

**MARE ISLAND NAVAL SHIPYARD
RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES
Held March 30, 2000**

Welcome and Introductions:

The March 2000 meeting of the Restoration Advisory Board (RAB) was called to order at 7:03 p.m. by Myrna Hayes, Community Co-chair and representative of Save San Pablo Baylands. Fifteen (15) RAB members, special guest Vallejo Major Anthony Intintoli, twelve (12) guests and community members, two (2) RAB support and one (1) community relations staff from Gutierrez-Palmenberg, Inc. (GPI), and one (1) recorder were present. The following RAB members were in attendance:

- Ms. Myrna Hayes
- Mr. Jerry Dunaway
- Ms. Diana Krevsky
- Mr. Rob Schonholtz
- Mr. Ken Barden
- Mr. Jim O'Loughlin
- Mr. John Cerini
- Ms. Bonnie Arthur
- Ms. Paula Tygielski
- Mr. Chip Gribble
- Mr. Adam Chavez
- Ms. Cynthia Marquez
- Mr. Al Iliff
- Mr. Ken Kloc
- Mr. Jerry Karr

Recorder: Kathy Langstaff

Ms. Myrna Hayes - Good evening. My name is Myrna Hayes, and I'm the community co-chair of the Restoration Advisory Board for Mare Island. I want to welcome everyone here this evening, RAB members; and I'm very happy to introduce our new Base Environmental Coordinator (BEC), our Navy Co-chair, Jerry Dunaway.

Mr. Jerry Dunaway - Thank you, Myrna. And I'm glad to be here, just starting the program. Again, my name is Jerry Dunaway. I am the BRAC environmental coordinator, or the BEC, as it is called. Just to give a little bit of background on where I come from, I'm with Southwest Division. I know there's a transition that you all are aware of. I come from a Camp Pendleton team down there, and that is not a BRAC base. That's an operating base, but I have been working with the IR program there for several years, and some very similar situations there that exist at Mare Island. So I'm hoping that experience will help me. I also helped manage the IR program at the Mountain Warfare Training Center, not too far from here, but up in the Sierras. It's a Marine Corps base that had some other challenging issues. It's up in the Humboldt National Forest, or Humboldt Toiyabe National Forest, an interesting setting. Very beautiful base. Other than that, I'm glad to be here. And I think we want to start with introductions from the other board members, and let's start to my right with Chip.

(RAB members introduced themselves.)

Ms. Myrna Hayes - If you folks don't mind in the audience, we won't try to have you introduce yourselves, so those of you who want to can go to the podium. But there's a few people I would like to introduce.

This is a somewhat awkward setting for those of you who have never visited with us at the Restoration Advisory Board before. For the last six years, we've met at the Joseph Room of the library, except for March, when they have their two-week book sale as a fund raiser for the library. And we needed another location, and it's always a little awkward, like getting a new classroom at school. So we're having fun figuring out how microphones and the audio system works here, and I'm having a bit of fun sitting in the mayor's chair tonight.

Administrative Business:

Mr. Myrna Hayes - Well, I'll do the next item since you weren't at the last RAB meeting. Are there any changes, or do you accept the minutes from the January meeting as they are in your packet? Everybody read them carefully and decided that they were acceptable to you? Okay. The minutes from the January meeting are then final.

Co-chair Reports:

Navy Co-chair

Mr. Jerry Dunaway - We have a switch in the agenda. We're going to do the reports and put the health-risk assessment presentation on hold until after. And the first report will be from me, which will be fairly short. I'm just picking up on the program and trying to absorb all the information I can. There's a lot of things going on at the base, and I'm learning about them. One of the things Myrna brought up as a challenge for the transition down to the San Diego area is to have the folks here have a local number so they don't have to call long distance to try and contact me. So I set up a number locally here at the base, and that number is 707/562-3104, and we'll have that put on next month's agenda. If you need that number, I can give you a card after the meeting.

Another item is the ECMT (Expanded Conversion Management Team) meeting. The minutes from the last six meetings are available tonight. However, we have only about a dozen copies of all six meetings, so for those of you on the board who need them, feel free to grab those. Otherwise, we have many more copies of last month's ECMT meeting minutes, and those are available for everybody in the room. A quick status on where our team is right now.

Sarah Ann Moore and I -- you were introduced to her last month; she's a lead remedial project manager sitting in the front row of the audience -- we basically fulfilled the environmental positions on the Mare Island Naval Shipyard team down at Southwest Division. However, we're short still on our real estate side. So we're looking to have those filled within one month, two months possibly, our team lead, and then two closure specialists. And those people will be helpful to us, particularly as we are discussing transfers, and we'll need to get those positions filled to make our team full. And that's where we're at for the team. We're trying to get the entire team organized, including the people here at EFA West who are still supporting Mare Island, people at the ROICC office or the resident officer in charge of construction. They're our eyes and ears for when we get into the remediation business for some of our contracts. And then for our caretaker's site office at the base, we want to put that organization together and make that available for the RAB so you can see how the Navy team is going to be organized. Hopefully we'll have that out within a month.

One more item is the schedule for remedial investigations being conducted. I just wanted to advise the board that this year will be a gangbuster year for RIs from what I see on the schedule, and we're looking to have several of them out during this calendar year. And now I'll turn the mike over to Myrna for her report.

Community Co-chair

Ms. Myrna Hayes - Thanks, Jerry. I want to thank the Navy for putting the conversion management team minutes in your folders, if you thought your folders were a little extra thick today, and note that you also should have received lots more paper -- the monthly progress reports for January, February, and March, which we hadn't been getting during the transition period. Those are really useful documents to give you a shortcut rather than reading those gigantic books over at the library. At least they give you a sampling of what's going on the island, and then you can go to some of those documents for a more thorough review. They've been very handy for me to be able to see what is going on at the base with the cleanup.

And as Jerry mentioned, there are, for those of you who are interested in the ECMT meeting minutes from the last few months, when we didn't get them, again during the transition period, I see that we do have now November, January, and February, and those are in handy packets right here. So you might want to pick up one during the break.

Whenever our members make the news, I like to make sure they get credit, so here we have Rob Schonholtz. This was a Flyway Festival newspaper article from the *Vacaville Reporter*, and here we have him on the front page, front and center. Congratulations, Rob, on your debut in the media. It's one of about a hundred of these photos that have gotten out all over the Bay Area press. So I'll pass it around with the really nice full-page spread that the *Napa Register* did the week after the festival, all in color.

One other thing I noticed in our packets is this one-pager called Mare Island FY 2000 Disposal Execution. Without being an acronym, it sounds kind of deadly, but maybe someone can explain what that goes to. Kelly?

Ms. Kelly Ryan - It came off an attachment from one of the ECMT meetings.

Ms. Myrna Hayes - That's what that is. And then I feel like we should have a moment of silence, shed a tear or two. Wednesday was John Randell's last day of employment on the base, and he's happily retired and should be ensconced at his home in Murphys, California, on a permanent basis, if you believe that about John. It's a sad moment for us because all of you have worked with him in some capacity or another.

But it's a happy day for him, I think, after over 30 years -- 35 years -- of federal service and recently with Westin. But we've grown to cherish him as a friend and colleague and as somebody who we believed in the Navy's remedial process and unexploded ordnance, one of the more tricky areas of cleanup to gain public trust in. And I will miss the tremendous friend that he was to this community.

And what he inspired in me was the belief that we were worth it, as a community, having the very best cleanup that could possibly take place, and that more than once when I believed my effort, and maybe the rest of the community members' effort, on the RAB wasn't worth the energy, John was the first to reprimand me and say that wasn't true and describe very persuasively the contribution that we did make.

But one of the things that Diana did is, that after our last RAB newsletter came out in August of '98, we now have a new RAB newsletter.

Ms. Diana Krevsky - It's a news brief.

Ms. Myrna Hayes - It's a news brief: "Randell retires, the RAB will miss his high-caliber UXO presentations." It goes on in a bit of a spoof and describes our experience with him. And she presented this on behalf of the RAB to him at his retirement on Tuesday. I'll just pass that around. So that concludes my co-chair's report. And since we're going to switch our agenda around, Jerry, why don't you take off on these lead reports.

Mr. Jerry Dunaway - Thank you, Myrna. The next report is from the community from Diana.

