Final
MARE ISLAND NAVAL SHIPYARD
Restoration Advisory Board (RAB) Meeting Minutes

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HELD THURSDAY, July 30, 2015

The Restoration Advisory Board (RAB) for former Mare Island Naval Shipyard (MINSY) held its regular meeting on Thursday, July 30, 2015, at the Mare Island Conference Center, 375 G Street, Vallejo, California. The meeting started at 7:08 p.m. and adjourned at 8:43 p.m. These minutes contain a transcript of the discussions and presentations from the RAB Meeting.

RAB Community Members in Attendance:

- Myrna Hayes (Community Co-Chair)
- Michael Coffey (Community Member)
- Paula Tygielski (Community Member)

RAB Navy, Developers, Regulatory, and Other Agency Members in Attendance:

- Janet Lear (Navy Co-Chair)
- Jesus Cruz (Department of Toxic Substances Control)
- Dwight Gemar (Weston Solutions, Inc.)
- Erin Hanford (City of Vallejo)
- Patrick Hsieh [California Department of Toxic Substances Control (DTSC)]
- Brooks Pauly (Navy)
- Nick Shih (Navy Contractor)
- Neal Siler (Lennar Mare Island)
- Elizabeth Wells [California Regional Water Quality Control Board (Water Board)]

Community Guests in Attendance:

- Jim Porterfield

RAB Support from Construction Engineering Services, LLC, in Attendance:

- Lucas Verret
- Wally Neville (Audio/Visual Support)
- Doris Bailey (Stenographer)
- John Neville (Audio/Visual Support)

I. WELCOME AND INTRODUCTIONS (Myrna Hayes [Community Co-Chair] and Janet Lear [Navy Co-Chair])

CO-CHAIR LEAR: Okay. Let's get started. Welcome, everyone, to the Mare Island Restoration Advisory Board meeting. We will start the meeting with introductions. My name is Janet Lear, I'm the BRAC Environmental Coordinator with the Navy and the Navy co-chair.

CO-CHAIR HAYES: And I'm Myrna Hayes and I'm the Community Co-Chair and I live in Vallejo.

MS. TYGIELSKI: My name is Paula Tygielski, I am a RAB member from Benicia, California.

MR. COFFEY: My name is Mike Coffey, I'm a RAB member from American Canyon.

MR. CRUZ: My name is Jesus Cruz, I am a public participation specialist with the Department of Toxics in Sacramento, DTSC.

MR. SILER: Neal Siler, Lennar Mare Island.

MS. WELLS: I'm Elizabeth Wells with the Water Board.

MR. HSIEH: Patrick Hsieh with the Department of Toxic Substances Control.

MS. HANFORD: Erin Hanford with the City of Vallejo.

MR. PORTERFIELD: Jim Porterfield, ex-Mare Islander.

MR. SHIH: Nick Shih, S-H-I-H, with Navy BRAC *(sic. Navy BRAC Contractor)*.

MR. GEMAR: And Dwight Gemar with Weston.

MS. PAULY: And Brooks Pauly, Navy BRAC.

CO-CHAIR LEAR: Okay. Well, before we get started on our presentations I just wanted to introduce everyone to our newest Navy RPM, Nick Shih. He just joined us, and he's taking over a lot of Chris Dirscherl's sites, and then whatever else we can throw on him.

MR. COFFEY: Dump on him.

CO-CHAIR LEAR: So our first presentation tonight will be given by Brooks Pauly with the Navy. She's going to give us an update on the South Shore Area Remedial Investigation Fieldwork Overview.

II. PRESENTATION (Brooks Pauly [Navy]): *South Shore Area Remedial Investigation Fieldwork Overview*

MS. PAULY: Thank you. Well, good evening, everyone. Thank you all for joining us tonight.

CO-CHAIR HAYES: Is your microphone on?

MS. PAULY: How is that? Is it a little better? Thanks Myrna.

Now, as Janet was saying I'm going to be presenting an update on the South Shore Area and the remedial investigation.

We realized over dinner talking about this tonight that there's more to talk about that's happened in the past with this project than what's currently going on. So I will be focusing on a lot of the history, but I think you'll find it interesting, there is a lot that's happened. And then we'll talk about what we're going to be currently doing, and actually what we just started doing out in the field last week.

So, do we have the presentation in?

MR. VERRET: It's on the desktop in the computer right in front of you.

MS. PAULY: I thought that was playing automatically behind me. Can you get it to go to slide?

(Thereupon there was a discussion off the record and simultaneous discussion.)

MS. PAULY: All right. So I did want to give you the presentation overview. As I mentioned, we're going to talk a little bit about the site location and the history. I want to give you, orient

you to the site. As you can see on the figure, the South Shore Area or SSA is down here at the south end of Mare Island.

And we'll talk about some of the previous actions, investigations. How that lead us into the conceptual site model. And then how that conceptual site model has informed our remedial investigation project objectives.

And then I'll talk a little bit about what we're going to do in the current remedial investigation fieldwork that's going on right now. And we'll be going through the, I think it's the end of August. How that feeds into the reporting and risk assessments.

And we'll talk about the project schedule briefly, and we'll have a few minutes for questions if you guys have any.

And as always, if there's a major question or something that you think will inform us, go ahead and interrupt me, and I can try to answer that as we go along.

So there's -- for your -- I think everyone has a copy of the figures. I wanted to print out the figures because, you know, in the presentation handout sometimes it's really hard to see the figures. But, of course, we want you to have all the information in the presentation, but then you can refer to the figures and hopefully there by slide.

And also at the end of your handout there's a list of acronyms and abbreviations. As you all know, with the Navy we talk a lot in acronyms, but we want to make sure you know what we're, that you understand all of the different little things that we're saying. So I will try to say them at least once in the presentation, and then hopefully it will be obvious what I'm talking about.

One of the things I do want to point out here is based on all the -- without getting too much into the details of the Navy's CERCLA program, there are typically two programs. So there's munitions programs, which we call the MRP, Munitions Response Program, and the IRP, the Installation Restoration Program.

So the way they're different, these two programs are basically just a munitions program and like a chemical program. So how we address munitions impacts or chemical impacts.

And so what's happening in this project right now is we've taken these two programs and we're starting to combine them into this remedial investigation project and then report. So all of that information will come together in the report at the end.

So, like I said, we've done a lot with the munitions program so far, and now we're just jumping into the chemical program.

Okay. So a brief history of the site. Approximately 38 acres located at the southern tip.

It was created in several stages using soil and rock from the upland areas to build it out, so most of the SSA is fill area.

This site was used for staging and loading and unloading of munitions from ships. So unlike the PMA, which is over to the eastern southern portion of Mare Island, that was used for -- it was the Production Manufacturing Area where they actually made munitions, this was just taking it off the ships, storing it, moving things around.

They did a little bit of munitions repair work.

And they had some limited hazardous waste -- or hazardous materials there, so mainly diesel fuel. And so what we found over the years is there were a lot of debris and other things, including munitions that were buried at this location. So we found that.

Its current land use is what the Navy has been using it for which is industrial. So when it was handling the munitions that was industrial work. And then in the future it's going to be a park and a wildlife preserve.

So as I promised, we wanted to get into a little bit of the history, especially the munitions history. So back in 1990 some workers at the site -- and you know Mare Island was closed in '96 -- but in '90 some of the workers at Mare Island found munitions at the surface, I believe it over near dike fourteen. And so this, obviously the Navy was alerted to this as an issue, realized they needed to handled it, so they conducted several emergency removal actions; so three of them between '90 and '93.

So there were two actions in '90, removing approximately 5,000 pounds of munitions.

And then another one removing some like signal flares, so these two MK 58 marine markers over near pier 34.

And so just for people that are following along on the slides, pier 34 is a little bit off of this slide, but it would be over in this area. So I believe the two MK 58 marine markers were found over here. And those items were disposed off-site.

So then the Navy was alerted to this problem and did intrusive investigations in the area between '97 and '99. I won't go through all the details on the slide, but essentially quite a few munitions or explosives of concern or MEC items were found. Lots of small arms, inert ordnance.

And as in a lot of cases with munitions sites, there's also tons and tons of metal that is not munitions related. But because of the detection technologies it's hard to distinguish between the two. So we ended up removing a lot of that stuff that wasn't even munitions, but we got it out of there.

And then two other items of interest were a single radioluminescent deck marker, so this is a radiological item. It was found near dike fourteen. So right in this area. Dike fourteen used to go out here, it's no longer there. So that was just found as they were removing the soil with munitions items and they were sifting it, found it in there. But no other radiological items or material was found during these investigations, and actually subsequently.

We also found three discrete disposal pits. So the oven, we're calling them the oven primer pits because at the time -- whoop. Where did my little guy go? He's on, he's off. There he is, okay. So there's three disposal sites here. At the time it appeared the items were burned. So those were investigated and removed.

And so the Navy obviously realized that additional -- I need to slow down -- additional digital geophysical mapping, or DGM, as I like to call it -- it's so much easier to say DGM -- surveys were conducted between 2003 and 2004, and then there was another one conducted in 2006. And we found, you know, over 14,000 subsurface geophysical anomalies, so metallic anomalies, and realized that there was even more probably, you know, mostly 98 percent metallic debris, but there's a potential for munitions items.

And so this mapping was done, and that has provided the basis for additional actions that were conducted between 2012 and 2013. I'll get to that in a second. But I did want to point out on

this map, the conceptual site model was used to basically understand the history of the buildings and where things were used and stored and handled to create these areas which we're calling Category A areas within the red boundaries. So you can see them all on here. Quite a few actually down here in the south shore. And those were areas where we thought we mostly likely would find munitions. Everything else was called Category B. So just kind of wanted to set that up for you.

CO-CHAIR HAYES: And Brooks, maybe you could explain why, what Category B was?

MS. PAULY: Oh, Category B. Sorry, yes.

CO-CHAIR HAYES: Just because I don't think you've said so.

MS. PAULY: You're exactly right. Category B is basically areas where there was much less likelihood, based on our understanding of the use of the site, for munitions to have been buried or lost in an area. So there's just other areas that are less likely to have munitions.

Okay. So this leads us to the big action that's happened at the site which is the 2012-2013 munitions and explosives of concern non-time critical removal action or the MEC NTCRA that happened out there.

And I'm going to warn you, there was a lot of data that we collected. I tried to just put the most important things on the next couple of slides, don't want to bore you with all the details. That will all come out in the RI report -- I know you're waiting, it will be a best seller. Okay. I'm sorry. I'm excited about it.

MR. COFFEY: Will you sign them?

MS. PAULY: It's a tough crowd.

CO-CHAIR HAYES: It is.

MS. PAULY: Okay. So going into a little bit about the munitions and NTCRA. So there's a few stats on the removal. So I introduced the idea of the Category A areas. We did a hundred percent removal of metallic anomalies in those areas. So these were the areas most likely to contain MEC. We still found tons and tons of just metal debris, but we did find some munitions items.

Again, 26 to 59 percent removal of metallic anomalies in the Category B area. And so these are the areas that we didn't think we'd find as much munitions, and we did not. So we had decided and agreed with the agencies that we would remove at least 20 percent of the anomalies in these areas. And, of course, we went over that just to be, you know, in an abundance of caution, and doing step-outs. When we found munitions items then we would say, okay, well, there's an indication of something that could be here, so then we'd step out and make sure until we didn't find anything that was a munitions item.

Also we did a hundred percent removal of metallic anomalies under the accessible building areas. So anywhere where something could have been dumped under there, accidentally dropped, that kind of thing.

So this translated to over 17,000 dig locations. So you remember there were 14,000 anomalies identified actually, with the step-outs we did over 17,000 locations, and only 358 munitions items were found. So it's a pretty small percentage. But, again, we feel like we really got, got what we were going for. We wanted to get as much as we could.

And then some of the typical items were things like primer, small fuses, the small arms ammo, fifty caliber casings, things like that. And then, of course, I talked about the subsurface disposal areas.

CO-CHAIR HAYES: Just to interrupt again.

MS. PAULY: Absolutely.

CO-CHAIR HAYES: Just so you're not, so this presentation isn't misleading.

MS. PAULY: Yes.

CO-CHAIR HAYES: Because some of us do actually remember previous presentations and the actual activity, there were some larger items than that located and removed.

MS. PAULY: Oh you're exactly right. I think you're referring to the depth charge that was --

CO-CHAIR HAYES: Yeah.

MS. PAULY: That was found on the -- in the South Shore Area at the shoreline area amongst the rip rap.

CO-CHAIR HAYES: And so to give a scale, as I understand a depth charge from World War II submarine, a depth charge was like 300 pounds of explosive material.

MR. COFFEY: It looked like an oil barrel.

MS. PAULY: It looked like a little oil barrel. It had the hollow center where the fuze would have been. It did not have the fuze in it, thank goodness.

CO-CHAIR HAYES: And it was disposed of off-site.

MS. PAULY: Exactly right. Okay. So the next slide here just gives a little bit more about the 2012-2013 munitions non-time critical removal action. The good news is we did not find any energetics detected. We did take soil samples at represented locations --

MS. TYGIELSKI: So what do you mean by energetics?

MS. PAULY: Good question. This is basically munitions constituents. So the actual, like the gun powder, that's within the --

MS. TYGIELSKI: So the explosive part?

MS. PAULY: The explosive part, exactly. Exactly. So we didn't find any of that. Any detected metals that we found were below the ambient and background levels for Mare Island, so that was really good.

CO-CHAIR HAYES: What do you mean by that too? I mean, this is one of your unique presentations, Brooks, I gotta say, where you know what you're talking about, but you need to perfect it, you know, embellish it a little bit for us.

MS. PAULY: Okay.

CO-CHAIR HAYES: "Detected metals below ambient background level." Was that in soil or -- I assume that all these tons and tons of scrap was also metal, but that's not what you're talking about, I think.

MS. PAULY: Myrna, you bring up a very good point, and I am -- I am assuming and I should not. So you're exactly right. Yeah.

The munitions -- the metals that we -- the actual debris that we found we pick out; but when I talk about detected metals, I'm saying in soil samples. So we take soil samples, analyze them for metals, and energetics, munitions constituents. And those were, exactly right, below the ambient or background levels for Mare Island.

So some other interesting things that we found besides all the debris -- and actually I should have had a picture of the drums or the USTs. But we did find some buried drums at a couple of locations. We did take soil samples in those locations as well, and they were non-detect for all of the analytes that we measured in conjunction with the regulatory agencies. Mostly it looked like these drums were just for fill, and they were just, you know, they were empty, didn't seem to have anything in them, they weren't labeled.

We also found what we're calling three USTs, but really it looked like they were maybe like a water infiltration system with a couple of dry wells. But, again, we're sampling of those areas. We're going to go back to those areas and make sure that we've chased all the piping and sampled along all the piping.

And because of that -- the other good news is because of that radioluminescent deck marker that we found, we did radiological scanning on all these 17,000 plus locations and did not find any other radiological material or items. So that was some good news.

Just to give you kind of a scale, and I think you've got the printout as well, that's what 17,000 -- or actually this is probably what, yeah, this is what 17,000 plus locations looked like.

CO-CHAIR HAYES: If you're in the preserve right now, this image looks like our hillside areas covered with fennel.

MS. PAULY: Exactly right. It's really pretty down there right now. Okay. So I did want to get a -- talk a little bit about the rest of the conceptual site model.

So you've had a little bit of an intro to it. The site was used for munitions handling. There was some burial of munitions. But in addition, we're considering, as part of this RI approach, and to inform our other sampling locations for chemicals, we're considering the direct release to the subsurface, you know, from pipelines, stormwater, sewer, any other pipelines that we find at the site, and also surface releases, say, around buildings. So, you know, maybe they were pulling up to this building and maybe they were handling drums here or something, and so we're going to be testing the soil and groundwater in appropriate places around the buildings to test for those things.

And this is building A-195 where they had stored the hazardous materials like diesel between '88 and '96.

Okay. Another example of a typical building down at the SSA, so this was an ordnance warehouse. And that's a little bit more -- you can see a little bit more of the flowers in the background there. It looks a little bit like that right now.

Okay. So getting into a little bit of the nuts and bolts of an RI. The project objectives for an RI, I'm sorry, remedial investigation, which is sort of the whole project, it's going to incorporate the munitions as well as the chemical impact.

So our primary goals are to determine the historical activities, whether they've resulted in any chemical or munitions impacts. Of course we know there have been munitions impacts, most of which have been remediated or investigated. And then we're going to do the chemical impacts next.

The purposes of investigating the chemical impacts and both the munitions is to characterize the nature and extent of those impacts. So understanding, you know, how much there is.

And then we'll evaluate the risk to human health and the environment based on all this, the data that we've collected.

So sort of a secondary, I'm considering it secondary at this point, is to delineate the eastern extent of this digital geophysical mapping grid at AF-11. I'm trying to think. You can actually see it on the last slide, the large side with all the -- let's see, it would be slide -- I'll use mine -- it would be slide nine. You can see grid AF-11 if you're interested. This was a large disposal pit. We did find some munitions in the pit.

The reality is that we ran out of the money during the removal action and we couldn't delineate the rest of the pit. So we're going to be doing that during this action. And actually it's already been done. I was out there today, saw the edge of the delineation. So that was pretty neat to figure that out. And then obviously that will need to be resolved at a future date.

And then the last thing is that pesky little radioluminescent deck marker is going to require us to do a final status survey. So we want to make sure that we document the removal according to the accepted methodology. So we'll be doing that.

Okay. So the main actions of the chemical program, the chemical portion of the project are to take the soil and groundwater samples. And so the details here are all here in the presentation for you. As I mentioned before, we're going to be focusing on taking samples around buildings, around the storm drains, sewer lines, the former munitions burial sites, and then some of those drums that we found.

