, would have added to the process. That is all I have.

MS. HOLLAND: Any other questions by the panel?

MR. FUGLEVAND: This is for Andrew. When they set up the dredge lanes, did the primarily go up and down the river and then as they moved from polygon to polygon, did they adjust for the depth on the computer screen.

MR. INGLIS: Correct. The lanes were typically parallel with the flow. They would go upstream and downstream, and we had discussion before and after each bucket was mapped out by the contractor. And it's about here on the screen, every single bucket and the depth they had to go for that bucket. When you are trying to dredge a three-dimensional surface, it's very hard. You have to know exactly the
location for each bucket. It's tough
in a three-dimensional surface.

MR. BRIDGES: So you are saying
the length was upstream, downstream,
east to west?

MR. INGLIS: Right. It was
following that parallel with flow. So
the dredge lane would be going like
this (indicating). The dredge would
start here and move sequentially down,
digging that lane, and come back and
move sequentially to 2.

MR. BRIDGES: So the one
question I have with respect to, with
respect to generating residual and
that follows into the wake of the
previous lane.

MR. INGLIS: Yes, that was
obviously a very large concern before
we started this. What we saw actually
in practice, there were a few cores
that showed examples of disturbed
residual layers. And an issue we
really grappled with this summer was
more this concept of deeper bathymetry
sediment. So the concerns of actual
generated residuals, I think, became
secondary to just getting down to the
1 ppm level in areas.

It's something we did consider a
lot and spent time talking with the
dredging contractor about how to avoid
that, but it turned out not to be the
driving force.

MS. HOLLAND: EPA, did you have
anything you wanted to share on that?

MR. GARVEY: Just one point.

I guess we could say we agree
with Andrew on that point. The
majority of the time spent looking
after the inventory, in fact, the
observation that we rarely ever made
two, true 6-inch residual passes over
any limited area speaks to the fact
that the redistribution of the
material did not create enough
"deposition" if you would to cause you
to trip the standard and require you
to go back for a residual a second
time. Most of the time it was doing
to two inventory and a residual; that was enough.

MS. HOLLAND: Anything else from the panel?

MR. FUGLEVAND: One other question. What was the typical range of cut depths; was it 1 to 2 feet, was it 4 feet; what was the range?

MR. INGLIS: It depended greatly -- let me go back to the design cut as an example. I would say this was quite typical in a CU where you would have, some areas you would have 5 or 6 feet, other areas where you would have 6 to 10 inches. I mean, one thing that we all saw this summer was the PCBs really would not do what you'd like them to do, so the ranges varied.

MS. HOLLAND: Greg, you had a question?

MR. CONETTA: Let me respond. One of the reasons here, as well, the hatch lines in the middle is a navigation channel. There was a
minimum depth you had to meet.

MR. HARTMAN: Your typical cuts were 40 feet wide?

MR. INGLIS: Yeah, 320 dredger and a 385. The 320 was about 30 feet, and the 385 was 40 feet.

MR. HARTMAN: What's the width of the channel location?

MR. INGLIS: About 200 feet wide.

MS. HOLLAND: All right, anything else from the panel?

Okay, we will go into our concluding remarks then.

Thank you all very much for that impromptu surprise.

These are actually in our report.

MS. BENAMAN: These are actually in the appendix of our report. It's in the draft report. It's Appendix C.

MS. HOLLAND: Great, thank you all very much. Thanks are for your flexibility.

Okay, Steve.

Joan A. DeCaro
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MR. GARON: For those of you who weren't here yesterday, my name is Steve Garon. I'm here with the SRA. We are the Peer Review contractor. I had the pleasure of opening these proceedings and also the pleasure of closing them. Before I do, I want to see if Paul has anything, the ultimate word, any final thoughts that you would like to share on behalf of the panel, or you can decline if you care to.