Subcommittee Reports:

Community Outreach Focus Group

Ms. Diana Krevsky - Well, two things. Just a follow-up on John Randell. It came as quite a surprise, and I did take liberties to represent all the community members of the RAB, very

quickly because of the short notice, but I felt he was a faithful attendee of the RAB meetings and supporter of us wholeheartedly, believing, like Myrna said, that we are making a contribution. And it's quite a loss not to have him around, but he did promise to attend meetings in the future, at least maybe one.

And I have finally this survey of Mare Island workers and the environmental survey that we started last year, and I have some copies, and there's the full copy which is available that has all the respondents, the list of businesses, and the calculation of results for the survey. And I have just the short form, which I'm going to pass out mostly for the RAB. It's just a two-page result, and so I'll be handing those out to everyone whether you want them or not. But we finally finished it, and it will provide an interesting short view of what some people think about the cleanup at Mare Island -- it's more like an exit poll, like I've said in the past, because it's a very small amount that returned. Maybe 250 or 300 forms that were handed out, but it does give something to think about. And so it is also a community-outreach vehicle to make people aware that the RAB exists and that they can attend the meetings.

Mr. Jerry Dunaway - Thank you, Diana. Our next report is on natural resources from Jerry Karr.

Natural Resources

- Q. Mr. Jerry Karr - Nothing really to report on the resources front, but a question of you, Jerry. This phone number, does that roll over to you in San Diego, or is it an answering machine, or how does that work?
- A. Mr. Jerry Dunaway - That is a voice-mail system I'll be checking at the end of each day, or more frequently as needed. Thanks, Jerry. Next will be the technical report from Paula Tygielski.

Technical

Ms. Paula Tygielski - We actually had two meetings, one of which I attended. They were training on the Arc View software. The first one I attended, and having not attended the original session I found it a little overwhelming, and then the second meeting I did not attend. So maybe someone else can fill us in on the second meeting.

Mr. Jim O'Loughlin - I'll fill in. My name's Jim O'Loughlin. The second meeting was the second training session on the Arc View program, and four or five of us were there. It was a small group, so we got a lot of individual attention from Mike, and he ran through a few case studies on putting together maps of the dredge ponds and the three dredge ponds that are for pickleweed, and Myrna was very good at drawing these maps that we did. And I believe we completed our present schedule of training in the Arc View program. I'd like to thank the Navy for providing us with a teacher and the equipment as part of the Technical Assistance for Public Participation program.

Mr. Jerry Dunaway - Did you have anything more to add, Paula?

Ms. Paula Tygielski - Just that I also am going to miss John Randell. His presentations were always so interesting.

Mr. Jerry Dunaway - Thank you, Paula. Thank you, Jim. The next one is the transition and reuse report, and that is from Cynthia Marquez.

Transition and Reuse

Ms. Cynthia Marquez - I'd like to preface my presentation -- I have a report, but I'm just concerned about something in the ECMT meeting minutes on the second page.

Ms. Myrna Hayes - The current one? The March 1 meeting?

Ms. Cynthia Marquez - The March 1 meeting. And I read this just before the meeting, and second to the last paragraph, the last sentence -- and I'm quoting verbatim -- "he noted that there appears to be an ongoing issue with the RAB focusing on reuse instead of restoration topics." So now I don't know what this means as far as the transition reuse committee is concerned.

In spite of that, we did have a meeting this evening before the RAB meeting, and I'm going to report now, and Adam will add to my report. We decided to present a framework to the committee, and John Cerini will be inviting Craig Whittam, community development program manager, and we're hoping that we can have this presentation at the next RAB meeting. And then, also, John Cerini will present the corporate agreement as related to reuse. John Cerini is the assistant maintenance superintendent for operations. So we would like to have them present at the next meeting, the EDC and the corporate agreement.

And we'd also like to know about the tour, because we had proposed a tour of the island several meetings ago, and we have mentioned it several times, so I hope we can have the tour as soon as possible. And then the committee decided to formulate a long-term plan as far as the transition reuse committee is concerned, what we want to accomplish, and we would put in a time frame there.

As I said, we would have a framework for the start, and we will follow with the developers. We're going to invite Lennar and Westin first, and then we'll invite representatives from establishments from the island. We are also proposing a community forum to discuss some issues with the community, and I'd like to start with the Filipino community simply because I come from that community and I'm more comfortable with that. We would go on to the other communities.

We'd like to work with Diana on this project. This would be mainly a community-outreach project, and we would help with that and the Filipino American Social Services under Mel Orpilla is willing to talk with Myrna and the rest. That's the report. Thank you.

Ms. Diana Krevsky - In response, I don't see why there should be a sharp delineation between the two groups. So I think it's fine if you wanted to take the initiative, I'd be perfectly willing to help, but that's fine. It's community outreach. It doesn't matter what form it takes and who does it. It's always welcome.

Ms. Cynthia Marquez - Thank you.

Ms. Myrna Hayes - I wanted to respond to this sentence here that is purported to be something Mr. DaSilva said, noting, as Cynthia did, quoting his statement as noted in the minutes, he noted that there appears to be an ongoing issue with the RAB focusing on reuse instead of restoration topics? Well, Mr. DaSilva isn't here tonight, and I can't confirm that this is exactly what he said or that it is a good representation of what he said, but I hope it is because I hope that means that the minutes are more reflective of the meetings than they were in the past, because we spent hours having the regulators tell us that the minutes were inaccurate and correcting the the minutes. And if this truly is what Mr. DaSilva said, the poor chap simply doesn't get what the RAB's about.

And I would, through the city representative, invite Mr. DaSilva to the RAB or to some briefing. I'd be happy to participate outside the RAB in bringing him up to speed on the purpose of the RAB, because we really don't have any place here as community members, regulators, and agency representatives discussing environmental remediation of a base that isn't planned to be reused; and, in fact, the guidance is so explicit that I ought to carry it around in my purse or something with a credit card, because the old Navy and the current City seem to think that the RAB doesn't have any business talking about reuse, and they're married. There's no way to talk about environmental remediation without talking about reuse.

The reuse plan is what drives the cleanup. It's what drives the prioritization of the dollars for the cleanup. We wouldn't be doing the cleanup, as far as I can tell, if it weren't for the fact that we're a BRAC base and we happen to be reusing it for community uses. Even reading these minutes, you start to giggle because of the misinformation that these poor folks have who don't attend the RAB meetings and don't understand what their purpose is and yet hold these somewhat secret meetings and talk about what they think we do and what we're supposed to do.

So maybe next time, at least, I'll bring my dog-eared copy of the guidance so we can reaffirm that your subgroup does have a purpose, Cynthia, and I, for one, am very happy that you've taken up the chairing of it and bringing people together to discuss these issues.

Ms. Cynthia Marquez - Thank you.

Mr. Jerry Dunaway - Thank you for your report, Cynthia. I need to address a few of the questions that you made. The minutes -- I'm not exactly sure how the ECMT is operated or will

operate. I know there are some issues there. As the Navy and as the BRAC program philosophically tries to address taking a base from a military use to nonmilitary use, we really don't direct how the local community will reuse the area. That's really up to the City to develop. There is some tie to how we do our restoration work in concert with that, and certainly the issue of the federal government trying to dictate to a local government, that's been an issue that started with our founding fathers.

So it sounds like something that needs to be worked out, but I really don't have a position on how the ECMT addresses that. And I know Myrna has made that an issue and brought that to my attention. That's something that I'll see what I can do or what the Navy can do and help the RAB understand that process.

For some understanding, I come from a background of working with several cities. I work in the consulting industry, in the San Diego and Southern California area, and work for many cities on helping build better cities there. Maybe I can give some assistance here, but again our focus at DoD is that we don't do economic development specifically. We're just trying to reduce our costs at doing what we do best, and that is to provide a Navy for national defense.

The request for the EDC corporate agreement, I'm not sure where that is as far as how final it is. It sounds like it is final and you want a presentation. I'll see what we need to do to get that.

Mr. John Cerini - My suggestion on both those items is that they stand as items that we would like to have, and as far as whether you're able to have it next meeting or in a future meeting, we can work with you on that.

Ms. Myrna Hayes - That's a good recommendation.

Mr. Jerry Dunaway - Thank you, John. Would you like to make a comment?