You can see the different analytes that we're going to analyze for.

I think that's about it. And this figure again, I just wanted to provide you with the locations. The soil sampling is going to be happening again around buildings -- it's a little hard to see, like I said, on the slide, but you've got those other figures.

And I think -- oh, this is the one I wanted to point out, the AF-11 disposal pit, it's just south of building A-259. No one can see this, I can't see this, but that's basically where that pit is. And then there's just about another 20 percent of the pit, so I'd say the whole pit is maybe 30 to 40 feet long, and there's just another, yeah, about another ten feet that we hadn't, that we hadn't been able to dig during the removal action.

Again, figure showing the groundwater locations basically along storm drain lines, around buildings. The same types of analytes. Okay. All right.

Getting into -- so once we actually collect all this chemical data we will combine it with the munitions data that we have from the past into our remedial investigation report. So -- and again, as I mentioned, this is a combo report, it's going to include everything, all the available data that we have to date.

And then we're going to do our risk assessments, yep. So primarily the human health risk assessment is the baseline, and then the ecological risk assessment. And I won't go into all the details of the receptors, but that gives you kind of a sense of what we're looking at for those risks assessments.

All right. And like I said, we started doing the surveying. Last week they started putting in the wells this week, I think we have five, four wells for sure, they were working on a fifth one this afternoon. And they delineated that disposal pit at AF-11. So the work is progressing.

Does anyone have any questions? Yes, Erin.

MS. HANFORD: Hi, I'm still --

CO-CHAIR HAYES: Could you use the mic?

MS. HANFORD: Oh, sure. Hi. So my question is when you are done with the stage that you've talked about, is the next step the proposed plan or Remedial Action Plan? Where are you at, if I'm looking at a schedule?

MS. PAULY: That's a really good point. Yeah. So this is the remedial investigation. The next step, all this information would be used to propose a feasibility study and to propose alternatives. And that would lead into, yes, the proposed plan and the Remedial Action Plan.

MS. HANFORD: Yes.

MS. PAULY: Michael.

MR. COFFEY: Brooks, you said that the future plans for this is a park area?

MS. PAULY: Yes.

MR. COFFEY: Timeline? Got any idea when that's going to be? In our lifetime? Will my dog still be alive and I'll be able to walk it out there when it happens?

CO-CHAIR HAYES: No, no dogs.

MR. COFFEY: I wouldn't tell anybody but I would bring her.

CO-CHAIR HAYES: Dogs live too short a period of time.

MR. COFFEY: My dog's thirteen, I really would like to take her out there, please.

MS. PAULY: You know, yearly the Navy puts on walks through the south shore.

CO-CHAIR HAYES: They don't allow the dogs.

MS. PAULY: Oh, they don't allow dogs.

MR. COFFEY: She's small, a really small dog.

MS. PAULY: I think the bigger answer to your question is I can't give you an exact date. We're working as fast as we can. We want it to be done.

MR. COFFEY: Well I'll bet. Everyone wants to be done.

CO-CHAIR HAYES: Well, I'll maybe just add to that. My comment was going to relate to the fact that this piece of property is actually attached as a cleanup parcel to other parcels. I mean you don't have 'em actually parcelized, but you have them divided into cleanup areas. So you

wouldn't be moving on with this property and then preparing it for a finding of suitability to transfer until you had also done the Production Manufacturing Area; is that true?

MS. PAULY: Janet, is that your understanding?

CO-CHAIR LEAR: The South Shore Area is a different parcel than the PMA, it's a different transfer parcel. So yes, we could if it was done ahead of the PMA.

MR. COFFEY: Is the SSA its own transfer parcel?

CO-CHAIR LEAR: It is, yes.

MS. PAULY: It's an area that, I think it's got parcels within it, but yeah. It's got --

CO-CHAIR HAYES: That might shed some light on your question or --

MR. COFFEY: Dog will be long dead.

CO-CHAIR HAYES: Well, or you'll be living in Texas and what would be the point?

MR. COFFEY: I'm coming back.

CO-CHAIR HAYES: You're coming back.

MS. TYGIELSKI: Forty or fifty years.

CO-CHAIR HAYES: Surprisingly you might think, that's really all of my comments. I think you've done a good overview of the property, especially for folks here who haven't been, you know, familiar with the work that's already been done.

MS. PAULY: Thank you very much.

CO-CHAIR HAYES: And we're looking forward to it becoming part of the preserve.

MS. PAULY: Absolutely.

MR. COFFEY: Yeah, sooner than later.

CO-CHAIR HAYES: We have long range planning, it's all done, it was done in 2007, so we just sit back and wait and watch. And in the meantime we, the Navy does I hope not just annual walks, but monthly walks in cooperation with the city of Vallejo and Mare Island Heritage Trust. So we expect, even though we need to do a little paperwork for the August 9, I think the next walk will be the second Saturday, 10:00 a.m. to 12:00 noon. And that will still be on the historic south shore, the very property that we're talking about. And then we switch back and forth after that.

When the osprey have fluttered south then there's not as much motivation to, everybody wants to go to that site while the osprey are still there. So we'll start switching back and forth to the Western Magazine every other month. So a little bit different part of the property.

MS. PAULY: If there are no other questions, thank you all very much.

CO-CHAIR LEAR: Thanks, Brooks. All right. Our next presentation will be given by Neal Siler of LMI. And he's going to be giving us an Update and Path Forward on Installation Restoration Program Site 15.

III. PRESENTATION (Neal Siler [Lennar Mare Island]): *Installation Restoration Program Site 15 Update and Path Forward*

MR. SILER: Okay. So the last time that we talked about this site was in December of 2013 and that was about a year after we did our third injection event at the site. We wanted to see what the progress was. But since that time there has been a number of things that have occurred, and I want to talk to you about where we are in the remediation process now, and what we plan to do in the near future to try to move this along at a faster pace.

So, as I usually do, I'm going to talk about the description of the site, give you a little bit of background about the remedy, and I really want to get into where we are with the site at present time. In fact, there's some data here that the regulatory agencies haven't seen yet -- although they'll see it tomorrow -- so that you can see where we are at the site.

So Installation Restoration program Site 15 is about a four acre site that's located in the southern portion of Investigation Area C-1. It was predominantly used by the Navy as a pipe cleaning and a chromium plating operation. The buildings that dominate the site are 101, 273 and 225. They were constructed between 1899 and 1921. So there's a little bit of background about the site.

Commercial industrial area: It's going to be used as a commercial industrial area as we move forward. Right along the shoreline will be a portion of the promenade as we move forward with development of Lennar Mare Island's parcel.

Constituents of concern, there's some metals; arsenic, cadmium, lead in soil, and hexavalent chromium in groundwater. In addition, there are chlorinated volatile organic compounds in the groundwater, and that's the principal focus of what we're trying to clean up at the site.

You can see the site's been studied for the last over thirty years, and we're getting to a point where I think, we're at an inflection point where we want to move forward and see if we can speed this cleanup up at this site.

Okay. So the initial remediation areas were kind of formulated into five areas. There's the hot spot area which is this area right here. And how these are delineated is based on their comparison to cleanup goals. The hot spot area was greater than a hundred times the cleanup goals.

This is the plume core area, this little brown area outside of the hot spot area. That was between ten and one hundred times the cleanup goals.

This is the nearshore area that's just basically downgradient of these two areas. That's greater than ten times the cleanup goals.

And then the outer area, the dilute plume area here, that was less than ten times the cleanup goal.

So that's how those areas were delineated. And this is what the site looked like before we started remediation.

So -- well, it hid a slide on me for some reason.

The approved remedy was excavation of hot spot areas where we had metals in the soil.

Actually Building 225 will act as a cap over a portion of the main plating operation where there were metals in the soil and also some chlorinated volatile organic compounds.

We put this PRB wall or permeable reactive barrier wall, dug a trench, placed the reactive media in it, which is zero-valent iron. And then we also did injections in the hot spot area, the plume core area, and the nearshore area.

So to date there have been three injections, one in the first quarter of 2011, one in the fourth quarter of 2011, one in the fourth quarter of 2012. What was injected? We actually added microorganisms to help break down biologically the constituents of concern, the chlorinated volatile organic.

EHC is actually somebody's trade name for the zero-valent iron and also a carbon substrate. We put about 37,000 pounds of that during those three injection events into the subsurface environment. Cheese whey, additional carbon source, about 29,000 pounds. And then about 105,000 gallons of nutrients, stimulants, tracers, and any other thing that we could get to stimulate the microorganisms to move forward.

So this shows you just photographs of the third injection event as it was going along.

And then this slide just shows you the material that was injected. It looked like the soil is green.

And then these are the constituents; sodium ash, you know, the sodium hexametaphosphate (by Calgon) and then the cheese whey.

Now getting to where we are today. This is where we started before we ever had any remediation.

The next slide is going to show you what the site looked like after we did the second injection event. And you can see this plume core area is getting smaller, getting truncated. This area is actually being laterally suppressed. Even the dilute core area is getting laterally suppressed, coming together right here in the middle.

And you go to the third quarter of 2012 when we did the third injection event, and you can see the core area, it's getting smaller still. The dilute plume area has actually been truncated and actually suppressed laterally. This area kind of broke apart right here.

If you look in the third quarter of 2013, now you're starting to really see it break up. The core area is just this one kind of northern area, a little bit of southern area right here, the nearshore area is broken up right here, and the dilute plume area is very, very, you know, separated right now. And things are cleaning up quite nicely.

Now, just to give you an idea of where we are. These slides tell you what the data looks like as of June, 2015. So the only place we're seeing any kind of exceedance in the nearshore area is at this well right here, P31. And the last time we had an exceedance was in May of 2014. And this is a common theme. I think there is something wrong with this May, 2014 data, because if you look at the data before that we had like 0.2 micrograms per liter of PCE, and then the next event in May, 2014, the next event we had 2,200 micrograms per liter, and then right after that in December it went down to 2.9, and currently it's at 1.9 micrograms per liter.

Now, this hot spot area, this is the well that's the hottest well right here, it's IR-15 MW 107, this is part of the hot spot area, and then R75 and R77 is another part of it right here. This had 71,000 in August, 2012; right now it has non-detect tetrachloroethene or PCE.

The next slide is going to show you where we are with TCE.

Myrna, you have a question?

CO-CHAIR HAYES: So this is an example of what I would hope you could help us with in a -- I'm going to help you, hopefully, in a little different -- if you could do a little different format the next time you give a presentation. You just said things verbally that were pretty significant, but you don't have it -- it's probably in that mumbo jumbo there that we can't read. So if you would call out some of those?

MR. SILER: And I did think ahead. I gave you eleven by seventeen figures of these four slides, and you have all those you can see the data listed on those.

CO-CHAIR HAYES: But look, we're not you, we're not your people, so help us with this, Neal, because, you know, I -- should I try to show this to somebody or try to explain something to someone I'd like to, that was a very significant just piece of information you just gave, but it's verbal so it's only in the minutes.

So just in the future if you have some highlights, go ahead and highlight 'em in your presentation.

MR. SILER: Okay. So this next slide shows you trichloroethene or TCE. Again you have this issue with -- in May 2014 with P31. Again before it you had very low concentrations, 1.3 micrograms per liter; May, 2014 it's 3,000; right now, June, 2015, it's 1.4 micrograms per liter.

This well down here in the hot spot area -- which is this well right up here, right above this one concrete block -- February, 2011 that was 2,320 micrograms per liter, today it's 590 micrograms per liter of TCE.

Moving along to the next breakdown product which is cis-1,2-dichloroethene right here. Again you can see this December, 2014 data right here we had a high spot in May also. It was 37,000 micrograms per kilogram in May, 2014; 1,200 in December, 2014; now, it's 15 micrograms per liter.

If you look in the hot spot area, again we're going back to this well IR-15-MW-107. In May, 2014 it was 160,000 micrograms per liter; it was 48,000 micrograms per liter in December, 2014; today it's 16,000 micrograms per liter. So you can see everything is starting to come down.

Now, where we still have a little bit of an issue is with vinyl chloride. And we want to get to this vinyl chloride product because that's telling us that everything is breaking down as we're moving forward.

So we have, again, this well IR-15-MW-0107. Right now there's 100,000 micrograms per liter vinyl chloride in that well. The cleanup level is 50,000 micrograms per liter.

In the nearshore area, again we have P31. Because it's nearshore it has a much lower cleanup goal, which is 32 micrograms per liter. But what's interesting about it is this distance here between P31 and P51 is about fifteen feet. P51 consistently has either non-detect or very low levels of vinyl chloride that are below the cleanup goal. The same is true about any of these wells around here, there are only about fifteen feet separating them. They all have cleaned up to where they meet the cleanup goals. And then these two wells right down here R75 and R77, they are very close together, but the ones that are right downgradient, within a few feet, they meet the cleanup goals.

So what we really want to do, although we want to, you know, have the breakdown products go from the tetrachloroethene to the trichloroethene to the cis-1,2-dichloroethene to the vinyl

chloride and then ethene to ethane; we're kind of getting a little bit more vinyl chloride than we like.

But as you can see from this slide -- it's hard to read here, you'll probably have to take a look on your slide here. In the hot spot area, this is that one well that was really hot, IR-15 MW 0107, back in February of 2011 it's 300,000. It went up to 480 to 436, and now we're down to 111,000 when you look at the benchmark we're looking at.

R75, even though it's still above, we've gone from 102,000 micrograms per liter, 2,190 August, 2012; down to 17 in August, 2013, but right now it's at 718. So it's jumped up a little bit. And the reason for that is that it's the generation of the vinyl chloride that you're seeing. We want to get that product but we want to break it down.

In the nearshore area, again the same thing; P31, 35,000 in February, 2011. We're down to 67 now in June, 2015. So this nearshore area is cleaning up pretty well.

The thing that's recalcitrant is the vinyl chloride. The problem is that we're breaking down the tetrachloroethene with the trichloroethene with the cis-1,2-dichloroethene, that's an anaerobic process, biological process. And when we get to breaking down the vinyl chloride, that's an aerobic process. So we have to kind of change the process to get rid of the vinyl chloride or figure out something else we can do to make it move faster to break it down.

So the conclusions. The remedy is working both in the hot spot and the nearshore area.

The plume is continuing to contract.

The total chlorinated volatile organic compound concentrations are decreasing.

We're consistently seeing the breakdown products.

Again, this vinyl chloride is a little bit troubling. We're seeing the degradation continuing to occur as the vinyl chloride is increasing. But we need to address those areas, and they're very confined now, where we can break down this vinyl chloride; from the hot spot area right around IR15 MW0107, R75, and R77; and the nearshore area, Well P31.

So what we're going to do here, and hopefully we're going to get this in by September, is put together a pilot test work plan where we're going to potentially change the injection material. We may stick with the enhanced reductive dechlorination materials, but we want to take a look and see if there's something we can do to enhance this and evaluate potential alternatives.

We're going to look at the ERD constituents, even adding microbes. We want to look at chemical oxidation. And also in the hot spot area, we want to look at oxygen releasing compounds in the nearshore area.

And there's a number of reasons that we want to do this. When we actually go to some sort of a different injection material we're going to change the subsurface environment. We've got a reducing environment now in that area, as we get closer to the strait it does get a little more oxidized. But if we start adding things like in-situ chemical oxidation compound, it's going to radically change that inducing environment.

Now, one of the issues is that is it going to change the microbial population? And I've heard that's a concern. But if we've got a lot of vinyl chloride generation, that microbial generation, population in those spots has already changed, because the vinyl chloride will kill the anaerobic

bacteria. So now we have to get something else in there, aerobic bacteria or something else that just breaks that down.

When we actually inject the chemical oxidation materials, whether we're using hydrogen peroxide -- we've all used hydrogen peroxide, it will oxidize your skin if you put it on there. Permanganate, something else, sodium persulfate, something that we're going to use in that thing, it will change the environment a little, change the pH.

One of the things that we're real concerned about is what kind of generation of metals that we're going to have at the site. Obviously arsenic generation is a concern. The other one is hexavalent chromium. We actually monitor for hexavalent chromium at this site because it was a chrome plating shop. Most of the chromium that we're seeing downgradient and in the plume is trivalent, so we're not seeing that get to the state, it's more stable and less toxic. But if we start oxidizing this environment, then there's the potential that we could have hexavalent chromium, a more oxidized version of chromium that we would generate which is more toxic. So we really want to take a look at that.

We want to look at what we're changing in the monitoring requirements, whether we're going to have more things that we're going to monitor for, and obviously anything cost is a concern as we move forward.

But, as I say, we're hoping to make some changes here or figure out exactly what we're going to do to get this vinyl chloride to break down so that we can month move forward and close out this site.

So with that, does anybody have any questions?

Paula.

MS. TYGIELSKI: Now my guess --

CO-CHAIR HAYES: Paula, Paula, use the microphone, please. Please.

MS. TYGIELSKI: Am I on?

MR. SILER: You're on.

MS. TYGIELSKI: Okay. My guess is the vinyl chloride is a product of taking apart the tetra and the tri and the di part of things. So it's a product of decomposing the other compounds which is why it goes up. Am I correct?

MR. SILER: That's correct. That's exactly correct.

MS. TYGIELSKI: Okay. And then to take it apart you need a different process?

MR. SILER: That's correct.

MS. TYGIELSKI: Okay. With an anaerobic different process?

MR. SILER: It's actually an aerobic process. If it's biological it will break down aerobically. From the tetra to the tri to the di, that's an anaerobic process.

MS. TYGIELSKI: Okay.

MR. SILER: Breaking down the vinyl chloride, that's an aerobic process.