MR. FUGLEVAND: Only one of the remaining things, our process now is to take care of the schedule we talked about on day one. Our deliberations will begin in earnest. One of the things we are going to need is the final report. So I think right now we are anticipating the 26th of February is when we get the final reports. That's real important for us to meet the schedule of the Peer Review. So today if there is any chance that that schedule might slide and if we need to
reschedule, that will give us time. I think that is only the thing from my perspective.

We greatly appreciate the Herculean effort on both GE and EPA's part to put a lot of data together in a short period of time. We just came out of the field yesterday basically and the reports that were prepared and that kind of thing, we know you were probably really working hard and, again, it's been very helpful. We appreciate it. We appreciate the efforts to generate that data.

Then the presentations in the past two days have provided a lot of good insight for us and we also appreciate it. Thank you both.

MR. GARON: This is a perfect segue of the schedule. I want to make you aware of what is going to happen down the road. As Paul mentioned regarding the current schedule, it implies the final GE and Phase 1 Evaluation Reports are to be completed
by next Friday, the 26th. Thereafter, from February 27th through April 7th, there will be a public comment period. EPA is going to manage that public comment period, because that information from the public are input into the decision process. So that will happen from February 27 through April 7th. There will be an announcement forthcoming from EPA about where the public comments are to be kept and you can look for that soon. Those comments will be made available to the panel for its consideration from approximately April 22nd through the 30th, and the Peer Review panel will have actual deliberative meetings that will take place from May 3rd through the 7th. Per our discussion today, we are targeting the dates of May 4, 5, and 6, in the middle off that week just so you know. And then from the end of that panel meeting through May 28th, there is going to be a lot of heavy
lifting on behalf of the panel and SRA to get the Draft Peer Review Report to EPA and GE.

And then June 25th is the date for the Final Peer Review Report to be distributed simultaneously to EPA, GE and to the public.

I just want to make you aware of some information. Do you have a question on the schedule?

AUDIENCE SPEAKER: On the period of the Peer Review panel meetings, would that also be a public meeting?

MR. GARON: It will be a public meeting, open to the public, okay. I'm sure we will make an announcement about that once the dates are set.

I want to make you aware of some of the information that is going to be available imminently. The EPA presentations that were shared yesterday and today will be available by tomorrow on the www.hudsonredgingdata.com website.

The GE presentation over the last two
days will be available by late today
on the www.hudsondredging.com website.
They are very similar.

The last thing is that SRA will
do is develop a summary of these
proceedings. That will include a
transcript prepared by our poor court
reporter who suffered in the last two
days trying to keep up with all of
this, including all of the
presentations, the summary, the
sign-in sheets, whatnot, and those
minutes will be available in probably
about in two weeks.

And that's pretty much it. No,
one last thing. I don't want to end
on a downer, but I want to remind you
all that one of the panel ground rules
was that the panel may not discuss the
Peer Review with the public, with EPA
staff, or contract support members, or
with GE staff or their contract
support at any time outside of the
public deliberations. This ground
rule was intended for them and it

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applies to you, as well. In other words, don't try to chat them up without the other side, okay?

Finally, I would like to thank all of the public observers and members of the public for their comments and attention and the presenters for all the work you clearly put into your presentations and, finally, the panel for the thoughtful and provocative questions, and Melinda for facilitating this meetings. That's it. Safe trails back home.
CERTIFICATION

I, JOAN A. DE CARO, Shorthand Reporter and Notary Public in and for the State of New York, do hereby CERTIFY that I recorded stenographically the foregoing testimony taken at the time and place herein stated and the preceding testimony is a true and accurate transcript hereof to the best of my knowledge and belief.

________________________________________
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Dated: ____________

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| Hudson River Dredging Phase 1
| Peer Review Introductory Session |
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Hudson River Dredging Phase I
Peer Review Introductory Session
Public Hearing
February 18, 2010

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Hudson River Dredging Phase 1 Peer Review Introductory Session

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