Mr. Jerry Karr - Just a question. As all of us certainly appreciate getting these meeting minutes, these ECMT meeting minutes, I would like to make a request that we could get them when our package is mailed to us with the agenda and the previous meeting minutes for the RAB so that we could have a chance to digest them before we get here and struggle through them while we're conducting this meeting. So just a request that if we could get these minutes in our packet.

Mr. Rob Schonholtz - Jerry? Another request of you, because I got here prepared to do it right now, but in flipping through these same minutes, I noticed that a vote was taken and the vote of those who did vote was three for and three against, and I see some of the members didn't vote. I wonder if you could find out for us what the Navy's ground rules are along those lines, whether the Navy's meeting and they break ties or whether it must be

unanimous or must be two-thirds or whatever the rules may be. It seems that we came within a hair's breadth of actually being invited to attend these meetings.

Mr. Jerry Dunaway - I'll look into that. Thanks, John, for offering the presentation on the EDC agreement.

Mr. Chip Gribble - The "old" Navy I guess is one way to put it -- has not provided an orientation for new RAB members in the longest time, much less a tour for any RAB members. And I understand that we have a new group of people from the Navy who are now working on this project, but I think it's important that you guys understand that it's way overdue. It's an embarrassment. Many of these people, I don't know that they've ever been on Mare Island before, are current RAB members. I think that's something that needs to be addressed as soon as you can arrange for that.

As far as this RAB understanding the line between reuse versus environmental issues, this RAB has understood that better than any that I'm aware of. And I don't mean to speak for Dick Logar -- I don't think I ever have -- but in all objectivity, in all fairness, if Dick were here today, I would expect that Dick would say the same thing, that this RAB has always understood that line and respected that line. And then, when we get right down to it, that issue was dead in 1996 when the City approved their reuse plan.

That issue really relates to when the cities or the LRAs, the Local Reuse Authorities, were defining their reuse plan, and the concern was that these RABs would become a forum for disenfranchised or disgruntled people to try to manipulate that process to insert their own views into that reuse-plan process, and we all agreed that that was inappropriate for this type of a forum and that the appropriate forum was at the city hall in the development-reuse plan.

That reuse plan is finalized. Nobody here has ever debated or focused on "do you want a golf course here or a shopping mall here or a Disneyland there or a park or whatever," but there are genuine legitimate concerns with reuse with this RAB. Reuse is a driver for a lot of the cleanup right now. It affects the schedules. It affects the prioritization. It affects the funding. It affects what's going to get done now and what's not going to get done. And to that extent, I agree that this is an appropriate forum and that's the way they've always seen it, to give you a little background on this RAB.

Mr. Jerry Dunaway - Thanks, Chip, for the comment.

Ms. Diana Krevsky - Just to add to Chip's list, it also affects the levels of cleanup, which is often a concern of the RAB.

Mr. Jerry Dunaway - Certainly. That is how it directly affects restoration. The other item that Cynthia mentioned, the site tour for new members, that is something that is in the works.

We realize there is some period of time in which that has not happened. We're working with our counterparts, what you call the old Navy. Actually, they're still the same Navy to us.

We actually want to add some to that, maybe work on a Bay Area RAB training session to help RAB members kind of understand the purpose of the RAB as the department of the Navy sees it, and take that a step further instead of just touring the base, seeing how the rest of the Bay Area is handling their function as a RAB member or as RAB institutions.

Finally, the community outreach comments, sounds like Cynthia is making some progress there. I don't know the actual history about how you're doing outreach, but it sounds like that might be an interesting method to try and stimulate some energy into the RAB from the community. With that, if there are no other comments, the City report from John Cerini.

Ms. Myrna Hayes - John, if I could interrupt, I think this --

Mr. John Cerini - Oh, no, you can't interrupt.

Ms. Myrna Hayes - Well, I think I can, as your boss is here. I've invited Mayor Anthony Intintoli of Vallejo to come over and say a few words to us, at least introduce himself to RAB members who may never have met him -- the new/old mayor, speaking of the old Navy. And also, Tony, to introduce you to our new BRAC environmental coordinator for Mare Island, Jerry Dunaway. And his team is here tonight from San Diego, along with him, and I thought you might want to make a few remarks, since we're in your home turf here.

Mr. Anthony Intintoli - Sure. First, I wanted to come down. This is perhaps your first meeting since I took office, or is it --

Ms. Myrna Hayes - January, February, March.

Mr. Anthony Intintoli - You're doing it every month?

Ms. Myrna Hayes - Yeah.

Mr. Anthony Intintoli - Well, good for you. I was here with some of the members, with Myrna and some of the others who were part of the original RAB. As the Navy created the RAB, at the time they did, it was clear that they wanted to generate a level of comfort in the community and that community input and advice were an important part of the program they were initiating when they started base closure.

And I wanted to assure you that that continues to be the case, and that you can expect that, as in the past, you'll get total cooperation for whatever you need from us. It's not

very much in terms of financial resources, but whatever we can do to help you, and we are very anxious to, and welcome your input. So I'm at your disposal. If you need me to appear at a meeting on some substantive issue, be sure to let me know. I'm happy to do that.

You know that we're looking at various scenarios for trying to move the base ahead toward redevelopment in the sense of developed over again, and part of that may involve efforts to what's called an early transfer, and I wanted to assure you that that is not something that anyone needs to fear, that the objective of that would be to enable the city to gain control of the property and to turn it into the various purposes for which the plan was created, much of which has to do with the recreation of jobs, but it also has to do with open space; it has to do with recreation; it has to do with historical areas, and so forth.

And the reason why early transfer is something we're looking at is that there is an interest, on the part of the Pentagon, to go forward with more base closures, and if there are more base closures, you can be sure that there will be less and less money available to effectively clean up and reuse the bases. The competition for the funds will increase. There'll be less to go around and even less adequate than funding has been thus far.

So the objective of that would be to arrive at some negotiated figure which we think would be adequate to do the cleanup we can anticipate, and then to reach an agreement whereby there would be a transfer of the responsibilities to the City, and then, subject to the state EPA and other regulatory agencies, we would then have control of the timetable for cleanup and for reuse.

Now, with things the way they are, with everything depending on year-to-year federal budgeting, we can be in a process that could take 40 or 50 years before you see a cleanup of the facility; and that's not something this community can wait for. So we're hoping that we'll be able to successfully negotiate that. I'm looking to having your input, having a level of confidence from you that nobody wants to have cleanup that is not adequate, that is not appropriate -- and you can be sure that there are state agencies that would govern that entire process and would insist that it be done properly.

But I would ask you, also, to be part of a proactive solution to this issue rather than be fear of somehow the City having an agenda to simply take it on any terms or reuse it on any terms. That isn't consistent with anything I've ever done or the City's done with respect to Mare Island. So with that, I guess there's not much more specific I can report. I'll be making a trip to Washington in a couple of weeks to set up a negotiating team, to work toward that goal.

Mr. Jerry Dunaway - Chip, would you like to make a comment?

Mr. Chip Gribble - Chip Gribble with California EPA. I think there are a lot of pluses or potential pluses with an early-transfer idea. There are also some potential shortcomings, which I think would be important for you to be aware of if it hasn't occurred to you already. One of the things that Dick Logar and Bonnie and I, in days past, predicted that might come to pass at one point in time would be that these developers would come in with early-transfer proposals and "cherry-pick," was the term that Dick liked to use, take the developable parts of the island, that those would be accelerated, those would be funded, and the other parts of the island that didn't have that big economic driver would sit there and not be remedied.

Mr. Anthony Intintoli - You're absolutely right.

Mr. Chip Gribble - The two biggest tickets that I'm aware of, one is offshore and the other is Area H, which includes the landfill area. Those don't have a direct economic tie to Lennar or Legacy that I understand. That property is not going to them if these early transfers are allowed to happen and somehow there isn't a tie-in to have these people take those areas as well, and then I can see those parts being left for 40 or 50 years or even longer.

Mr. Anthony Intintoli - I think you're right, and it's not that I've thought of everything, but that is one issue that's been discussed. And I would like to achieve as much of that as we can in this process, as much of the property taken care of as possible. And what I always have to do is be working toward what I know would be perfect versus what I know I might be able to do.

And I'm not sure how far I'll get, but what I would like you to do in that process is, since you are aware of those issues, as we go through this process, make contact with the folks here in the city who are working on it so that we understand those things. I'm sure there are other issues that will happen as we go along. Whatever expertise you gained over the last -- how many years is it now? Six years? Whatever that expertise is -- and I'm sure it's substantial -- make it available on a timetable that will enable us to be able to get the best use out of it.