MS. TYGIELSKI: Okay. So the final process is aerobic?

MR. SILER: That's correct.

MS. TYGIELSKI: Where the other three were anaerobic?

MR. SILER: That's correct.

MS. TYGIELSKI: Okay. Okay. I'm getting it.

MR. COFFEY: You were talking about fluctuations in numbers, how consistent is the groundwater level? Because these are all wells; right?

MR. SILER: Well, obviously it's gone down, right, because it's a drought situation here.

MR. COFFEY: Right.

MR. SILER: It stays pretty consistent though. It does fluctuate somewhat because we're near the strait.

The problem with this site, even when we actually do groundwater levels, when we do the monitoring at this site we actually do it at a time where the tide is either coming or going out, and we do it within 20 minutes; the wells and the groundwater flow pattern is very, very jumbled, it's very hard to get a real handle on exactly what it's doing; although I really think it's going toward the strait, no matter what it's always going toward the strait. But it gives you a very, very convoluted pattern as you look at it. So it's really interesting.

MR. COFFEY: Do your numbers change at all when you have a variation between fresh water and brackish water?

MR. SILER: It hasn't, really. It hasn't.

MR. COFFEY: Can it?

MR. SILER: The one thing that you do see that is a change is as you get closer to the strait -- let's go back a little bit here. You know, this -- when you get closer to the strait, this tends to be a little bit more oxidized, and I think that's why the vinyl chloride breaks down a little bit here because you have a little bit more of oxidizing conditions when you get down toward the strait.

You know, these conditions here are reducing, so you're at a lower oxidative state or reducing state. So, you know, that's the only difference you really see as you get closer to the strait. You're not seeing any kind of a fluctuation in any time period whether you take the samples in the winter or spring, you know, summer or fall.

MR. COFFEY: Because your numbers show --

MR. SILER: Except the numbers going down.

MR. COFFEY: Right. Because a lot of your numbers are December numbers, which would be the wettest time of the year and, you know, things like that. And I would think that that would skew the numbers. And also I would think intuitively that bay water would skew the numbers too because of the salt being a more caustic chemical.

MR. SILER: And there could be something in there like sulfate or something that helps the breakdown. But there could be some constituents in there. We try to stimulate when we add those types of things or phosphates or something like that. But we haven't really seen that kind of a, you know, fluctuation, really heavy fluctuation except for that one that we saw in May, 2014 at P31, which, you know, I'm not sure is real or not, but it's a data point that we have.

That's the only fluctuation that we've seen, but it stays pretty steady and is continuing to go down and stabilize.

MR. COFFEY: Do you have any idea what the next elements are going to be to break down the vinyl chloride?

MR. SILER: Well what we're going to try to do is actually go through a whole process of evaluating whether we can do the additional enhanced reductive dechlorination, if that's going to help it. Those numbers are real high. Sometimes the chemical oxidation will knock it down to like half that, but even if you get, you know, from a hundred thousand down to 75 or fifty, you're right at the line of where the cleanup level or the cleanup goal would be in that area; so we want to knock it down much lower than that. So we're going to have to take a look and see, evaluate all the factors, and then come up with a plan. Hopefully that will help us solve this issue.

MR. COFFEY: You could go from cheese whey to American cheese.

CO-CHAIR HAYES: Velveeta.

MR. COFFEY: Velveeta, yeah.

CO-CHAIR HAYES: Neal, thank you for your presentation. And it still does look like you're making progress overall.

One thing on that river, I think the Napa River at that point is generally, as I recall, 21 parts per, of saline, salt to –

MR. COFFEY: That changes with the tide though.

CO-CHAIR HAYES: Well, but not too significantly. The Bay is like 21, 26 parts per thousand, is that it? You'd have to look that up. But I don't think it's affecting that number too much. At least from my lay perspective, I should say.

The question that I have is you're, in your last slide, trying to achieve cleanup goals. Tell me about that and tell me about cost, where the source of this funding for this site is coming from, whether that's in that additional money that you negotiated with the Navy, and what kind of costs you think you're looking at? I mean, how close are you to achieving your goal? But this time to achieve cleanup goals, what's that all about?

MR. SILER: And the time, just talking about the time to achieve the cleanup goals, we can see the steady decline, you know, in the chlorinated volatile organic compounds; you saw where it came down from 2011 to 2015, and we've got it down from, you know, 400,000 down to a hundred thousand. That's taken four years. Anybody -- it's just like weight loss, that first twenty pounds, you know, is somewhat easier, but when you get that next ten, next five, next one, it gets harder and harder and harder. It's going to be harder and harder unless we do something different to get in there. Now.

The in-situ chemical oxidation, if I injected that in there; if you remember from the presentation about industrial pump station number 4 and T-2 oil water separator where we did kind of the same thing, is that the chemical oxidation is the fast process. I mean that will knock things down right there. I just want to make sure that when I do that I'm not generating something like hexavalent chromium that gives me another problem that now I have to deal with that may be, you know, a larger problem than I had in the first place.

The enhanced reductive dechlorination will continue to bring this down, but I don't know if that will take, you know, again another four years, eight years to get down to the cleanup goals. And once we get down to the cleanup goals, the way the plan is set up we have to do a year of monitoring. And once we do that year of monitoring and all the points are below that cleanup goals, than we're supposedly done with that portion of it. So that gives you an idea of the time.

So the cost for this right here, this cost was -- for different injection events was part of the additional grant funding that we got from the Navy. Right now there's about $170,000 in there for this.

If you probably did the -- I've seen -- I haven't seen really a, I've seen just a really rough estimate, you're probably in about the 250 to 200,000 dollar range for the chemical oxidation. Now, what they're saying with the enhanced reductive dechlorination which somebody else was saying may be the better way to go, you're about a hundred thousand, 100 to 125,000. So that's where the difference in cost would be.

CO-CHAIR HAYES: I guess one of your other concerns would be that if you try to take care of that vinyl chloride and it could break down to something you don't want, you also have it occurring because you're still working on your -- I mean, it was the result of working out your other --

MR. SILER: For the enhanced reductive dechlorination?

CO-CHAIR HAYES: Yeah. And you're still working on some areas of that, so you're still going to be producing probably some vinyl chloride. So what you're basically telling us is you have a process that's ongoing at the same time that you have a new product that -- I mean a new breakdown that you're trying to then manage separately, but they're in the same geographic area.

MR. SILER: That's correct.

CO-CHAIR HAYES: Well, good luck.

MR. SILER: I wish there was a silver bullet, but there never is.

CO-CHAIR HAYES: Well, and then let me ask you this. Is this the outlier for you on that -- on that cleanup area?

MR. SILER: This is probably the long pole in the tent. If we can do something to get this taken care of then I think that that gives us a little bit better chance of getting Investigation Area C-1 completed in a reasonable amount of time.

CO-CHAIR HAYES: Compared to the other locations that you still have work to do, is this a situation where you could do a carve-out on this site?

MR. SILER: Yeah, we could. We want to minimize carve-outs as best we can. There's a few other places we have to do in Investigation Area C-1. Those remedies are pretty straightforward and can be completed in a short period of time. This is kind of the long pole in the tent as far as time concern as far as getting these breakdown products to be at or below cleanup goals, and then maintaining that for the time period we have to basically get no further action certification at the site.

CO-CHAIR HAYES: So you might do a carve-out sometimes if it hung on too long?

MR. SILER: It would be an interesting carve-out. We don't want to do that, we want to try to take care of it. There may be a way to work around that, but we'll just have to come across that bridge when we get there.

MR. COFFEY: Is that because of environmental concerns because it's so close to the Bay?

MR. SILER: The what, the --

MR. COFFEY: The carve-out, is that an issue at all?

MR. SILER: That's not the issue. The issue is I hate making -- but the place would look like Swiss cheese after a while, and I don't want to do that. It helps us get some things to closure, but it doesn't get the entire Investigation Area to closure.

We did that in D1, you know, where we had, we had D1, and then we had D1.1, and then we had D1.2, and now we have D1.3, and we have D1.3, you know, north, central, and south. The north is closed, but I just don't want to keep going along that route, I just want to get these things done and try to get them over with at one time.

CO-CHAIR HAYES: I'm sure your funder would too.

MR. SILER: Okay. If there are no other questions, then thank you very much.

CO-CHAIR LEAR: Thanks, Neal. So now we have our first public comment period. If we have any public comments?

(NO RESPONSE.)

CO-CHAIR LEAR: And a ten minute break.

(Thereupon there was a brief recess.)

CO-CHAIR LEAR: Okay. We're going to go ahead and cut our break a little short today since we don't have cookies.

IV. ADMINISTRATIVE BUSINESS (Myrna Hayes [Community Co-Chair] and Janet Lear [Navy Co-Chair])

CO-CHAIR LEAR: So we are at administrative business and announcements. And, as always, if you have any comments on the meeting minutes, please get those to Myrna or myself.

I also wanted to let everyone know that Miguel Buchwald did submit an e-mail to Myrna and myself that he's officially resigning from the RAB. He hasn't been to meetings for quite a long time, but he is officially resigning. So -- and that's all I have.

Did you have any?

CO-CHAIR HAYES: No.

CO-CHAIR LEAR: Okay. All right. So, focus groups. Community and natural resources, we don't have a group for those, so skip through that.

Technical. Paula, did you have anything to report?

MS. TYGIELSKI: One thing but it's not really technical, it's probably more like community.

CO-CHAIR LEAR: Okay.

MS. TYGIELSKI: Coming up at the Mare Island Preserve there's going to be a Shakespeare in the Park type thing. Macbeth is going to be presented at the Mare Island Preserve.

CO-CHAIR LEAR: Interesting.

MS. TYGIELSKI: And the dates are August 14th and 15th at 8:00 p.m.

CO-CHAIR HAYES: That's true.

MR. COFFEY: I also thought I would let you know that according to my Star Walk app, tomorrow is a rare blue moon event, it only happens five times in an average person's lifetime.

CO-CHAIR LEAR: Blue moon.

MR. COFFEY: Blue moon.

CO-CHAIR LEAR: I don't even know what that is.

MS. TYGIELSKI: It's when you have two full moons in one calendar month. And tomorrow is the 31st of July, but it's the second full moon in July.

CO-CHAIR LEAR: Interesting. Good to know. All right.

MR. COFFEY: That's a natural resource if I ever heard one.

CO-CHAIR LEAR: Yeah, that is. All right.

City report. Did you have anything you wanted to share, Erin?

MS. HANFORD: I did not.

V. FOCUS GROUP REPORTS

a) Lennar Update (Neal Siler [Lennar Mare Island])

CO-CHAIR LEAR: Okay. Thank you. Lennar update. Neal never lets us down, he's got something to say.

MR. SILER: You should have this 11 by 17 figure. We'll lead along with that. There's not a lot of fieldwork going on right now.

Right now we're actually doing remediation in the Building 688 site pits. There was a fire there earlier this year, so all of the equipment that was in there is out of there, and so we're actually doing the remediation in there right now.

The remediation is actually pretty simple, clean out these 10 pits and inspect them, you know, take confirmation samples, and then just restore the site. The hardest thing in this entire process is getting these mill sheets that are on there off the pits. We've got about five off, but there's a number of them that are rusted, and it looks like we may have to actually torch, cut the bolts with a torch to get them off and move on from there. But that work is going on and that will be going on in the next month.

We've submitted a number of documents to the regulatory agencies. The ones that we're really hoping to get back are the Investigation Area C-1 and Investigation Area C-2 Remedial Action Plans. Those have been on our list for a long time. We are hoping to get those back in the very near future so that we can move forward and have the public presentation of those two Remedial Action Plans for the Lennar Mare Island site.

There's a number of remediation reports that we have submitted to both the Water Board and DTSC, a number of PCB sites and a number of petroleum hydrocarbon sites that we're hoping to get comments or approvals back here in the next month or two.

Upcoming fieldwork: We're going to be doing some additional petroleum hydrocarbon work in Building 121. Hopefully we can get to the FOPL segment at the Building 207 area completed, and then a number of PCB sites in Investigation Area C-2.

So that covers the material that I have with the Lennar report. Any questions on what's going on?

MR. COFFEY: Neal, what were those pits used for what or what was in those pits?

MR. SILER: It was a steam test facility is what it is. And what happened is --

MS. TYGIELSKI: No wonder it's all rusted still.

MR. SILER: And it was in Building 680, it's actually in Building 390 where XKT is, and there's these other pits that are in Building 688. What they love to do, there were these little clamps, they're mill clamps, and what they can do is they can push these little clamps in, and they can hook things up to these mill plates that are on the floor, it gives them a good stable surface to work on when they're doing any kind of the work they have. So that's what these things are basically.

Like I said, we had 'em in Building 680, we removed 'em there; they're in -- they're in Building 390; and then again we have 'em here in Building 688 also.

CO-CHAIR HAYES: Neal, a question for you. You have Building 866 area highlighted in pink. What's the significance of that? I can't find it on the list, maybe just because my eyesight is failing.

MR. SILER: Because it's one of the IR sites, Building 866 and IR11 area.

CO-CHAIR HAYES: What's that mean?

MR. SILER: That's what it was. We're actually doing some work there at an underground storage tank.

CO-CHAIR HAYES: Yeah, I've seen you doing some work.

MR. SILER: And that's just why it's called out, it's just called out there on the slide.

CO-CHAIR HAYES: Will you be telling us what you're doing there after a while?

MR. SILER: Yes.

CO-CHAIR HAYES: Okay. Thank you.

b) Weston Update (Dwight Gemar [Weston Solutions, Inc.])

CO-CHAIR LEAR: Weston update.

MR. GEMAR: And Elizabeth is over there making a paper airplane out of my Weston update. We were joking that it was getting small enough that the next time I'll do an origami presentation.

MS. WELLS: Post-It note.

MS. TYGIELSKI: Or just put it on a postcard.

MR. GEMAR: There you go. And in addition to tomorrow being a blue moon, it's also my oldest daughter's 21st birthday who is entering her fourth and final year at the U.S. Military Academy West Point. Go Army. Sorry.

CO-CHAIR HAYES: Tell us what else, she holds a record.

MR. GEMAR: Well, she is the all-time West Point holder in the women's pole vault, twelve feet nine inches. So she's doing well.

So yep, it's a pretty pithy report this month as we're kind of winding down.

The Western Early Transfer Parcel, Environmental Services Agreement. We just have two documents that are currently outstanding with regulators. One is the H-1 annual remedy status report. And the only reason that's still outstanding is we wanted to incorporate the results of our two wells that were just replaced out there which I'll mention in a moment.

And then also the Record of Decision and Remedial Action Plan for IR Site 05 and the Dredge Pond 7 South and the Western Magazine Area, that's also with the agencies for review.

And as far as H-1 goes, still babysitting the extraction system and removing water from the perimeter of the landfill area.

And also, as I just mentioned, in June we replaced two wells that had obstructed casings, and those were drilled out and replaced. And you can see a photograph there in the upper right which also illustrates one of our new requirements that the operator needs to be as large as the drill rig.

(LAUGHTER.)

MR. GEMAR: That's all I got.

c) Regulatory Agency Update (Patrick Hsieh [Department of Toxic Substances Control] and Elizabeth Wells [Regional Water Quality Control Board])

CO-CHAIR LEAR: Okay. We have regulatory update.

MS. WELLS: I'll go first. Okay. Let's see. During the last couple of months I went on vacation and to Africa. I know, right. And now I can't really remember anything else I did.

CO-CHAIR HAYES: No, I don't blame you.

MS. WELLS: No, we are just working on trying to review some reports and I think see if there's a way, we talked with the Navy today, about if there's a way that we can all work together to speed things up a little bit.

So I think that's going to be kind of the focus for us with Lennar and with the Navy over the next six months, because maybe we'll be done in six months, yeah.

MR. COFFEY: Yeah, sure.

MS. WELLS: So he can take his dog for a walk.

MR. COFFEY: Yeah.

MR. HSIEH: So I don't know if I can top your vacation to Africa, but I will be gone next week for my upcoming marriage, so --

(APPLAUSE.)

MR. HSIEH: But right now we're working on the finding of suitability for transfer for Investigation Area H-1. So I think we all recognize what a big priority that is, and so working really hard on that one. And I think -- and there's the Record of Decision right there.

So -- and I think if any of you are also watching the news, you are aware that our new director, Director Barbara Lee, had her confirmation hearing recently. And so I think that went fairly well, so actually moving forward with that. So we have new, we have new executive decision or decision makers, and hopefully that will be a good direction for the Department.

VI. CO-CHAIR REPORTS (Myrna Hayes [Community Co-Chair] and Janet Lear [Navy Co-Chair])

CO-CHAIR LEAR: Okay. So Co-Chairs' Report. Want me to go first?

CO-CHAIR HAYES: Uh-huh.

CO-CHAIR LEAR: So we have our Navy monthly progress report. We have two things going on right now, well actually only one, South Shore Area Remedial Investigation, which Brooks spoke about tonight. We have a couple photos here of the first phase of the work out there with the land survey and the geophysical survey.

We were doing PCB remediation in some of the buildings. Right now that work is on hold while we wait for laboratory analytical results. But we will be resumming that -- that work in just a few weeks.

We were actually out there today with Carolyn d'Almeida with EPA looking at some of the sites, so we're moving forward on that.

We submitted two documents this last month, and we received comments, concurrence from the Water Board on two, and DTSC on one document.

Big news for us; our office has moved and I have the new address on here, as well as my new phone number listed in the box there. We are on a Navy base now, before we were in an office building in Mission Valley. But we are a new tenant on the Navy Mine and Anti-submarine Warfare Command. So NMAWC. So now we're adjusting to being on a base. But it's going pretty good.