So thank you for asking the question tonight. It's going to be a hard process, folks. This whole thing with Mare Island is going to be a long process, and it's going to be a lot of work. So thank you for sticking with it the six years. See you in another six. All right. And as I said, I'm always available to come down. If there's something in the process that gives concern, there's an article in the paper or something or some telephone call and it raises a concern that we are not thinking about, be sure to just call, and then I'll come down here and address it. I'll either bring somebody from staff who can answer the details, or I'll try it myself. Anything else for tonight? Yes.

Mr. Jerry Dunaway - I was just going to thank you for your comments and for attending tonight. Are there any other questions for the mayor before he leaves the podium?

Ms. Myrna Hayes - Tony, I want to thank you on such short notice. I ran down late Tuesday night, they were still in session, and asked you to come over. And I really do appreciate your willingness to jump at the opportunity. The RAB was invented, as you'll recall, as an opportunity for three-way communication between the community, the regulators, and the agency. And so that you know, and the rest of the council, normally we meet the last Thursday of every month, 7:00 to 9:00, in the Joseph Room at the library. We just happened to need this facility this evening, and thank you very much for making it available to us.

And as you are only a phone call away, I hope you will encourage staff to see us as a resource. We have some issues we discussed before you came in where we are not seen as a resource but as a hindrance to a certain division of the staff, and so it's heartening to me to hear you acknowledge this tremendous resource. Folks here come from all over. Jim is from Napa, a retired county planner, and a biologist, professionals from all walks of life, and from the communities, a chemistry teacher from Benicia, been on since day one -- and I hope that your staff will see us as a resource rather than how we may be perceived as troublemakers. So we'll invite them to give us a call. And congratulations on being back on board.

Mr. Anthony Intintoli - Thanks, Myrna.

Mr. Jerry Dunaway - Just on the comment of early transfer and the potential for delaying other cleanup, that certainly isn't something that my management would endorse. We're not going to delay cleanup on other areas that may not be economically attractive to developers. We want to clean up the base and really focus our resources again on what our mission is. I hope that you don't think an early transfer will result in that. That is not in our plan. We do not plan to be here 40 years doing cleanup. John, do you have anything else to report?

City Report

Mr. John Cerini - I want to apologize for not being able to make it to the last meeting. The only other item is that we recently began working with Department of Health Services to evaluate the water system and to ensure that when it comes time to transfer to the City that it meets all the requirements. Basically, that's all.

Mr. Jerry Dunaway - Thank you, John. Our last report will be from the regulatory agencies, from Chip Gribble and Bonnie Arthur. Chip -

Regulatory Agency

Mr. Chip Gribble - Bonnie and I usually stand up in front together and do this jointly, but we'll just take it separately.

Mr. Chip Gribble - Okay, currently the department is working on remedial action plans to support

transfer for two areas: the north end of the island which is called the clean parcel section of Investigation Area A-1; the other RAP is for Investigation Area E, which is essentially the hill. These documents have to go through a 30-day public comment period, and at this point we're anticipating that that 30-day public comment period will start early to mid-April and run to roughly mid-May. If we can keep to that time frame, then we're probably looking at having that property in a transferable category by the 1st of June.

Let me just go over the remedial action plan for the clean parcels in A-1. Essentially we'll state that, for that particular acreage, there are no environmental issues and therefore no remedy is necessary, and we've done X, Y, and Z in terms of our analysis or assessment to reach that conclusion. The other RAP, remedial action plan, for investigation Area E, the hill -- that includes the golf course and the rest of the hill -- does include a remedy for the golf course part only; and the remedy would be for a deed restriction to restrict the reuse of that area to prohibit residential and some other more sensitive uses.

In effect, it would allow the golf course to continue being used as a golf course. And the concern there is from pesticide residues, specifically elevated arsenic concentrations, from normally applied pesticides. We think that the concentrations that remain there are acceptable for that type of a use, but not acceptable for more sensitive uses, like residential reuse.

The rest of the hill, we have no further concerns with, and that remedial action plan will present the steps that we went through, as well as the questions that we addressed and the Navy addressed to reach a conclusion that no action is necessary, that there are no environmental concerns there. You might find it odd that the department is writing those documents, and it is unusual. Ordinarily, the Navy submits those documents to us and we review them, and then we go to a public-comment period with the Navy. It's unfortunate that the Navy has chosen not to write these documents for -- I'm trying to be objective here. I'd say they think it's precedent setting in a way that's unfavorable or unnecessary, and we disagree.

In the interest of trying to keep these schedules on track and this property moving toward a transfer, we've taken the initiative to write the documents and submit them on our own. The Navy is providing some support in terms of the mailings, supporting the public meetings that we need to have. And by the way, I believe that public meeting that is required, we're going to schedule for the same day as the next month's RAB meeting, and we're going to arrange the first part of the meeting as a public meeting. We will open the public meeting. We will complete that, and then we will close the public meeting and then start the RAB meeting.

So, in effect, the RAB meeting will be abbreviated next month, but much of the time will be taken up with the public meeting requirement. I also want to pass out a flyer here. The department is going to hold a public workshop on unexploded ordnance in Sacramento on

April 6, and I'll pass these out so everybody will get one. It's unfortunate that John Randell retired when he did. It would have been nice for him to be there, although I'm sure that other people from the Westin team are planning to attend.

One of the things I've been trying to achieve is to get the department to hire another project manager because I think the workload justified it, and the department finally did hire another project manager. I'm very excited to introduce to you Mr. Bob Boggs, a new person with the Department of Substance Control. He's got a lot of experience, and I suspect that this is going to work out really well and he will be making a significant contribution. So Bob and I will be working together on this project as two project managers.

And by the way, Jerry, I want you to pay attention to this because this is important. The department has gone through significant efforts to try to fund some very creative ways to try to fund this extra person, and by the way, Bob's new phone number is 1-900 -- (laughter) . . .

Mr. Jerry Dunaway - Would that be --

Mr. Chip Gribble - Seriously, Bob's phone number is 510/540-3751, and his fax number is the same as mine, 510/849-5285. Next item is -- actually, I have a question.

Q. On the monthly progress reports, who's writing those for the Navy now, Jerry?

Q. Mr. Jerry Dunaway - Progress reports in which regard? For the RAB?

A. Mr. Chip Gribble - We have three monthly progress reports that were passed out today, and I'm curious as to who's putting those together for you guys now.

A. Mr. Jerry Dunaway - Tetra Tech, contractor. I believe that's consistent with previous RABs.

Mr. Chip Gribble - One more point I want to cover is site control. This is something that we've noted is a current concern with the department, and I've already talked to Jerry about this. Over the years, since the base has closed, we've gone through two rounds of evaluations for site control, and both times we established additional fencing and additional signage. And it seems as though what happens invariably is the signs go away over time and the fences start to fall over or get taken down by whatever is going on over there, in addition to which there are more people over there all the time, increasing reuse activity.

And we feel there's a need to periodically reassess site control from the top left-hand corner to the bottom of the page. And currently there are some very unsettling situations out there with respect to site control, and I think the City needs to understand that, the Navy needs to understand that, and we all need to work on that as soon as we can manage to do so. And that's it for my list today.

Ms. Bonnie Arthur - I just wanted to add a few more points. Right now, documents under review that I'm looking at include the Installation Restoration Site 8, the draft final remedial

investigation report. We're still reviewing that. We're going to be a couple of weeks late on that, so I want to let people know that's out there. It was some time ago that it came in draft. The Navy collected some additional samples and installed additional piezometers to get a better idea of groundwater flow out there. So that information is very helpful to the report.

Again, take a look at that if you have a chance. I know you don't have a lot of time with all that's going on in your lives, but if you could pick up a copy and look at a chapter, whatever it may be, it's still helpful to get your comments. So give them to us, one of the technical advisory groups, a focus group committee chair, or whomever, because that's an important report. What they're establishing is that the investigations are complete and no action is necessary, so that's a very important decision for a site.

We also finished review of the final, final document of the tedious technical memorandums that we've been talking about for years for Investigation Area A-1. So we're happy to have that behind us, and it's summarized for you in the remedial action plan. But the groundwater report we had a meeting about earlier this month, and I sent a final comment letter in Monday, and I think Chip's went out too. Or is it on the way? Put him on the spot.

Mr. Chip Gribble - It's on the way.

Ms. Bonnie Arthur - It has to be done before his report's done, so it's going to be done before that public comment period starts. At the end, one of the big RIs that is coming in next for one of the industrial areas. It's going to encompass quite a bit of an area. It's either C-1 or C-2. And that's going to come in probably next month and be on the 60-day public-comment period, so keep a lookout for that because those sites haven't been covered in a remedial investigation report in over three years. So there's a lot of information, and that is one of the larger areas that Lennar is very interested in moving forward on.

Mr. Jerry Dunaway - Thank you, Chip. Thank you, Bonnie. Comment?

C. Ms. Myrna Hayes - Bonnie's report telling us about some of the documents coming up reminds me that there is one thing we used to get in our packet that was useful, and that was a six-month document report or -- Wally, you used to do that. What do you call that thing? Oh, Kelly used to do it.

Ms. Kelly Ryan - They're attached to your monthly progress reports, so they're an attachment on there. And you haven't been getting those, but you have them now.

Ms. Myrna Hayes - Thanks, Kelly. Because that's helpful for us to be looking ahead at what our workload is coming up.

Mr. Jerry Dunaway - Chip, on some of your comments -- thank you for getting another staff member on board. Hopefully that will help. As far as site control, we're evaluating that too. We see a need at some of the sites, so we'll be planning signage as well as fencing. That is a shared responsibility, however, to start transitioning as some of the tenants take control of the land through the City or otherwise, and we need to make sure we can understand that process and we all learn from that. So we'd like to visit the base, and it's probably important for you to know who's there, and so we can summarize occupancy on the base at some level, too, and understand how to address compliance issues of this nature.

That wraps up the reports from the focus groups, and we have the public comment that we want to enter into. If there are any public members who want to make a comment, the podium is up at the right. If not, we'll move forward and take a break at this point. A ten-minute break, and we'll go into the health-risk-assessment presentation after that.

(A recess was taken from 8:11 p.m. to 8:25 p.m.)

Ms. Myrna Hayes - Welcome back, everyone. Thank Ken Browne for better and better treats. And to keep your food fund going, I brought a pass-the-hat hat tonight. No money for food comes from the federal budget.

Bonnie is going to give a presentation that we were expecting another EPA person to give on health-risk assessment. And she's going to really be a champion tonight and wing it. We really appreciate you pinch hitting tonight.

Health Risk Assessment

Ms. Bonnie Arthur - If you have a lot of technical questions tonight, make sure you stick around and ask Michael, because he's very good and knows his stuff. Risk assessment's come up a lot as a topic of interest, so it was funny, the RAPs were going to be on the agenda tonight, and we said, okay, we'll put an agreed-risk-assessment filler. Then it ended up that the RAPs are going to be next month and the risk assessment became a bigger portion, and so I invited Sophia Serda, one of our senior toxicologists, to come and give a talk.

And she and I worked on some overheads together, and she told me she was too ill today to come, and she has the overheads. And so part of our proceedings was to give you a chance to see this video that EAP has put together. It's only been shown to a handful of communities across the United States. Actually, it's pretty good as far as risk-assessment videos go, but the sound isn't working tonight, so you're not going to get that either.

Risk assessment's such a dry topic to many people, so I thought the video might liven it up a little. I think people are afraid to open it because of all the calculations. However, there

are enough people with strong math backgrounds on the RAB that I think you might be able to tackle them.

There are a lot of risk assessments coming in as part of the remedial investigation reports, and that information from the risk assessments is what the risk managers use. And Chip and I are risk managers. The Navy's a risk manager. We use the information from the risk assessments to make decisions about what kind of cleanup is going to be required.

One of the criticisms we hear a lot about risk assessments is that we're all just trying to risk away the problem. You hear that as a common complaint. From what I see, there could be a lot of improvement. Risk assessments are mandated by law. We're kind of stuck with them, but by getting communities involved in the process, we can make our risk assessments -- the more specific it is, the better it's going to be in the long run.

So I'll go on my spiel again about how important it is for you to look at the document, look at part of the document. I'm going to discuss a few of the points you can focus on, some of the key jump-off assumptions that are made in the process of risk assessment, and you can take a look at those and see if you agree with them or not, as well as look at the conclusions.

So, there are lots of risk assessments coming in. There's one in now on IR 8, a draft final. So maybe next time we'll try to get this video, one of these times, if you're interested. Another thing that Sophia and I wanted was to get more input about which areas of risk assessment you'd be interested in. So that's one thing that I can take back to her, after I give my short presentation tonight on risk assessment.

One thing I do have is a handout for you all. One quick thing, before I go over one of these charts with you and really put you to sleep, EPA has guidance on risk assessments. ETSC also has guidance on risk assessments. If you want a copy of any of those, please let Chip or me know, and we can try to get you copies. Through EPA, for community members, those are free of charge. We charge everybody else, but not community members. If you look on page 3 of the handout, it goes over the four basic steps of what a risk assessment entails.

And the data collection and evaluation are the part of the remedial investigation report that looks at the accuracy of the data collection. In the regulation, it says that we must investigate the full vertical and horizontal extent of contamination at sites. That is real broad. As you can tell, there's a lot of room for interpretation.

But what Chip and I do when we view the remedial investigations is ask, do we have enough data, do we have enough samples collected to be analyzed for the right analytes. That's really important. When you look at some sites -- and this has happened at a few sites at Mare Island we've gone back to dioxin sampling. Everybody didn't analyze for

dioxins in prior years. Now that we're a little more knowledgeable about dioxins, we go back and we do more dioxin sampling on some of these sites if we think it's necessary.

The exposure assessment is one part that is key for you all to be involved in, and this is where the reuse plan directly impacts the risk assessment. In our case, luckily we already have an accrued reuse plan, and we use that as the basis for setting up some of the exposure scenarios. For example, for IR 8, the risk assessment that just came in, they did a scenario with an industrial worker, what we would expect with the reuse plan stipulates that it's going to be an area with industrial or commercial activity. What we've done, in one area where we have had agreement with the Navy -- and there have been risk assessments turned in for Mare Island before. Three years ago there was two sets -- actually one large volume covering many sites.

So there's a lot of agreement between the regulatory agencies and the Navy about how some of the risk assessments are done, but I'm also going to point out some of the areas of disagreement too. And one of the areas we've been very happy that the Navy's agreed to add is the residential scenario for all the IR sites, which is part of the residential scenario, and they also have a way the residential person might be exposed to homegrown produce.

And that's a big deal for us. It's something that we have had to fight with responsible parties at other sites to get them to include. And so you'll see that in these risk assessments. You're going to wonder what are you guys talking about? This area isn't even going to be used for residential, and you're also looking at what kind of fruits and vegetables these people are going to be eating. But we feel like it's a real important assessment to be made, to determine what kind of land-use controls we might have to put on the land to make sure it doesn't go to residential at some point, if these calculations would show that it would be unsafe for a residential person to be out there.

So one important thing, if you're going to pick up a risk assessment, is to look at what exposure pathways were chosen. And you'll see what's in a lot of risk assessments, we're going to have recreational scenarios sometimes, because maybe it's bordering right on a recreational area that's already been designated in the reuse plan. So we want to have that as an additional exposure scenario that we look at.

And then the toxicity assessment is looking at what chemicals of concern we have and pulling together the database of the data. And it's worldwide data that's collected and put into these databases that we all use. It's called IRIS, and I apologize, I don't know what the acronym stands for. Kelly can probably tell you. I'll put her on the spot.

Ms. Kelly Ryan - Integrated Risk Information System.

Ms. Bonnie Arthur - That sounds right to me. But the IRIS system is universally accepted, between the State and the EPA regulators, as what they can use. There's some differences

on some of the chemicals between the State of California and EPA, and the Navy generally, with Mare Island, has gone ahead and done the additional dual calculations. So for those chemicals -- beryllium used to be one of them -- but for lead there's a different calculation, and I'm not sure which other metals. But the Navy has agreed to go ahead and do the dual calculations to show everybody for both the State and the EPA's requests.

So then your risk characterization pulls it all together and lets us know what the risk is. And, again, you're calculating cancer and noncancer end points. So, you hear a lot for the cancer estimates, the risk range, 1×10 to minus 4, one in 10,000, 1×10 to the minus 6, one in a million. That is set in the regs as what is permitted. It's one excess cancer in a population of 10,000 up to -- and then the lower end of the range -- sounds like it's upper end -- but one in a million would be one in a million extra cancer.