And that's really all I have. Once again, a new phone number for me on here. And I will send an e-mail to everyone about the new phone number. I'm waiting because some of them are still changing. I want to make sure that that stays my number before I send out too many announcements. So that's all I have.

Myrna.

CO-CHAIR HAYES: Interesting to see you selected the Grayback for your photo on your progress report. Probably people who worked at the shipyard know a lot more about the Grayback than I do, but if you'd like to see a very large photo of it passing northbound, upbound past Angel Island, come out to the preserve, there's a photo of it.

Supposedly this front missile was a missile launching, a Regulus missile launcher, and you had, they had to surface to launch, so that wasn't too cool. So they converted it to a SEAL training vessel. Yep, I'm not -- it's nice to see Mare Island history on those, on your progress report.

Okay. Our progress report, mine, the community co-chair, let's just go down a list maybe in terms of highest priority.

I will be the captain again this year for the Coastal Cleanup Day on Mare Island, I believe that's Saturday, September 19. Check the Coastal Commission's website or the Vallejo Sanitation and Flood Control, they're the manager of that. And I founded that Coastal Cleanup in Vallejo and did it for seven years as a volunteer. I had 21 cleanup sites, I don't know how many sites they have this year, but we do cleanup from this point to Highway 37 on the Napa River.

We have documented seventeen osprey nests on Mare Island and at the mouth of the Napa; in other words, on the other side of the river as well. That -- I cannot say for sure how many chicks we've had out of those seventeen nests, but bay-wide we've had 56 Osprey chicks.

Again, just to reiterate, because this is breaking news you might say. There have been no documented osprey nests in San Francisco Bay in the 20th the 21st century until they started nesting at Mare Island in about 2000. And now growing bay-wide. The Richmond colony has grown from three nests last year to eleven nests this year.

So it's a phenomenon that's being viewed with great interest throughout the world, primarily because osprey are the same species throughout the world, there's no subspecies. And they're a large fish, fishing bird, sometimes called a fish eagle or a fish hawk. Their diet is almost exclusively fish, over 99 percent.

And they have been nesting more and more on manmade structures, even in the more traditional nesting areas, so power poles and other structures. At Mare Island it happens to be lightning -- not lightning rods yet -- light poles and cranes and power poles. And that presents a management issue. And now we have some nesting on Coast Guard channel markers.

And that in the East coast where there are over 17,000 nests, Chesapeake Bay main south, the Coast Guard does not disturb those nests on channel markers, they actually modify the markers.

Here it appears that the Coast Guard isn't so familiar with how to manage them, and they have been cleaning off nests which, depending on the season, is not allowed under the Migratory Bird Act.

So I bring this up because it's of great interest as Mare Island transitions from an active Navy base to a civilian use, and as wildlife finds its way onto the island, whether it's these nests or, you know, an increasing abundance of nesting of other species or other uses, including coyotes; I just want to put in the record that this calls for a tremendous amount of coordination among individuals who have lease and lease oversight responsibility, including Lennar Mare Island, the City of Vallejo, the U.S. Navy, Island Energy, and others. I think it's been kind of new news for some city staff, and other staff are quite familiar with it, with this phenomenon.

And we have lessons already learned throughout the Bay. The City of Richmond and their contractors were doing a cleanup on an area -- I'm not sure if it was on the City of Richmond property -- but the contractor ended up spending $10,000 on deterrent, and the osprey successfully nested on their site, and it affected their cleanup time frame.

And it -- there was a simple solution if, that took less than 24 hours to achieve success with. And with very little money PG&E donated a nest platform -- and the solution has stood for now this season.

So I'm bringing this up because there are some pretty simple solutions. We're the last to know about them because this is the new, a new thing. But the research has been done, the documentation has been done, the equipment is, you know, all -- everything is in place throughout the world to handle this as a management issue, as an operations issue. So it shouldn't stump anybody.

And feel free to contact me, we are a member, Mare Island Heritage Trust is a member of the Bay Area Osprey Coalition, includes the Napa Solano Audubon which Wally is a member of, and he has been a monitor documenting the osprey in this area. The Golden Gate Audubon, the lead is the Golden Gate Raptor Observatory, all very well respected, scientific, bird-oriented organizations. And we have strong support from California Department of Fish and Wildlife.

So, again, if you -- if you see an issue, if you anticipate one, we had one come up where we, Island Energy had -- under the direction of and cooperation with California Department of Fish and Wildlife, they had moved or provided a more suitable nest site, which is PG&E's custom, for example, where because one chick was electrocuted -- it was not very pretty thing, it wasn't -- but it affected their operations negatively to have a nest on a high voltage line. So in cooperation with the Department of Fish and Wildlife they were able to place a pole adjacent to that pole, and the nest was rebuilt on that pole. It was found to be a preferred nest site, though it wasn't successful for whatever reason. That does occur.

Okay. So that's enough on osprey, but just so you know, it's a very exciting thing. People love osprey. We had our third Osprey Days Festival that we held last weekend in June; we had two, three full boat trips, and we overflowed to two more two weeks later.

We had a wedding last weekend in the preserve. One hundred and fifty people came out to watch their friends get married over San Pablo Bay. Just again bring that up because these are the types of things that take place when -- at the end of the line when you have successfully done environmental cleanup and in conjunction with your planned reuse. Then the public has access to property for whatever the reuse is slated. In our case it's for the, because it is granted land of the State of California to the City of Vallejo, and it was -- has been consistently intended as park, then it's for the enjoyment, all state lands, grant lands is for the enjoyment of all Californians. So this was certainly an enjoyable thing for 150 people who came out on that wedding day.

We just completed a fennel pollen harvest for the, I think it would be the fifth or sixth year in the preserve, as well as on the Vallejo Sanitation and Flood Control property and in the City of Fairfield. We don't do that work, we just allow fennel to be harvested for seasoning. And maybe it reduces the seed bank a little tiny bit so we don't have quite so much, but I don't think so.

There won't be a Mare Faire this year that would have been the second weekend in August. I just ran out of time to plan it.

And then the last thing that I wanted to mention is if -- those of you who have been mildly interested or were, maybe had a heightened interest at some point in the kidnapping that took place on Mare Island that has been -- the Feds have since admonished the City of Vallejo's police department for calling it a hoax -- I would highly recommend, at least for fun, that you read the manifesto by the apparent kidnapper, that was sent to the Chronicle during the time of the kidnapping, trying to convince the law enforcement that it wasn't a hoax, that it actually was a real kidnapping.

And the reason I recommend that is because it's a pretty good read. I think the author is well on their way to a bestselling, you know, Mare Island-based book, a who-done-it book. And it explains some of our challenges, operations challenges during that time period that we had. And it's just generally -- I think you'll find it pretty compelling reading. It's only 9,000 words so it's a short, short little story.

That's it. Thank you.

CO-CHAIR LEAR: Okay. We have one more comment -- public comment period if you have any comments?

(NO RESPONSE.)

CO-CHAIR LEAR: All right. Thanks, everybody, for coming. We'll see you next time. Drive safe.

(Thereupon the proceedings ended at 8:43 p.m.)

LIST OF HANDOUTS:

- Presentation Handout – South Shore Area Remedial Investigation Fieldwork Overview
- Presentation Handout – Installation Restoration Program Site 15 Update and Path Forward
- Weston Solutions Mare Island RAB Update
- Navy Monthly Progress Report, Former Mare Island Naval Shipyard, July 30, 2015

Attachment 1. Presentation Handout – South Shore Area Remedial Investigation Fieldwork Overview

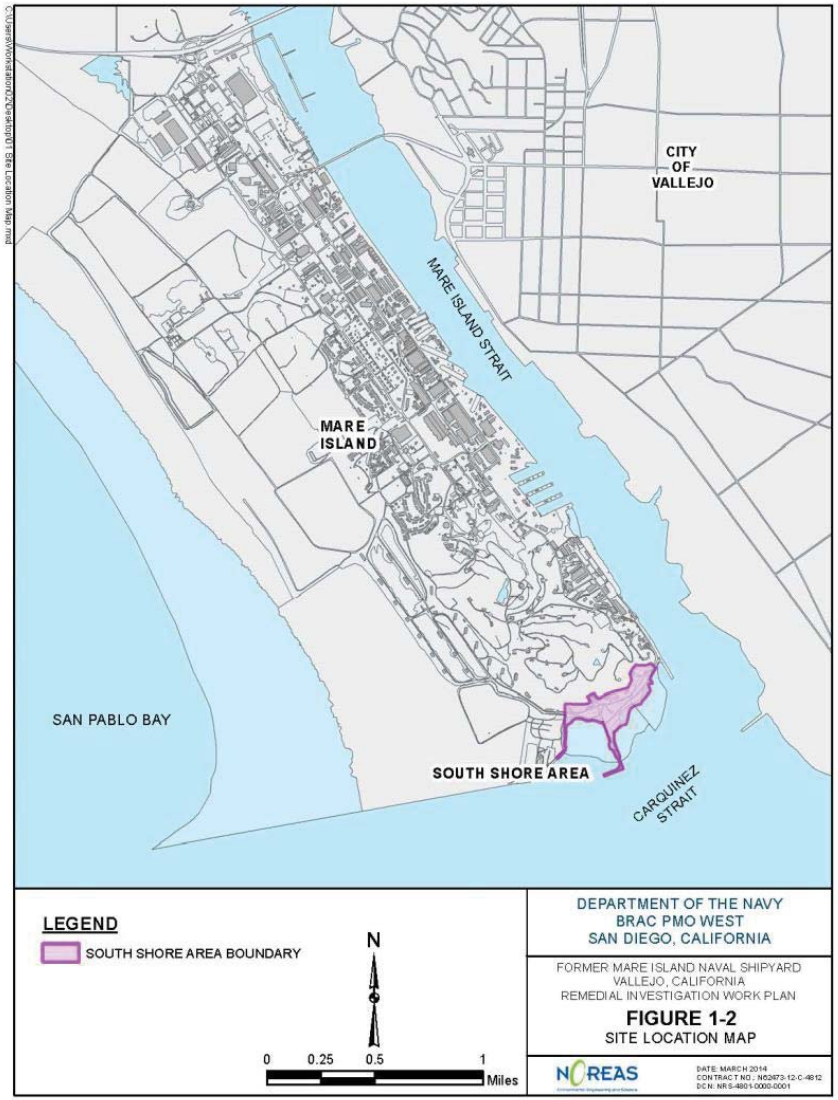
SOUTH SHORE AREA
REMEDIAL INVESTIGATION FIELDWORK OVERVIEW

Restoration Advisory Board Meeting

July 30, 2015

Presentation Outline

- Site Location, History, and Current and Future Land Use
- Previous Actions/Investigations
- Site Conceptual Model
- RI Project Objectives
- Current RI Fieldwork
- Reporting and Risk Assessments
- Project Schedule
- Questions



Site History/Land Use

- Approximately 38 acre site located at southern tip of Mare Island
- Created in several stages between 1930 and 1947
- Staging and loading/unloading of munitions from ships
- Some munitions repair work conducted, but munitions were not manufactured
- Limited use/storage of hazardous materials – mainly diesel fuel
- Munitions items and related debris was disposed of (buried) at some locations
- Current land use is industrial; future is park/wildlife preserve

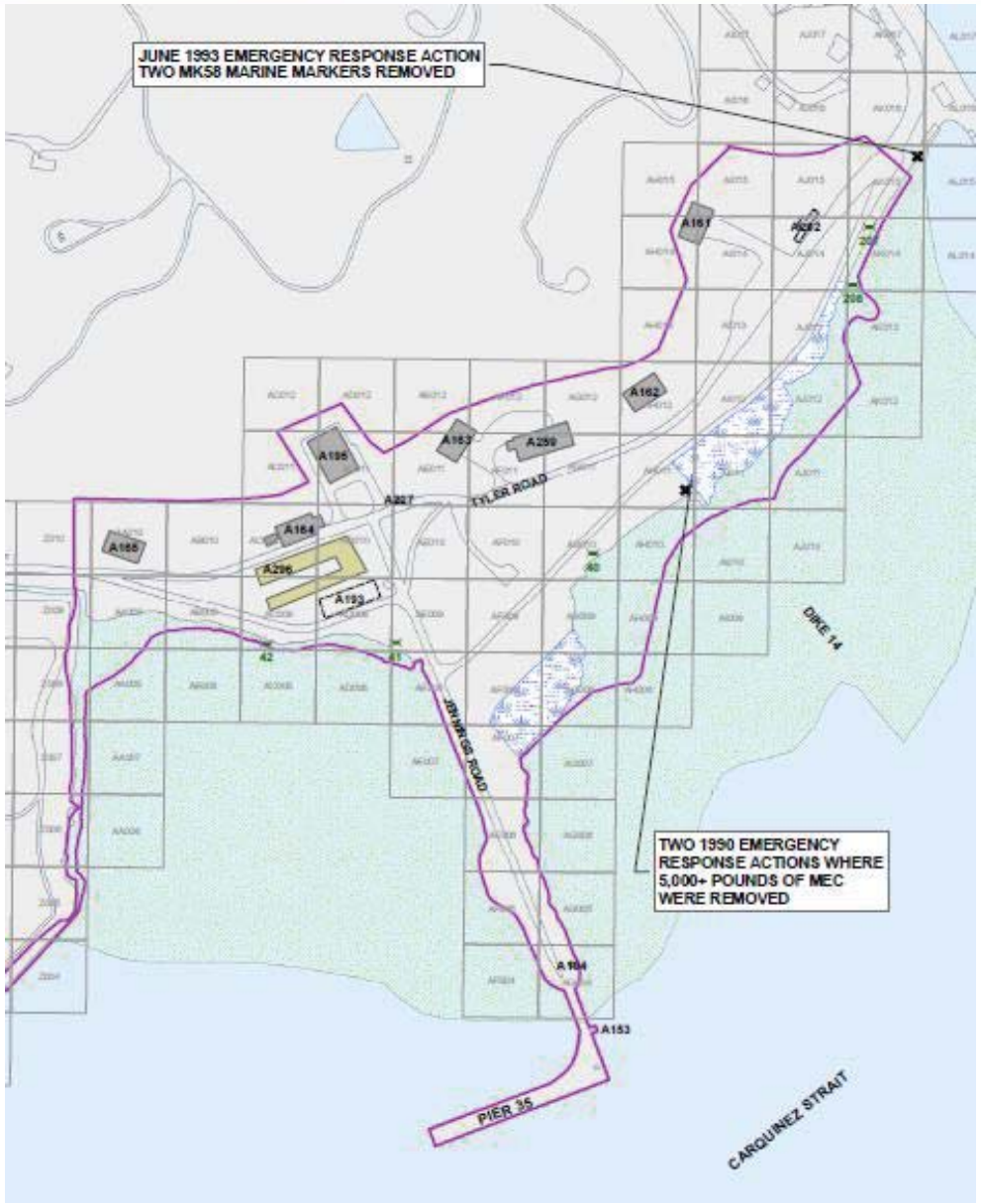
Previous Actions/Investigations

1990 – 1993

Emergency Removal Actions:

Three (3) MEC emergency munitions response actions:

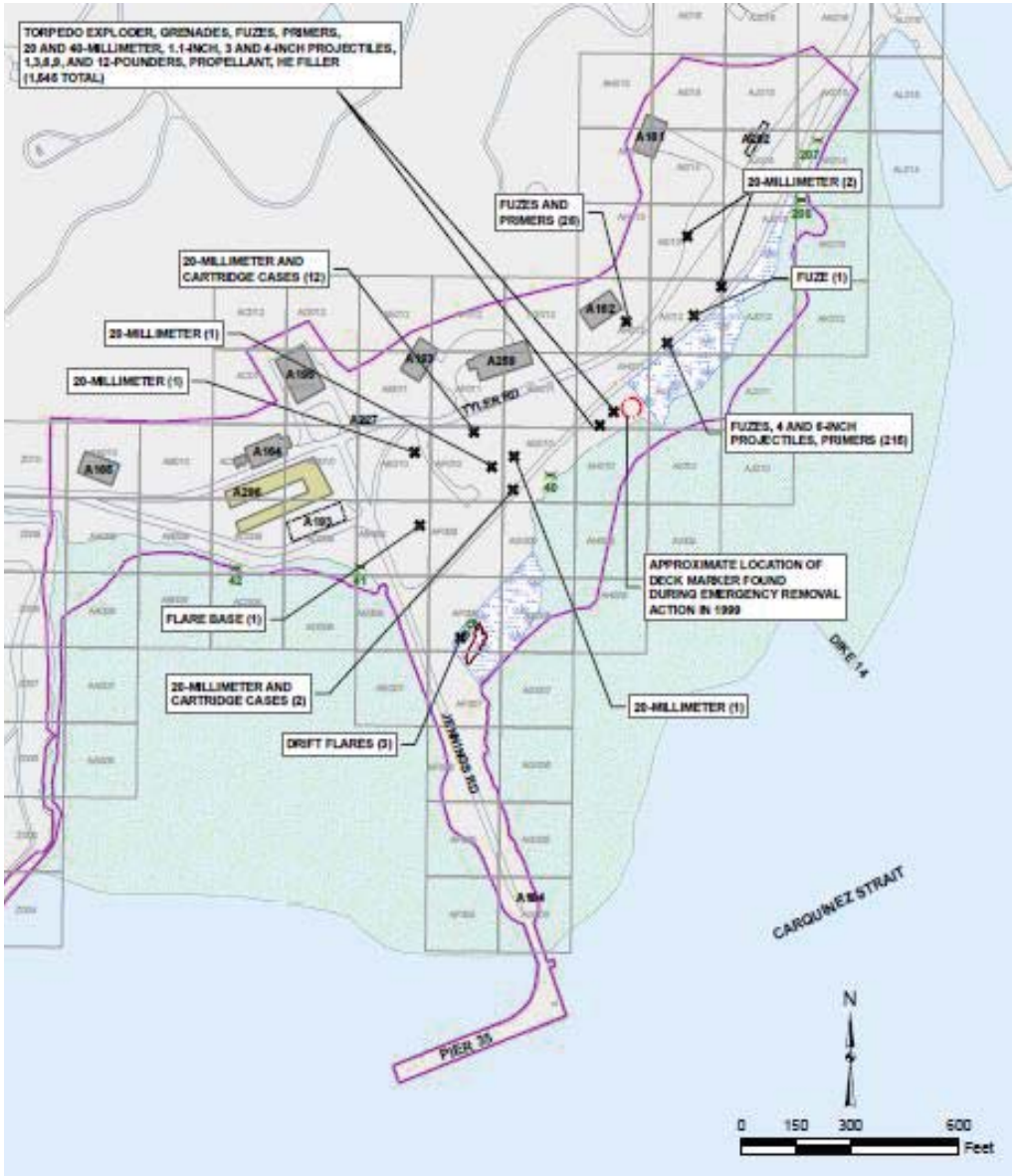
- (1990-two actions) Approx. 5,000 lbs of munitions removed from area west of Dike 14
- (1993-one action) 2 MK 58 Marine Markers found on beach near Pier 34



Previous Actions/Investigations

1997 – 1999
UXO Intrusive Investigation:

- UXO Intrusive Investigation based on results of geophysical surveys for UXO at the SSA.
  - Total of 1,810 discrete MEC items removed
  - Also recovered:
    - 156,753 small arms ammunitions
    - 767,373 inert ordnance items
    - 688,419 lbs of scrap metal
  - Majority of MEC items recovered from Dike 14 area
- A single radioluminescent deck marker found near Dike 14. No other radiologic items or material found.
- 3 discrete pits identified and excavated where munitions items likely disposed by burning (Oven/Primer Pits)



Previous Actions/Investigations

2003 – 2006

Digital Geophysical Mapping:

- A digital geophysical mapping (DGM) survey was conducted, which identified a total of 14,324 geophysical anomalies.