And so you'll hear that tossed around a lot, and I think people have a lot of misconceptions about what that is, but we could have a discussion on how that ends up impacting our decisions. So within that risk range, we're required to look at taking action. We're required to take action if it's increasing your risk over one in 10,000. If it's anything less than 1×10 to the minus 4, we're required by law to take action. It's within the risk range where there's a lot of gray area, and that's where you hear a lot of interesting discussions when these risk assessments come in and some of these sites fall in that risk range.

We're going to have discussions that we really need your input for, as to whether we take action or is it okay to not take actions in these cases. So you'll be hearing that a lot. Now, a couple of the specific issues that we haven't reached agreement with the Navy about are how we're going to deal with the risk posed by the ambient metals. As you recall Chip and I discussing over the past year and a half, we finally have agreement with the Navy about which ambient metals are present in the soils at Mare Island. We have two sets of numbers, what we call the fill areas versus the hill areas, which are supposedly more of the native soils, and a couple of the metals are very elevated compared to our basic screening numbers. And so look out for that, because that increases the total risk.

Even before the Navy started doing any of their industrial practices and potentially adding to the risk that is there now, we already have a level of risk posed by those metals that were already in the fill material or the hill. That's one thing that we do still hope to work out. We want to have that presented as a total site risk, where we have what was contributed by the Navy's practices as well as what was already there from the ambient metals.

There is an interesting report that backs up the Navy's proposal about that arsenic level. Chip and I had them do a special study where they looked at potential sources for, why is our arsenic so high in our soils at Mare Island? But that's something to be aware of also. As I said, your input to this process is essential, and if you can just look at part of these or

the conclusions, it would be very helpful.

I don't think it's going to work without community input. It's too important, and you guys are the ones who are living here and who will be here once we're all gone. Some of the topics that may be of interest for you -- Sophia runs through an example of risk calculations for groundwater or for soil, and she runs through the different ways you can be exposed and actually shows the calculations that are completed. That's one example of a more detailed presentation.

We can also do something more on an in-depth discussion of certain chemicals and their toxicity if you're interested in that, which types of studies have been completed. A lot of the data collected on risk assessments that we use on our risks assessments are extrapolated from animal studies, and unfortunately there are some human data available, just by chance workers who were exposed.

So we do have that information too, but the bulk of it is from animal studies. So that is one of the factors that goes into the many areas of uncertainty that exists in the risk assessments. It would be an interesting topic, as you're looking at these remedial investigation reports, to choose a couple of the contaminants and go into more detail.

If you have any other comments or suggestions for a formal presentation in the future, any topics of concern, that would be great. You can either give them to me now or call me later, or always feel free to call Sophia. She's one of our senior toxicologists, and that's her favorite part of her job, talking to community members. And next time I'll bring my own VCR.

Q. Mr. Jerry Karr - Bonnie, I had a question. Are there any areas where ambient levels are greater than acceptable now? You know, we're blessed with a lot of mercury all over this area, and this cinnabar is a component of a lot of the areas around. Is there anything in your review that shows those chemicals?

Ms. Bonnie Arthur - At Mare Island or --

Mr. Jerry Karr - Yes.

Ms. Bonnie Arthur - -- in the general Bay Area?

Mr. Jerry Karr - No, at Mare Island.

A. Ms. Bonnie Arthur - What they do, as part of their ambient-metals reports -- and they've submitted several versions -- is discuss each of those metals of concern, and they had an extra discussion on mercury. From what I've seen, mercury isn't elevated at Mare Island -- we screen it against our EPA preliminary remediation low levels, and we do that as a first screen. And as far as I recall, mercury wasn't one of the numbers. Arsenic was higher than

--

Mr. Jerry Karr - I was just picking a random --

Ms. Bonnie Arthur - Yeah. So arsenic is higher than what we would definitely prefer to see, but we have to accept what is in the fill materials only in terms of the approach That is, you could go and remove all the fill material that makes up Mare Island and clean up all these metals, or you have to look at the fact that it's a starting point, this is our level of risk just to start with.

And then by investigations and the characterization of the other contaminants, we're adding to that, so it's an additive effect. So arsenic and maybe only two other metals are elevated above the preliminary screening levels we use for human health. Did that answer your question or --

(Mr. Jerry Karr nodded his head.)

Ms. Bonnie Arthur - That last report is very interesting reading about some of the reasons why we have the levels of arsenic we do at Mare Island. Any other questions?

Q. Ms. Paula Tygielski - You were talking about how they measure risks in terms of one out of 10,000 cancers, and every time I've heard those talked about, they talk about cancers, but some of the contaminants are not necessarily cancer causing. True?

A. Ms. Bonnie Arthur - Right.

Q. Ms. Paula Tygielski - So then do you also use . . . like lead, for instance, might cause neurological damage?

A. Ms. Bonnie Arthur - Right.

Q. Ms. Paula Tygielski - So then you talk about neurological damage instead of cancer?

A. Ms. Bonnie Arthur - We talk about both in the case of lead. Lead also causes high blood pressure and, like you said, the developmental learning problems in young children, and problems for fetuses and such. So those two are both discussed in the risk assessment, the potential cancer effects and potential noncancer effects. And they're calculated differently. The noncancer number that we look at is what they call a hazard index. The hazard index has to be less than 1. But again, they look at noncancer effects for particular organs, and so those are added up for each -- or the same chemicals that affect one organ, those are added up together, and those have to be less than 1, for example.

Ms. Paula Tygielski - Thank you for that.

Ms. Bonnie Arthur - There's always so much attention on the cancer and the -- 1×10 to the minus 4 and minus 6, but there's a lot of other problems that --

Q. Ms. Paula Tygielski - I just wanted to ask, are these other problems looked at? For instance, the mercury that he mentioned, that's neurological damage. It's not necessarily a carcinogen.

A. Ms. Bonnie Arthur - Right.

Ms. Myrna Hayes - Thank you, Bonnie. And while our next speaker is coming to the podium -- and you'll have to introduce yourself, too, because you're just listed as a hydrological study -- I also want to acknowledge to RAB members that it is ten minutes to 9:00, and to give our speaker credit and the time he needs to present, I'd like to get your permission to go about 10 minutes past 9:00. Is that okay? All right.

And I just wanted to note on your presentation that I just heard an interesting thing. The VA study -- the VA hospitals, or the VA clinics, whatever they're called, the Veterans Administration, is tracking 1,000 workers who loaded Agent Orange into planes during the Vietnam War. And they are tracking them for the effects of dioxin exposure, and they found recently that 17 percent of the general population gets diabetes, but these guys, 25 percent of them have gotten diabetes. And they have no increased levels of cancer in that group.

That was not a finding they expected, and they don't know how to explain it. But that's a good example of what Paula just said that I thought would be interesting too.

Hydrogeological Study

Mr. Mike Foster - Good evening. My name is Mike Foster, and I work for Tetra Tech EM, Inc. I'm bringing this presentation on behalf of the Navy. I am the project manager of Tetra Tech, and the Navy project manager for hydrogeology in the landfill area is Marvin Hillstrom.

We're going to talk about the hydrogeology of the landfill area because it's an important area of Mare Island and because last year, at the end of 1998-1999, we conducted additional hydrogeological investigations of this area, on top of the remedial investigation, where we determined the nature and extent of contamination. And the reason was that there are real concerns, and the data set did not resolve whether there was potential for contamination in the groundwater at the land of Mare Island having a potential to impact areas of wetlands and tidal marshes and the plants and animals living there.

So we designed an investigation specifically to do that, and that's going to be the main focus of what I talk about. But in addition to that, I'm going to introduce the background to that investigation with a very short summary of the hydrogeology, and then I'll get into a little of the detail of the hydrogeological investigation that we conducted, and the study of the interaction between the groundwater and surface water in the area. And then I'll just summarize it for the conclusions.

First, where is the area that I'm talking about? Another technological challenge. Do you

see a dot? This is Mare Island. The area in green is the area that was the original Mare Island, and you can see that, from the western side of Mare Island, there are a series of stippled areas where there are dredge spoil ponds and tidal marshes, and in that is Investigation Area H, which was the landfill areas, and specifically a red area in there -- this is the facility landfill. That's the landfill that has a fence around it and was replaced with the organized landfill material. The landfill here is surrounded by areas of wetland that were former dredge spoil ponds that are now inactive. These are areas of potentially active dredge spoil ponds, and then out here is the tidal marsh, and the solid color here is mud flats.

And the concern is whether contaminated groundwater at this location is going to impact the vegetation and the animal life living out in the tidal marshes here or the wetlands here. The next slide is a schematic diagram of the geology and the hydrogeology of that western side of Mare Island. You can see that there's an upland area. That is the original island, which is predominantly bedrock. And then on the front of Mare Island, on the western side, there is an area that was built out by the Navy either by the process of disposal of dredge spoil, or in the lighter color you see the areas where the Investigation Area H was used for the landfilling purposes with wastewater purposes.

The thin layer of waste materials are the dredge spoil landfill, and mostly they're fine grained, they're silts and clays, but there are also some more sandy layers shown there in the stipple pattern. And this shows how, in our reporting, we divide up the hydrogeology of Mare Island. In the upper silty clay, that's called the shallow-water bearing, basically the very-near-surface materials. And below that is that sandy layer called our intermediate water-bearing zone, and then beneath that lower silty-clay layer is another sandy soil layer we call deepwater-bearing zone. Now, when we were looking at the hydrology of the landfill, the concern is that, within the shallow-water-bearing zone, that water flowing away from there might flow into wetlands or into the tidal marsh, and it wasn't that -- the potential for contamination to then effect plants and animals at those locations.

We did a very detailed investigation of the shallow-water-bearing-zone water. What I'm going to talk about now does not involve the groundwater in the intermediate and deeper zones. Before we went full-steam ahead with the investigation, we already knew a lot about the groundwater at this area; and particularly in the shallow-water-bearing zone, we have a lot of monitoring wells. You see a lot of little dots here. These dots are the locations of monitoring wells, and in those wells we sample to assess contaminant levels, but we also measure water levels, and those help us understand the direction in which groundwater flows, and if it's contaminated, in which direction the contamination is going to flow.

Now, this is a contoured map, and it's been color-coded. So the highest water levels are in this darker blue color. Here's a 17. That means the water level in the landfill area is at 17 feet above sea level. As the colors get lighter, that indicates the levels are lower. These

numbers here represent the elevation of water levels in the groundwater, in the shallow-water-bearing zone. Now, like a topographic map, the contours indicate high areas and low areas.

Now, when you have a groundwater level map, this tells you is that the groundwater will flow from areas of high water elevation into areas of low water elevation. And it's very clear that the landfill has a groundwater mound, and groundwater actually flows radially away from that location. It flows to San Pablo Bay, but it also flows northward towards this Wetland D here, and this other wetland here, Wetland B.

Now, the reason why there is some concern that contamination in the groundwater here might discharge into Wetland B or Wetland D is that these two wetlands actually have water in them for a longer period of time in the dry season than most of the surrounding wetlands. And so there was some concern that that meant they were being fed by groundwater from the landfill, and therefore it was a concern that, if the contaminants here migrate, that they actually will eventually impact it. So it was clear that we needed more detailed data from within the shallow-water-bearing zone, and that's what our investigation aimed to do.

When you're looking at investigating potential interaction between groundwater system and surface-water system, and we have an inland wetland and then we have the shoreline and the San Pablo Bay, this is a very complex hydrologic environment. And so when you investigate those environments, you need to look at several lines of data. There is not a single data set that tells you everything about the hydrological system. It's simply too complex for that.

The approach we take is to collect data of several types, and then what you look for is consistency among them. You look for support between the different data types, and then you hope that at least one of the data types gives you some strong indications of what is happening in the hydrogeology. We took four types of data sets. We put in a series of wells just within the shallow-water-bearing zone, and from those wells we measured groundwater levels similar to normal groundwater levels. We also sampled the water and analyzed the natural chemistry of the water from those wells.

We weren't looking at contaminant chemistry. We were looking at the basic chemical characteristics of this water, because when you look at those things, they tell you a lot about the processes that happen to water and how groundwater may be mixing with the surface water. You can only tell those things when you look at the basic characteristics of water. And when you think about it, in 99 percent of the chemistry in water, actually it's natural salt content, and any contaminants are only a tiny percentage of the chemistry.

So we wanted to look at the natural chemistry. And the things we looked at were the inorganic chemistry, that is, salts and metals that are naturally dissolved, naturally

occurring in groundwater. Then we also looked at stable isotopic composition of groundwater and the tritium contents. Tritium is a naturally occurring radioactive isotope.

So these are the four types of data that we looked at, and we found that the strongest evidence and the strongest indications of the nature of the system came from the groundwater-level data and the tritium data. And although these two data sets didn't have a strong indication of the processes that were happening, they were very important data sets to cross-check. Are they consistent? Can the interpretation that we come to from these two data sets be reconciled with what these data sets say? Because if they don't agree, then you have to question what we interpret from these.

I'm going to show you some results of the investigation, and then I'll summarize. We went out and we had to put in 29 more mini wells. Drilling rigs come in a lot of different sizes. This is a low-impact rig, very small. And we took them out to the tidal marshes and out to the wetland areas, and we installed wells in a series of clusters. In most locations, we put it at a five-foot depth, and then we put another one where the samples were taken, at ten-foot depth, and then a third layer, third level, at a 15-foot depth. At nine separate locations, we put in three multilevel wells-- at five-foot, 10-foot, and a 15-foot interval. What we ultimately had is, not only in a horizontal sense what is the groundwater doing, but groundwater also can flow up and down, so you need to have vertical resolution of your information in order to tell what's happening there.

This map shows the location of all the clusters of wells we put in, the multilevel wells, so each dot here represents those three wells, the five-foot, 10-foot, and 15-foot interval. Then there are also some points here that are previously existing monitoring wells, and typically they do not always occur in different levels. There's not only one sampling point within the shallow-water-bearing zone. Let me show you what the groundwater-level data looks like when you look at the vertical data that comes from these multilevel wells. We've already looked at the groundwater flow map in a map sense where you look down on a picture and you see the hill around the landfill, but now if we look along the lines in a cross section built from a line of data along this line and look sideways at it, what does that look like?

This is kind of a complicated way to say groundwater level profile along A-A. And what this cross-section shows is the ground surface. That's that line there. So we see a big hill here -- that is the landfill itself -- then there's a bit of a dip here. That's a dredge spoil pond. And there's a berm, and it comes down to the low area of the tidal flats, and out here is Wetland B. Each of these vertical lines is either a monitoring well, and this is where the opening of the well is, where the well screen is. Where there are three tick marks, that basically indicates where we have a five-foot, a 10-foot, and a 15-foot cluster of three wells. So in order to contour and to figure out the flow direction in a vertical sense, we measured the water level in each of these wells, and just as in the map, you look at the data at each of these points, and we can construct a contour map.

And what we see is very consistent with the map view I already talked about. We have a big mound in the groundwater associated with the landfill. That much is consistent. But it also shows that some groundwater flows away from this mound in both directions, but very importantly, it flows downwards as well. So these points here, the water level in each of these wells is actually lower. So at the same location, as you measure water level in a five-foot well, it's higher than the water level in the 15-foot well; and that indicates there's a vertical downward gradient to the groundwater flow. And that groundwater flow is consistently downwards, and only when you get out to the far side of the tidal flats is there any indication that the gradient comes upwards.

Over here at Wetland B, the gradient is consistently downwards in the shallow-water-bearing zone. Now, our conclusion from that is, if groundwater is always flowing down, then it can't be just flowing up into the wetlands and being a source of the water in those wetland areas. That is the clearest interpretation of that kind of map. So there are data sets to support that? Indeed, they did. And then they just give you a little bit of information on that. They spoke of tritium. And I won't go over these two, because as I said, these two gave the strongest indication. So the groundwater levels showed consistent downward gradient.

Tritium is a radioactive isotope of hydrogen that is present in the atmosphere across the world, and it's present in rainfall everywhere in very low concentrations and at extremely low levels of radioactivity. Basically it's not a health hazard, but the reason it's in the atmosphere is directly the result of atmospheric testing of nuclear weapons. Now this graph here shows tritium concentrations in rainfall at three locations in the United States -- Portland, Menlo Park and -- not the United States; Ottawa is Canada -- against the year down here. And what it shows is that, at all locations, and this is consistent worldwide, in the period of the most intense atmospheric testing, tritium levels peaked in rainfall, and subsequently -- well, one of the reasons why they stopped doing atmospheric testing was because it was affecting the atmosphere.