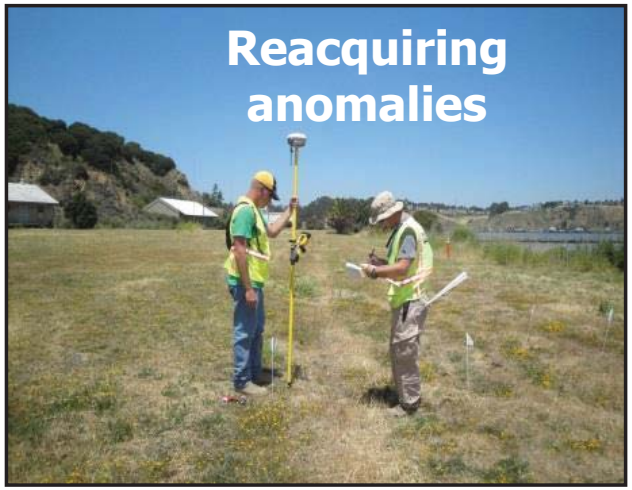
- Site history and results of DGM survey were used to distinguish areas where buried munitions and/or munitions debris most likely to be found (areas outlined in red designated as Category A; all else Category B)

Previous Actions/Investigations

Previous Actions/Investigations

2012 – 2013 MEC NTCRA

- Comprehensive Non-Time Critical Removal Action (NTCRA) was conducted at SSA based on results of the 2006-2008 DGM Survey and additional 2012-2013 surveys.
  - 100% removal of metallic anomalies in Category A areas
  - 26 to 59% removal of metallic anomalies in Category B areas (minimum 20%)
  - 100% removal of metallic anomalies under accessible buildings
  - 17,000+ locations dug; 358 munitions items and thousands of munitions-related debris items (MDAS) removed
  - Primers, small fuses, small arms ammunitions, 50-caliber casings, projectile bases and primer flash tubes
- Several subsurface disposal areas identified and excavated

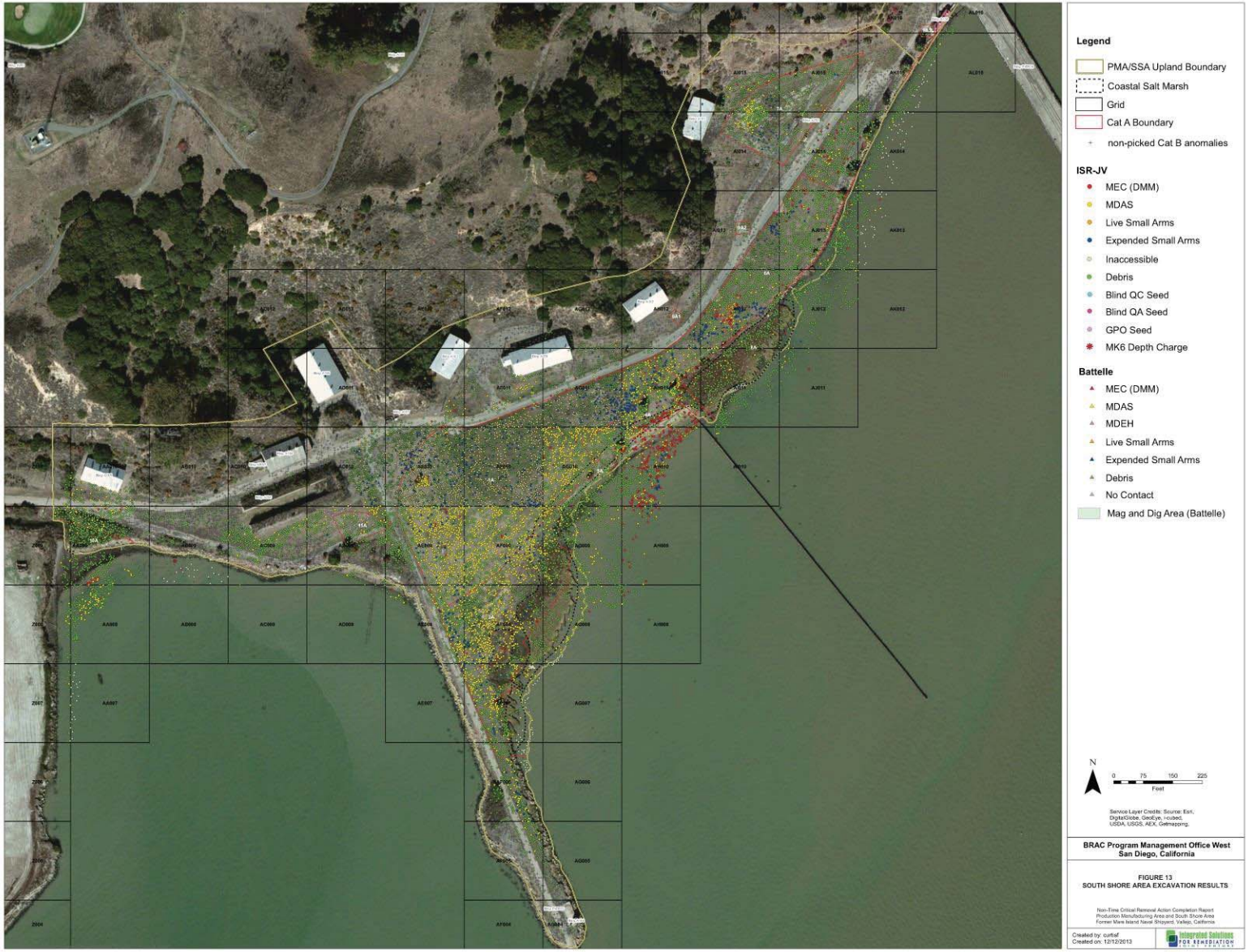


Previous Actions/Investigations

2012 – 2013 MEC NTCRA cont'd

- Sampling for munitions constituents (energetics & metals) conducted at 6 representative locations
  - No energetics detected
  - All detected metals below ambient/background levels for Mare Island
- Non-munitions items found during excavation include:
  - Buried drums (41 total found in 2 locations)-soil samples ND and drums appear to be filled with soil and used as fill
  - Three (3) USTs and 2 dry wells of unknown origin
- Radiological scanning was conducted at all excavations - No radiological items or materials identified

Previous Actions/Investigations



Conceptual Site Model

- SSA historically used for storage/handling of munitions and general shipyard items
- RI approach will consider all potential contaminant sources at SSA
- Most probable release mechanisms for potential contaminants include:
  - Direct release to subsurface (at depth) from leaking pipelines or tanks
  - Direct disposal to subsurface by burial with trash, debris, or MEC items
  - Surface releases in areas where hazardous materials stored and/or used (none known)

SSA Conceptual Site Model

Ordnance Warehouse A165

Project Objectives

PRIMARY

1. Determine if historical activities at the SSA have resulted in chemical or munitions-related impacts to the soil and groundwater, and
2. Characterize the nature and extent of any impacts
3. Evaluate risk to human health and the environment

SECONDARY

- Delineate the eastern extent of the DGM Grid AF011 disposal pit
- Conduct the Final Status Survey (FSS) to obtain unrestricted release of a location where the single radioluminescent deck marker was found and removed in 1999

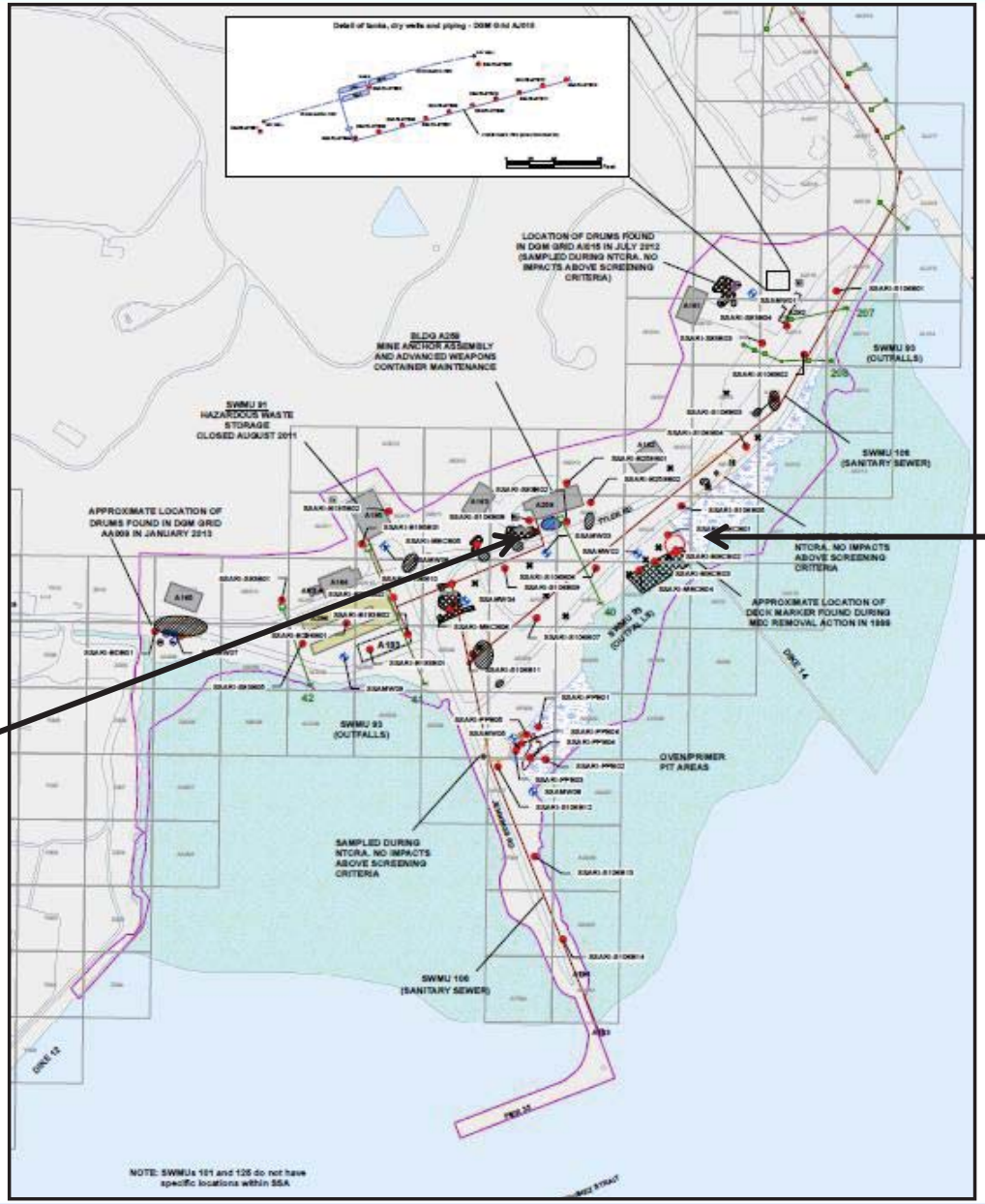
Current Remedial Investigation Fieldwork- SOIL SAMPLING

Collect 60+ Soil Samples from 0.5', 2-5', and 5-10' below ground surface (bgs) at locations near features of interest, including:

- Buildings
- Storm Drains/Sewer Lines
- Former MEC Sites (including Oven/Primer Pits)
- Drums/USTs found during NTCRA

- **Analyze samples for:**
  - Volatile organic compounds (VOCs)
  - Semi-volatile organic compounds (SVOCs) (including PAHs)
  - Total Petroleum Hydrocarbons (TPH)
  - Polychlorinated biphenyls (PCBs)
  - Metals
  - dioxins/furans and pesticides (selected samples only)

Current Remedial Investigation Fieldwork- SOIL SAMPLING



Approximate location of radio-luminescent deck marker

AF011 Debris Disposal Area

Current Remedial Investigation Fieldwork - GROUNDWATER SAMPLING

- **Install and develop 9 wells and collect groundwater samples**
- **Analyze Samples for:**
  - VOCs
  - SVOCs (including PAHs)
  - TPH
  - PCBs
  - Dioxins/furans (selected samples only)
  - Total dissolved solids (TDS)

Reporting and Risk Assessments

Munitions Response & Installation Restoration RI Report will incorporate all available data from previous investigations and removal actions at the SSA to provide comprehensive evaluation of site conditions

Baseline Human Health Risk Assessment (BHHRA) to evaluate if past releases to site soil and/or groundwater pose unacceptable risk to human health

- **Potential receptors selected for the BHHRA include the following:**
  - Current and future commercial/industrial workers
  - Future recreational users
  - Future construction workers
  - Hypothetical future residents
- **MEC Hazard Assessment** will be performed using results of previous removal actions (including 2012-2013 NTCRA) and site information

Ecological Risk Assessment (ERA) to evaluate if site poses an unacceptable risk to potential ecological receptors such as the salt marsh harvest mouse

Project Schedule

Issued Final RI Work Plan (approved 7/14/15)	July 13	2015
Site Preparations/Mobilization	Mid-July	2015
Conduct Soil and GW Sampling	July/August	2015
Delineate AF011 Pit	Late July	2015
Conduct Final Status Survey	Mid-August	2015
Obtain/Evaluate RI data	Sept/Oct	2015
Submit Draft **MRP/IRP** RI Report	February	2016
Issue Final **MRP/IRP** RI Report	September	2016

Questions?

Acronyms and Abbreviations

- bgs = below ground surface
- BHHRA = Baseline Human Health Risk Assessment
- BRAC = Base Realignment and Closure
- cont'd = continued
- DGM = digital geophysical mapping
- DMM = discarded military munition
- ERA = Ecological Risk Assessment
- FSS = Final Status Survey
- ft = feet
- GPO = Geophysical Prove Out
- GW = Groundwater
- IA = Investigation Area
- IR = Installation Restoration
- IRP = Installation Restoration Program
- MDAS = Munitions Documented as Safe
- MDEH = Munitions Documented as an Explosive Hazard
- MEC = Munitions and Explosives of Concern
- MRP = Munitions Response Program
- ND = Not Detected
- NTCRA = Non-Time Critical Removal Action
- PAH = Poly-Aromatic Hydrocarbon
- PMA = Production Manufacturing Area
- PCBs = Polychlorinated Biphenyls
- QA = Quality Assurance
- QC = Quality Control

Acronyms and Abbreviations (cont'd)

- RAB = Residential Advisory Board
- RAD = radiological
- RI = Remedial Investigation
- RMR = Risk Management Range
- SSA = South Shore Area
- SVOC = Semi-Volatile Organic Compound
- TDS = Total Dissolved Solids
- TPH = Total Petroleum Hydrocarbons
- UXO = Unexploded Ordnance
- UST = Underground Storage Tank
- VOC = Volatile Organic Compound

Attachment 2. Presentation Handout – Installation Restoration Program Site 15 Update and Path Forward

Remediation Progress Update and Path Forward

Installation Restoration Program Site 15

Investigation Area C1

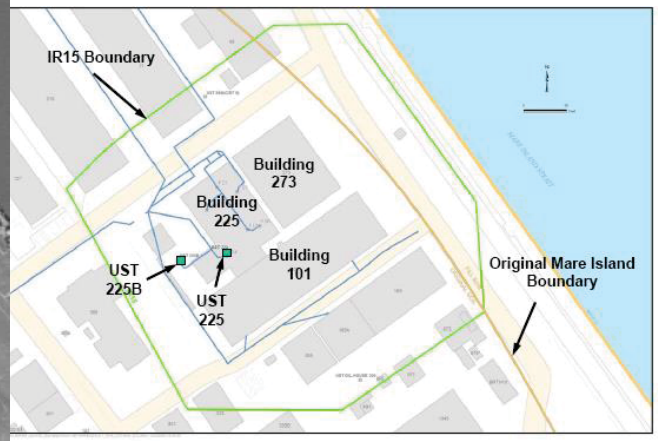
Presented to
Mare Island Restoration Advisory Board

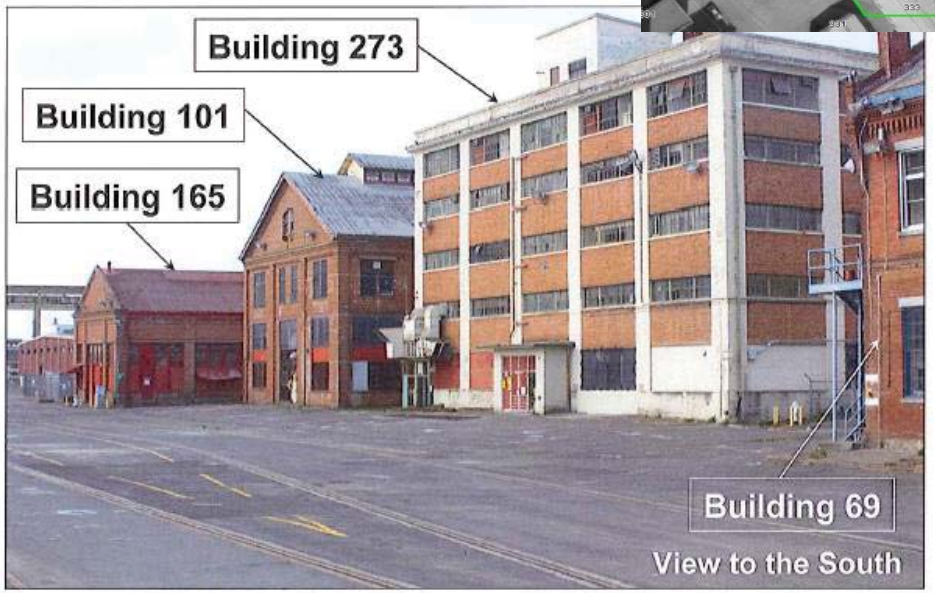
July 30, 2015

Topics

- Installation Restoration Program Site 15 (IR15) Site Description
- Review Approved Remedy for IR15
- Discuss Remediation Progress
- Conclusions and Path Forward
- Questions

Site Location and Features

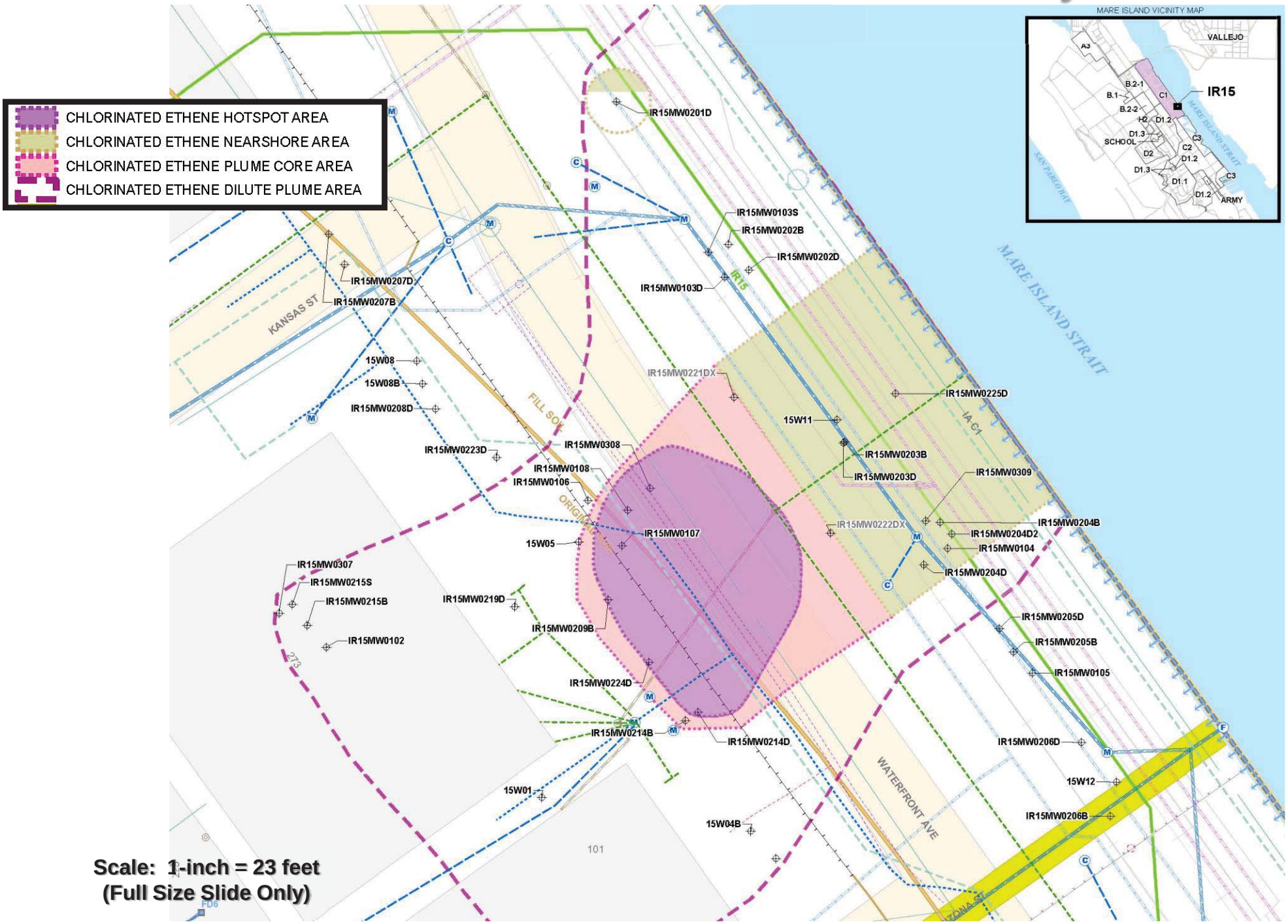




Site Description

- **Four (4) Acres Industrial / Commercial Waterfront**
- **Historic Use**
  - Building 101 – 1899 - Pipe Cleaning
  - Building 225 – 1911 – Plating Shop
  - Building 273 – 1921 – Electrical and Optical Shop / Warehouse / Offices
- **Future Use**
  - Industrial / Commercial / Promenade
- **Constituents-of-Concern**
  - Metals – Arsenic, Cadmium, Lead and Hexavalent Chromium
  - Chlorinated Volatile Organic Compounds (CVOCs)
- **Previous Investigative and Remedial Actions**
  - 1983 – 2010 – Investigations
  - 1987 – Underground Storage Tank (UST) 225B Removal
  - 1993 – UST 225 and Building 225 Floor Drain Removal
  - 2008 – 2010 – Enhanced Reductive Dechlorination (ERD) Pilot Studies
  - 2010 – ? – Remedy Implementation

Initial Remediation Areas – February 2011

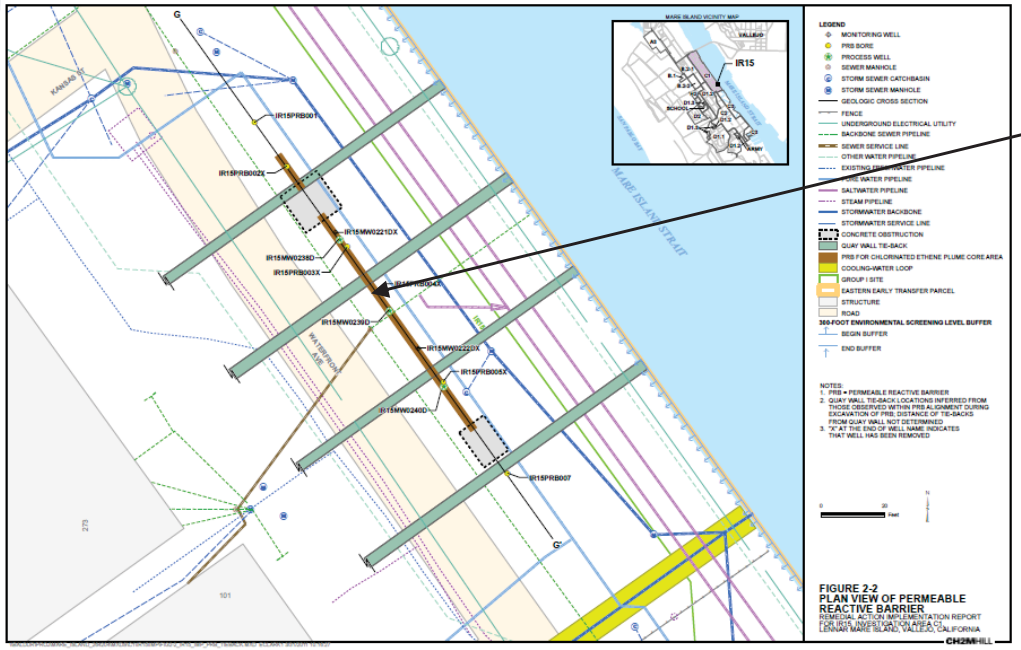


Scale: 1-inch = 23 feet
(Full Size Slide Only)

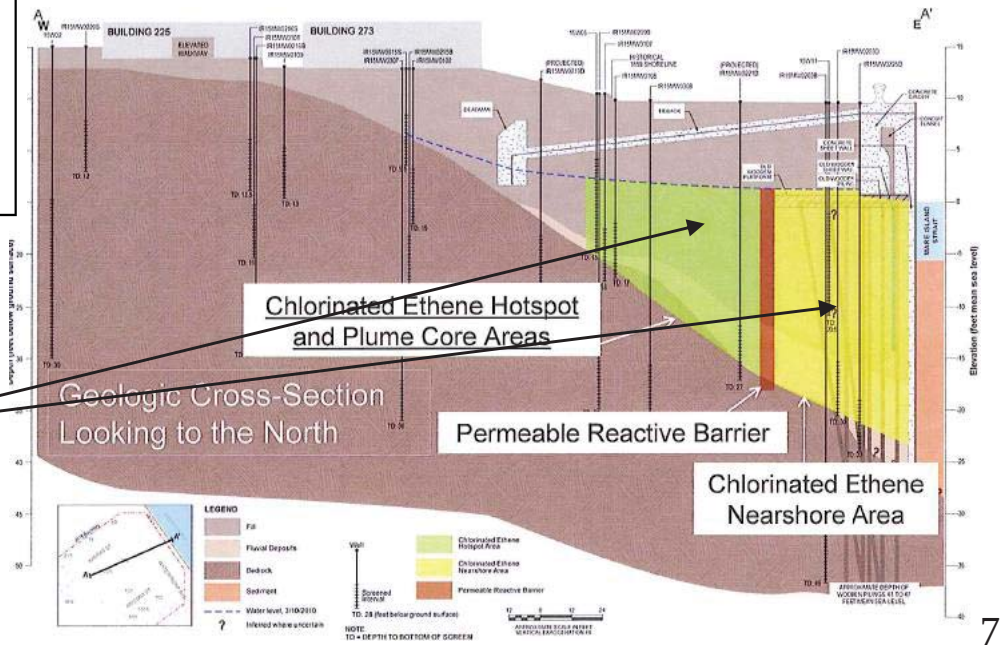
Regulatory Agency – Approved Remedy

- Excavation of Metal Hotspots Around Building 225
- Use Building 225 Concrete/Asphalt Foundation as a CAP
- Trench Excavation for Permeable Reactive Barrier (PRB)
- Place Reactive Media (Zero-Valent Iron – ZVI) in PRB Trench
- Enhanced Reductive Dechlorination (ERD) Injection(s) in Nearshore and Hotspot Plume Areas
- Offsite Disposal of Excavated Materials
- Site Restoration
- Groundwater Monitoring / Monitored Natural Attenuation
- Land Use Covenant (LUC) Preparation
- Operation and Maintenance Plan Preparation and Implementation

Regulatory Agency-Approved Remedy (Continued)



PRB Wall Placement

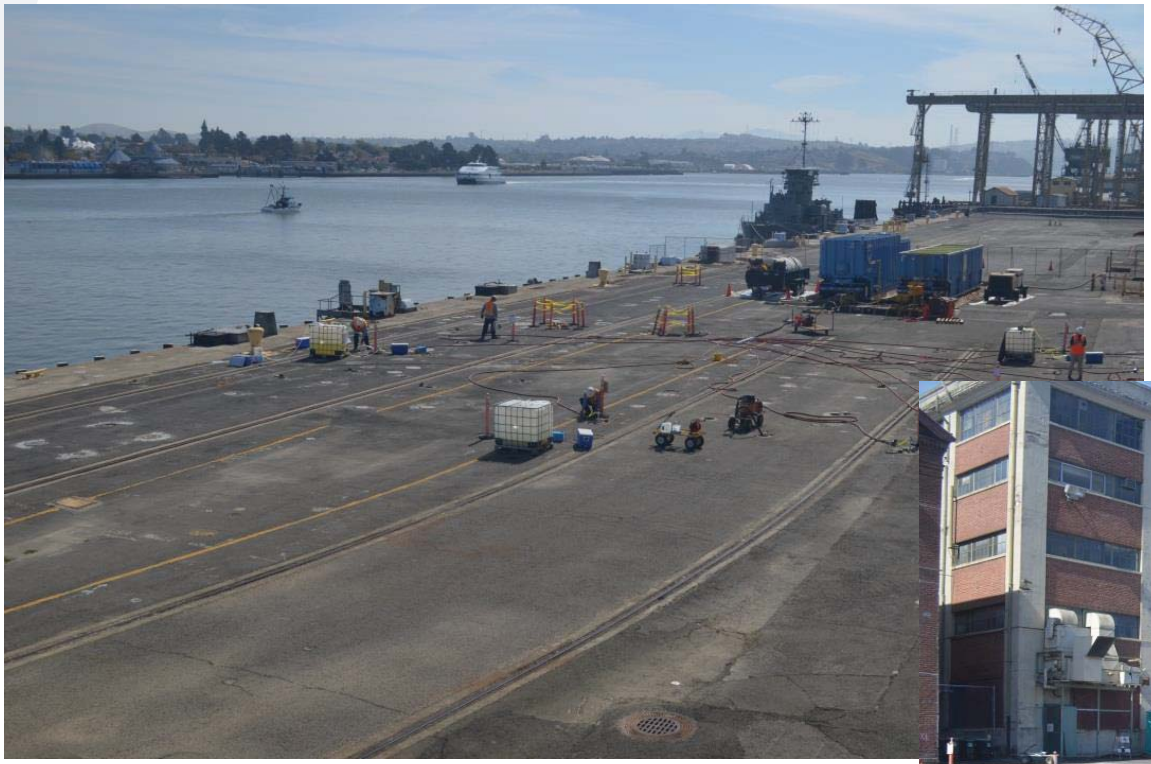


ERD Injection Areas

There Have Been Three ERD Injection Events – 2011 and 2012

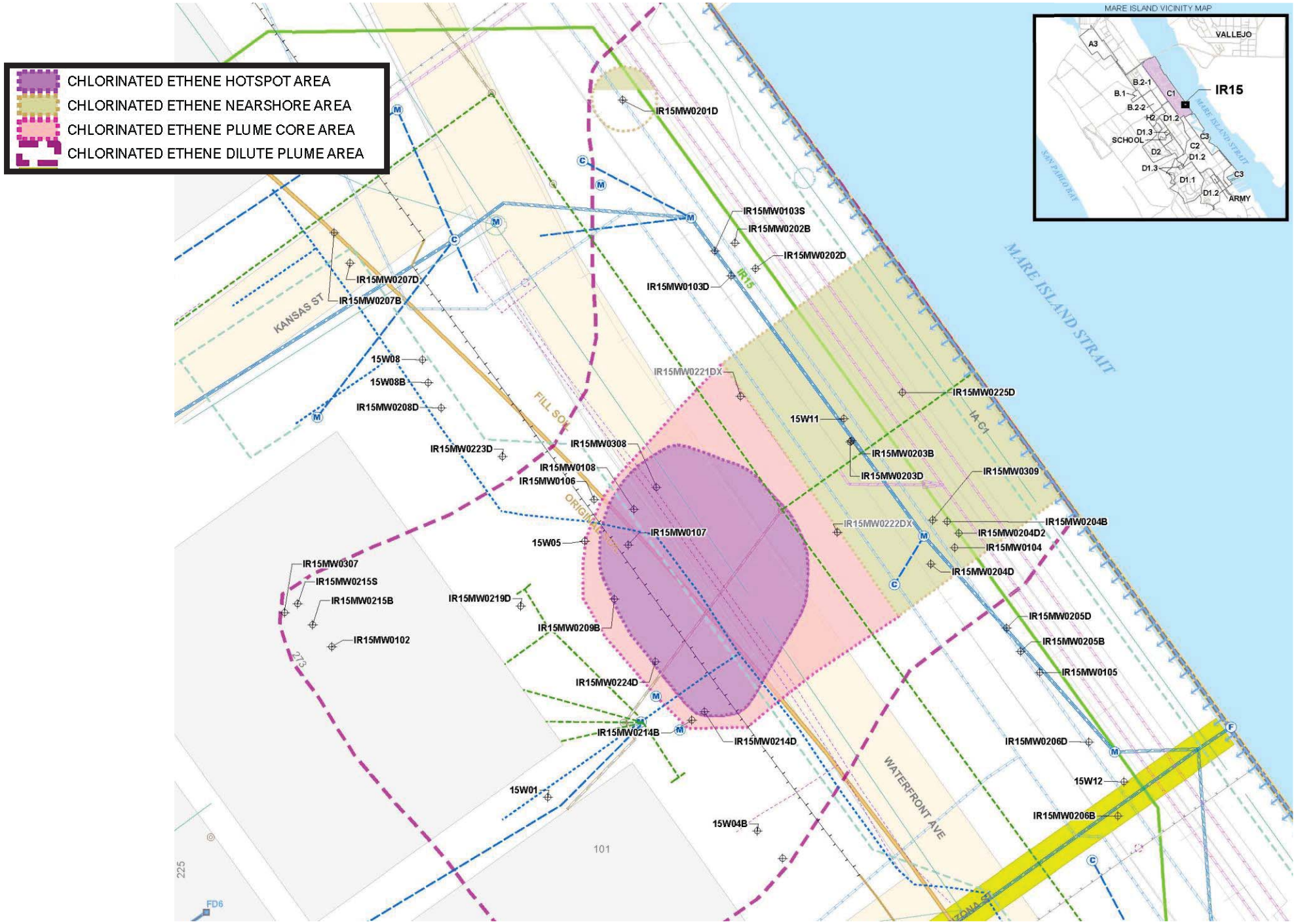
- First Injection Event – First Quarter 2011
- Second Injection Event – Fourth Quarter 2011
- Third Injection Event – Third Quarter 2012
- What Was Injected?
  - Bioaugmentation – Microbe Addition
  - EHC – Zero-Valent Iron (ZVI) and Carbon Substrate
    - ✓ 37,000 Pounds
  - Cheese Whey – Additional Carbon Source
    - ✓ 29,000 Pounds
  - Nutrients, Stimulants, Stabilizers and Tracer
    - ✓ 105,000 Gallons