But subsequently, levels in rainfall are now very low. They tend to be below about 20 tritium units. The other important thing is that, before 1955, before extensive atmospheric testing, there simply was no measurable tritium in rainfall at all. So if we analyze for tritium concentrations in groundwater and we can measure tritium down to exceedingly low levels -- if we detect any tritium, we know it must come from rainfall after 1955. And if there's no tritium at all -- and we can analyze down to very low levels -- the water must have come from rainfall pre-1955.

So it's a very broad kind of gauge of the age of water, and if you know the age of water, it helps you understand the rate at which water flows in groundwater. Let me give you an example of the kind of results that this led to. Here's a table of the tritium results at one of the wetlands. We had two well clusters, and they showed five-foot results, the 10-foot, and the 15-foot, and color-coded as the previous graph. If we had any detectable tritium --

so here's 7.4 tritium units, 3.4 tritium units -- we know that that water must have come from rainfall after 1955, so we can call that modern water. The green, the nondetectable tritium, we interpreted as being pre-1955.

When we found this consistently at all our sampling locations, that it was in all cases the deepest or the 15-foot monitoring locations, all had no tritium in them, so that means that all of the groundwater at the bottom of the shallow-water-bearing zone is quite old. It's older than 40 years. So that means, in the 40 years of rainfall on Mare Island, that modern water will take more than 40 years to go downwards 15 feet.

Now, what that means is that groundwater flow rates are downwards. We've seen that more water's at the top and it's older downwards, but that the rate of downward migration is very slow and that water at 15-foot levels basically originated before 1955. We also analyzed for inorganic chemistry and for stable isotopes. The results of these were that, actually, most of the groundwater is a very similar chemistry and there was very little difference across any of the samples we took.

And the kind of things we were looking for were, was the chemistry of the groundwater showing any evaporation, so that if it was flowing into the wetlands and evaporating there as they dried through the dry season, could we see any indication of that? We saw a lot of those effects in the data, but the other things we found, the other conclusion we came to was that none of this data was in any way conflicting with the groundwater level or the tritium data that we took. It was a very consistent and internally kind of supporting set of data from four types of data.

As a result of the detailed investigation in the shallow-water-bearing zone, our investigations concluded that groundwater from the landfill is not discharged into the wetlands, that it flows consistently downwards, and that it does not discharge into the tidal marsh areas, but discharges further offshore presumably towards the mud flats or even further out subtidally.

And the other part we found is that the tritium data supports that groundwater flow is very slow and very consistent with some of the hydraulic testing that we've done at the island. This information is reported in a report called the "Supplementary Hydrogeological Investigation in Area H," which was submitted in June last year, so it's in the library. And this is a very short presentation of a very complex and extensive investigation to understand the whole hydrogeologic system of groundwater and the wetlands, and I would hope that we managed to share that with you and that it was helpful. Are there any questions?

- Q. Ms. Diana Krevsky - A question about tritium. When water evaporates, does it -- tritium -- is that a heavy substance, or does it evaporate into the air again? If it came from the air, settled in the water, as that water evaporates, it accumulates and it's heavy and it stays in

the ground?

A. Mr. Mike Foster - Tritium has slightly different properties, as a heavier isotope of hydrogen, than straight nonradioactive hydrogen, but the difference in behavior in a process like evaporation is not nearly as strong as the difference between hydrogen and one of its lighter isotopes, deuterium. And deuterium is one of the stable isotopes we measured, but because the difference in the weight between the deuterium and the hydrogen is much greater than the difference between the hydrogen and the tritium, you'll find that evaporation effects on the concentrations are much more marked. So when we look at evaporation, we tend to stabilize that data. There will be a small difference in properties, but it's not that great.

Q. Ms. Diana Krevsky - So it just stays in place?

A. Mr. Mike Foster - It behaves very much like the hydrogen in the water. Tritium is hydrogen, but it's one of three isotopes of hydrogen. So it behaves very much like water, but with very minor differences in processes like evaporation.

C. Mr. Ken Kloc - I noticed on one of your diagrams that the flow paths for groundwater underneath one of the -- the word slipped my mind -- one Wetland B seems to be flowing into a conduit.

Mr. Mike Foster - The flow pattern converged. That's right. I'm presuming you're referring to this area here? Yes, that's a very good observation. When flow comes together, you have to wonder, where does that go? One of the restrictions of a view like this, it's only two dimensions, and groundwater units are three-dimensional bodies. So what happens is, when water comes together, it flows either into the board or out of the board. And so when you look down onto a map view of this, what you see is that the gradient, the flow direction, converges towards a point, and then will take a path one way or the other. And so you might even want to flip back to the map view, and I'll show how that works.

So what we're looking at is, yes, the flow converges towards here, and then we know that flow goes out this way and then out to San Pablo Bay. And we don't have many data points down here unfortunately, but we infer that groundwater probably also swings around the mound of landfill this way as well. But the flow rates in these dredge spoil ponds is very slow, the conductivities are quite low, so although we have a gradient, actually the rate of flow is very low.

Q. Mr. Rob Schonholtz - If the downward groundwater flow then is very slow, is it correct to figure that the great bulk of the water inputted into the system as rainfall is leaving either as surface runoff or evapo-transpiration?

A. Mr. Foster - That is exactly what I understand to be the situation. These fill up with water every year. Very little of that water -- although groundwater does flow downwards, and when these fill with water, presumably they do soak the ground and do provide some water to the groundwater. The actual volume of that is fairly small because the ground is

fairly impermeable.

What that means is that the fresh water that falls into these wetlands evaporates out, and because it falls as fresh rainfall, it doesn't provide a lot of salts that then evaporate, because we don't see any significantly elevated concentrations of salts around these wetlands. They're not evaporation problems, although the surface water does evaporate.

So, yes, they fill up with the rainfall, but they're ephemeral water bodies. They dry up within a few months. And these stay wetter for longer, and the reason is that they are actually at a lower elevation than most of the other wetlands, and that's probably why they collect more water and they get a greater depth of water at those locations. That's one of the reasons why they stay wetter longer than some of these areas out here that dry out quickly.

Mr. Rob Schonholtz - But that's certainly a pretty well-known phenomenon that happens in some types of wetlands, like rural pools, that there's an awful lot of water shortage shallower than the five-foot depths that even the soil of the top few feet provides water that keeps them going much longer than they would just from direct rainfall. So that doesn't surprise me that you'd find that here as well.

Ms. Myrna Hayes - I just wanted to note that another possibility, since the Wetland B is close to the hill, is that on this side of the river, there are springs in all our hillsides that feed -- when the City of Vallejo doesn't fill them up with dredge materials, they actually do feed year-round freshwater wetland areas, and that might have some impact on the water level.

Mr. Mike Foster - This green line does indicate the area of the original island, so then the ground elevation goes up from here. That is associated also with higher water levels. So groundwater does flow from the upland areas into the areas of dredge spoil ponds and the wetlands in here, as indicated by these arrows here. We did have a well cluster on both sides of this wetland, and the gradients were consistently downwards at both locations. But there is definitely groundwater coming from this side, as well, into this area.

Ms. Myrna Hayes - I really appreciate you staying long enough to give your presentation, and a very interesting presentation, as Bonnie said it would be, and for all of you who stayed later to listen and ask questions. I don't know if there's any public comment, but we do offer that opportunity twice in every meeting. No? Oh, Diana, yes.

Ms. Diana Krevsky - Oh, there it is. That's what I was going to ask about. If John's retirement news brief has been passed around, I just want to keep track of it. Thank you.

Ms. Myrna Hayes - When we used the GIS program, Arc View, at the RAB library with Mike last month, it appeared that the October data was the only data set that we had, and I thought you have a later data set. And if you do, we'd like that to be loaded up on that computer.

And we also don't think it's going to rain anymore, but if it does, there seems to be something that makes that room very wet and moldy, and we don't want the Arc computer harmed or we don't want to die of mold exposure. So maybe the City or the Navy or whoever owns that little trailer might be able to figure that out too. Anyway, adjourned.

(The meeting was adjourned at 9:22 p.m.)