Third Injection Event at IR15 – September 2012 (Photographs)

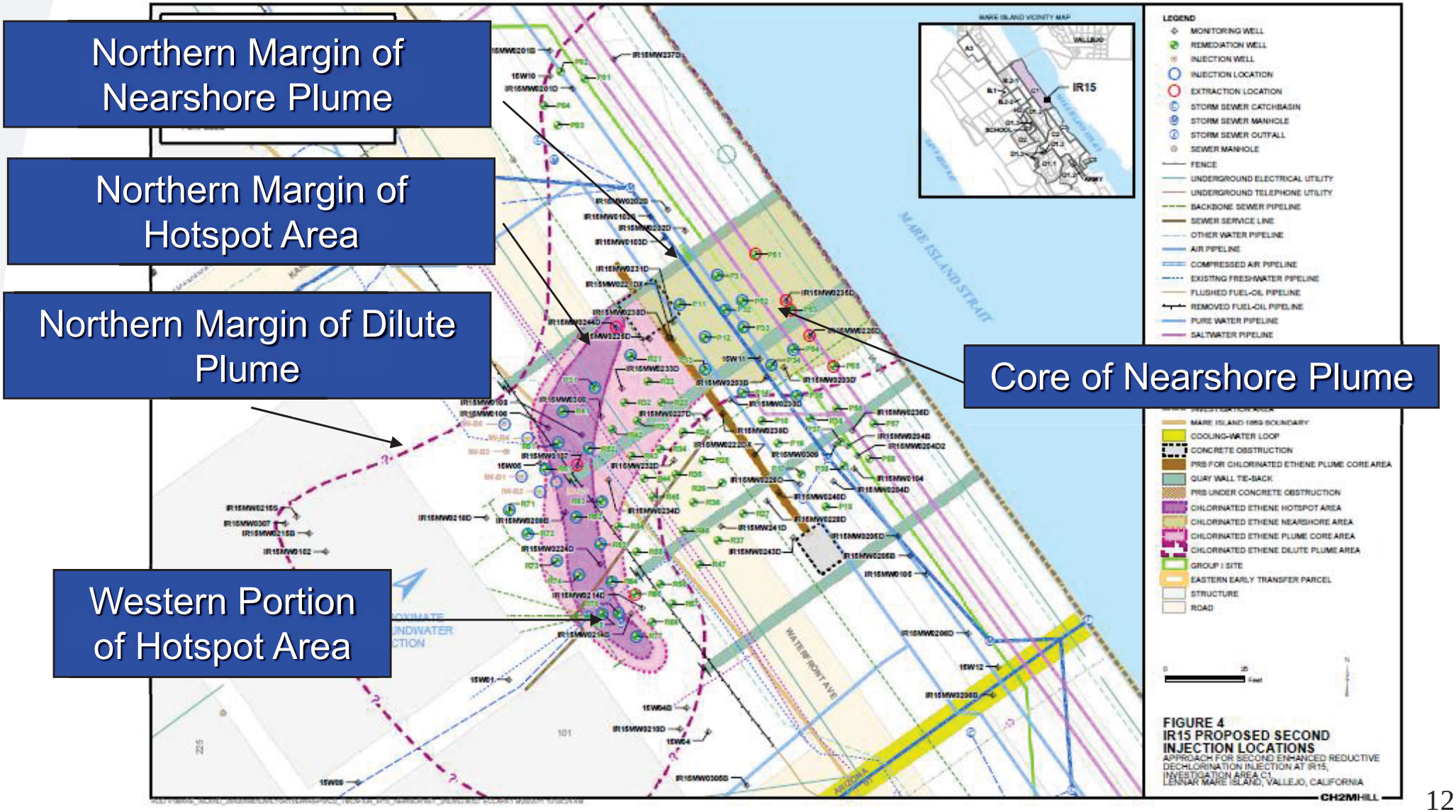


Third Injection Event at IR15 – September 2012 - (Photographs) (Continued)

Initial Remediation Areas



Remediation Progress:
Second Injection Event – Fourth Quarter 2011



Remediation Progress:
Third Injection Event – Third Quarter 2012

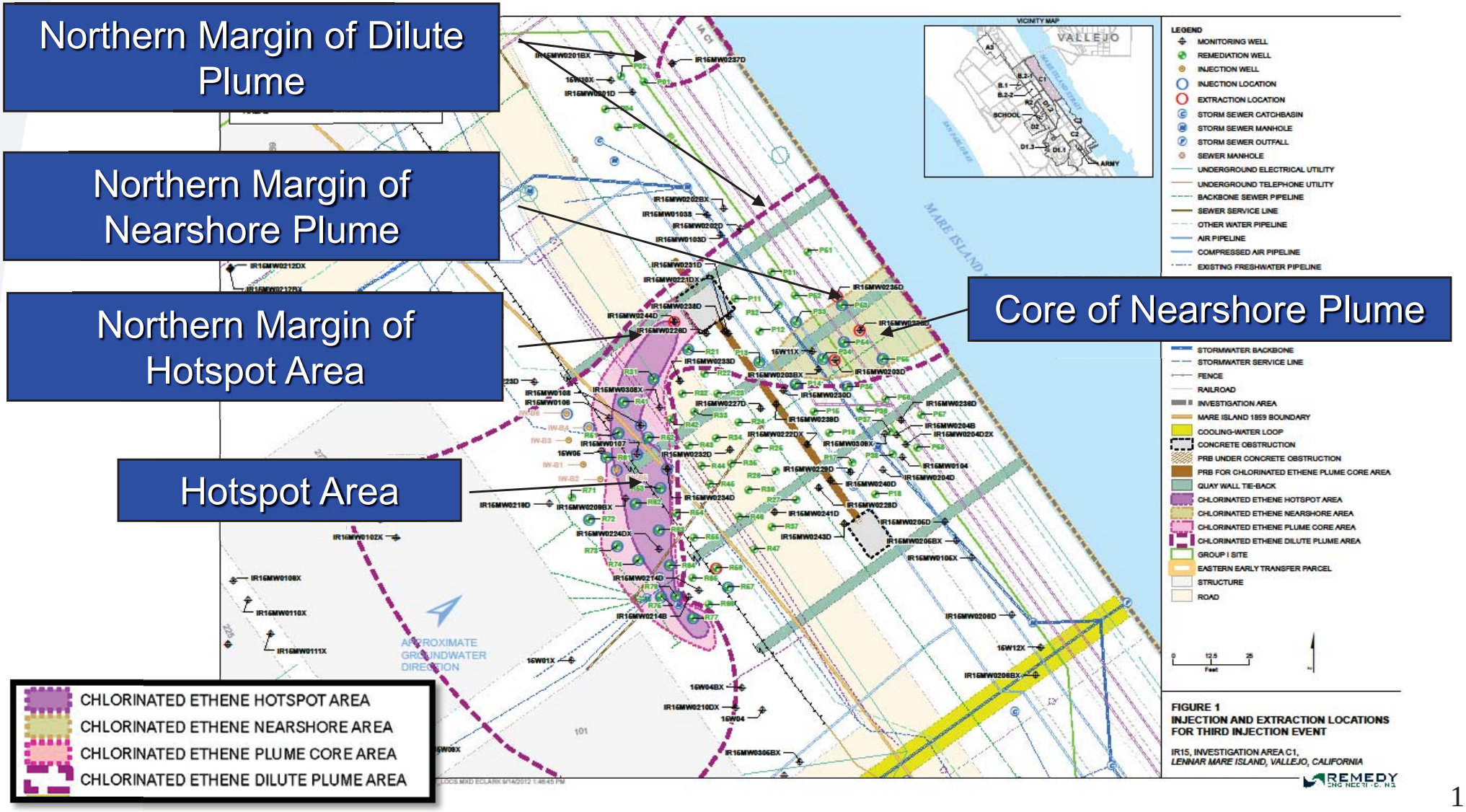
Northern Margin of Dilute Plume

Northern Margin of Nearshore Plume

Northern Margin of Hotspot Area

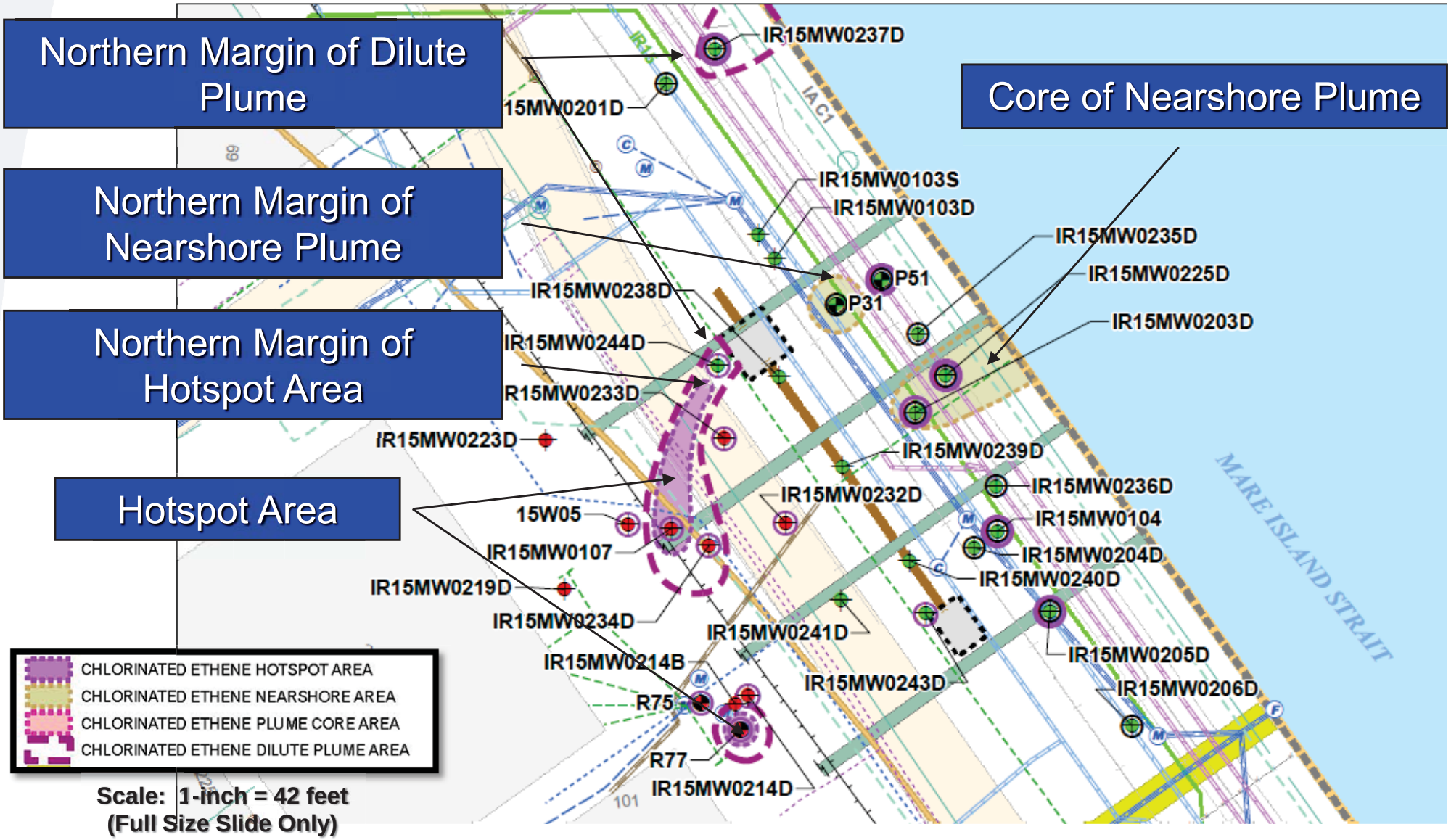
Hotspot Area

Core of Nearshore Plume



CHLORINATED ETHENE HOTSPOT AREA
CHLORINATED ETHENE NEARSHORE AREA
CHLORINATED ETHENE PLUME CORE AREA
CHLORINATED ETHENE DILUTE PLUME AREA

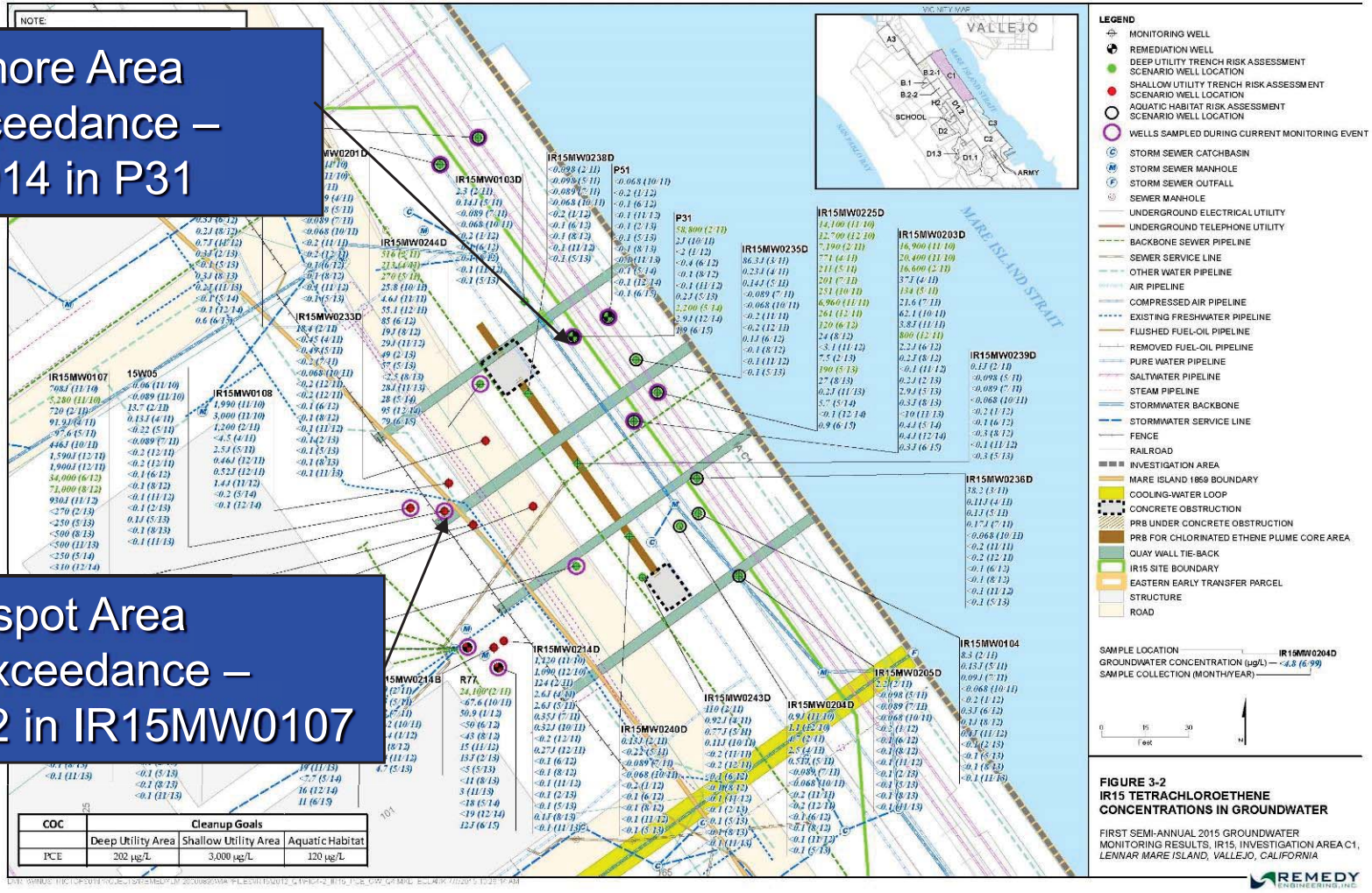
Remediation Progress:
Third Quarter 2013



Remediation Progress:
June 2015 – Tetrachloroethene (PCE)

Nearshore Area
Last Exceedance –
May 2014 in P31

Hotspot Area
Last Exceedance –
August 2012 in IR15MW0107

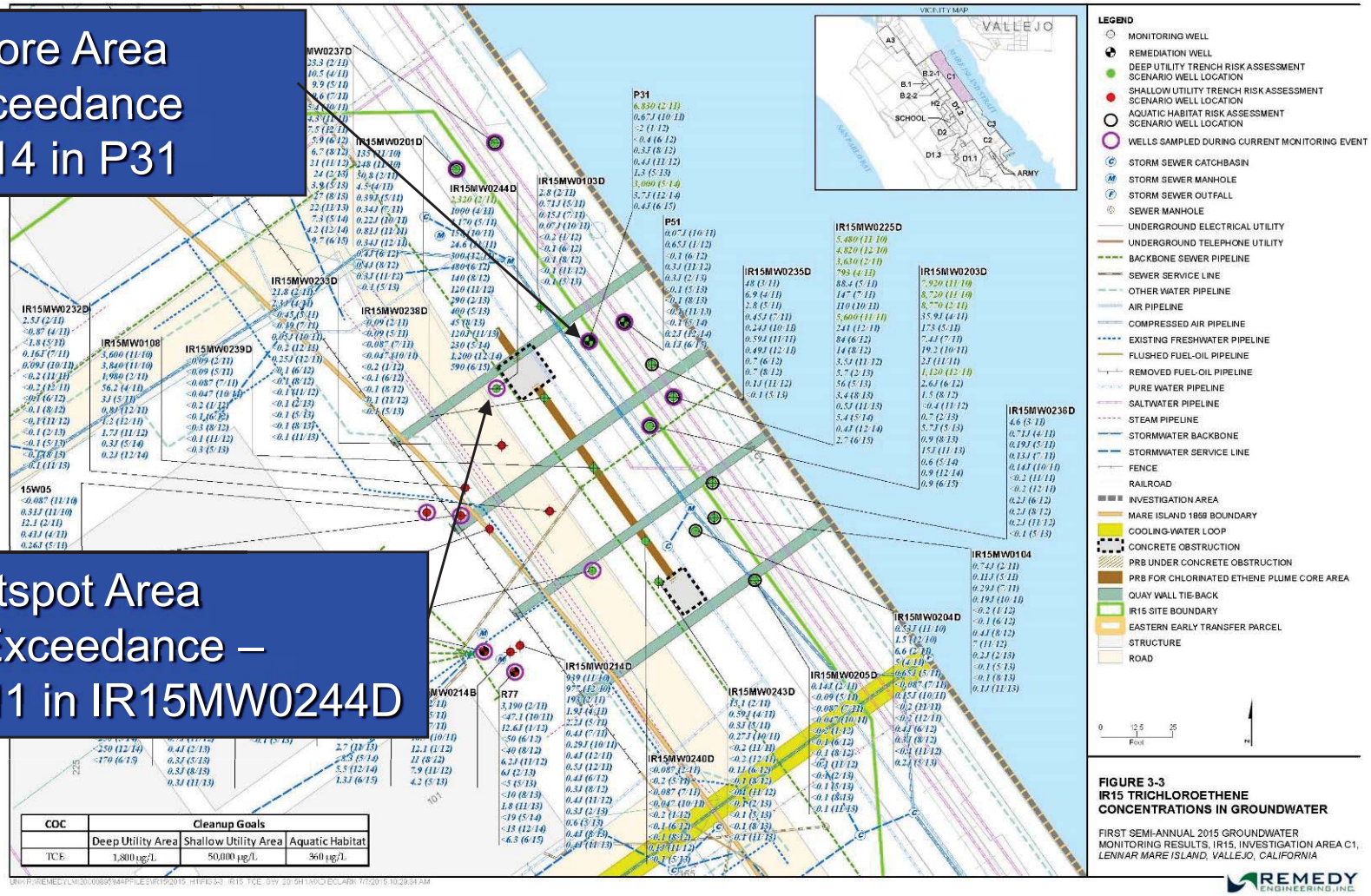


COC	Cleanup Goals		
	Deep Utility Area	Shallow Utility Area	Aquatic Habitat
PCE	202 µg/L	3,000 µg/L	120 µg/L

Remediation Progress:
June 2015 – Trichloroethene (TCE)

Nearshore Area
Last Exceedance
May 2014 in P31

Hotspot Area
Last Exceedance –
February 2011 in IR15MW0244D

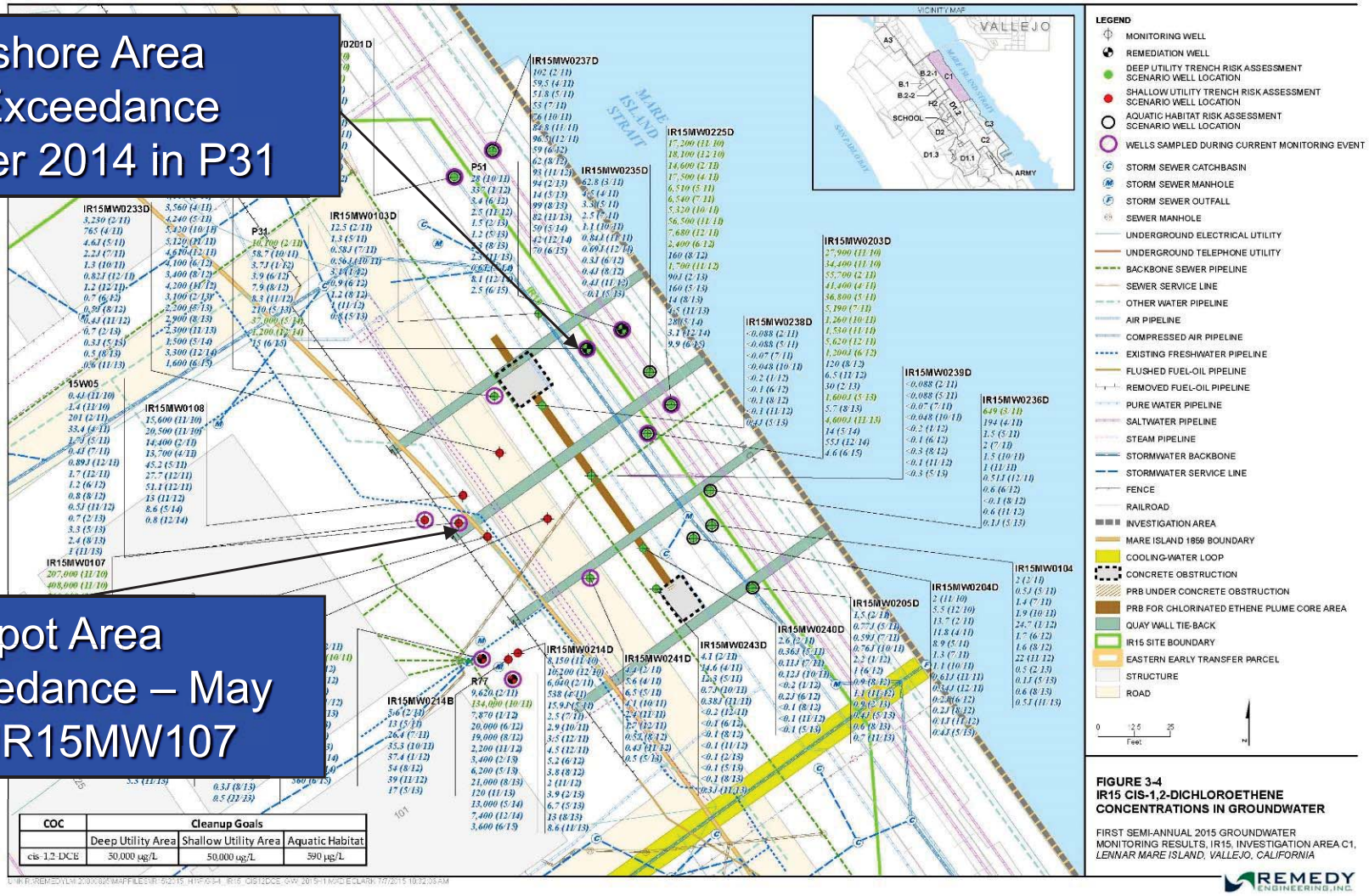


COC	Cleanup Goals		
	Deep Utility Area	Shallow Utility Area	Aquatic Habitat
TCE	1,800 µg/L	50,000 µg/L	360 µg/L

Remediation Progress:
June 2015 – cis-1,2-chloroethene (cis-1,2-DCE)

Nearshore Area
Last Exceedance
December 2014 in P31

Hotspot Area
Last Exceedance – May
2014 in IR15MW107

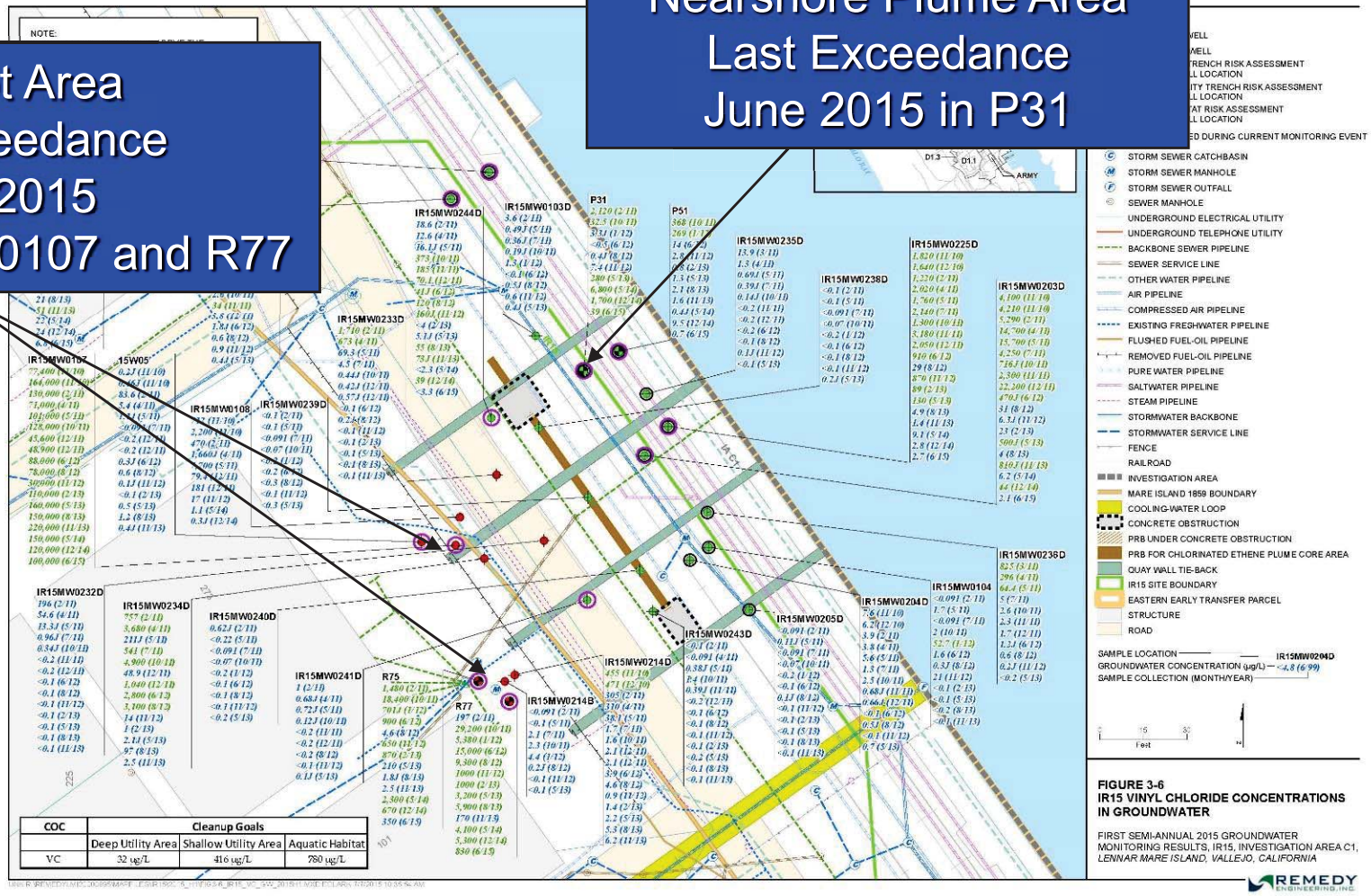


COC	Cleanup Goals		
	Deep Utility Area	Shallow Utility Area	Aquatic Habitat
cis-1,2-DCE	50,000 µg/L	50,000 µg/L	590 µg/L

Remediation Progress:
June 2015 – Vinyl Chloride (VC)

Hotspot Area
Last Exceedance
June 2015
Wells IR15MW0107 and R77

Nearshore Plume Area
Last Exceedance
June 2015 in P31



COC	Cleanup Goals		
	Deep Utility Area	Shallow Utility Area	Aquatic Habitat
VC	32 ug/L	416 ug/L	780 ug/L

Remediation Progress:
February 2011 to June 2015

Remediation Progress				
Installation Restoration Program Site 15, Investigation Area C1, Mare Island, California				
Remediation Area	TCLE as VC (micrograms per liter - µg/L)			
Well ID	February 2011	August 2012	August 2013	June 2015
Hotspot Area				
IR15MW214B	6	48	15 (May 2013)	Not Sampled
IR15MW0107	300,000	480,000	436,000	111,000
IR15MW0244D	4,100	2,400	2,000	1,370
15W05	230	1.3	3.0	1.4 (December 2013)
IR15MW0232D	400	0.44J	0.44J	0.57 (November 2013)
R75	102,000	2,190 (June 2012)	17	718
Nearshore Area				
P51	422 (October 2011)	26 (June 2012)	4	3
IR15MW0237D	80	46	102	60
P31	35,000	6	422	67
IR15MW0203D	52,000	110	10	7
IR15MW0225D	16,000	150	32	12
Notes:				
J - Estimated Value				
TCLE - Total Chlorinated Ethenes				
VC - Vinyl Chloride				

Conclusions and Path Forward

- **Remedy is Working**
  - For Both Hotspot and Nearshore Areas
    - ✓ Plume is Continuing to Contract
    - ✓ Total CVOC Concentrations Decreasing
    - ✓ CVOC Species Consist of Breakdown Products
      - Vinyl Chloride (VC)
    - ✓ Degradation Continuing to Occur – VC Increasing
- **Need to Address Areas Where Concentrations Above Cleanup Goals**
  - Hotspot Area – Wells IR15MW0107, R75 and R77
  - Nearshore Area – Well P31

Conclusions and Path Forward (Continued)

- **Pilot Test Work Plan Preparation**
  - Potential Changes to Injection Material
  - Evaluate Potential Alternative Materials
    - ✓ Additional Enhanced Reductive Dechlorination
      - ❖ Additional Microbes Introduced
    - ✓ Chemical Oxidation Compound
    - ✓ Oxygen-Releasing Compound

Conclusions and Path Forward (Continued)

- **Evaluation Considerations**
  - Time to Achieve Cleanup Goals
  - Geochemical Changes
    - ✓ Metals, Compounds and Ions Concentrations
    - ✓ Reductive / Oxidative Environment
    - ✓ pH
  - Microbial Population Changes
  - Monitoring Requirements
  - Cost
    - ✓ Implementation

Questions?

Acronyms and Abbreviations

- cis-1,2-DCE – cis-1,2-Dichloroethene
- CVOC – Chlorinated Volatile Organic Compound
- EETP - Eastern Early Transfer Parcel
- ERD – Enhanced Reductive Dechlorination
- IA - Investigation Area
- IR – Installation Restoration Program Site
- LUC – Land Use Covenant
- ORC™ – Oxygen-Releasing Compound
- PCE – Tetrachloroethene or Perchloroethene
- PRB – Permeable Reactive Barrier
- TCE – Trichloroethene
- TCLE – Total Chlorinated Ethenes
- UST – Underground Storage Tank
- VC – Vinyl Chloride
- ZVI - Zero-Valent Iron

Attachment 3. Weston Solutions Mare Island RAB Update

Mare Island RAB Update

July 2015

DOCUMENT STATUS

The following documents are currently being reviewed by the regulatory agencies:

- *Investigation Area H-1 2014 Annual Remedy Status Report*
- *Record of Decision/Remedial Action Plan for Remedial Investigation Site 05, Dredge Pond 7S, and the Western Magazine Area*

INVESTIGATION AREA H1

WESTON continues operations and maintenance activities of the IA-H1 Containment Area groundwater collection trench system. To date, 31,846,345 gallons of groundwater have been removed and discharged into the Vallejo Sanitation and Flood Control District. No oil removal activities have been required since October 2014. A total of 16,180 gallons of oil/oily water have been recovered from the groundwater collection trench system since startup in 2005.

During the month of June 2015, WESTON re-installed two monitoring wells suspected to have been damaged during the August 2014 Napa Earthquake. Monitoring well 01W19A and PZ32B were drilled out and re-installed as these wells are used to collect water level data semi-annually. Well 01W19A is located within the Containment Area (Landfill). The geosynthetic layers making up the cap system around the well penetration were reinstalled in accordance with the original design requirements.

IA-H1 Well Replacement

Attachment 4. Navy Monthly Progress Report, Former Mare Island Naval Shipyard, July 30, 2015

Navy Monthly Progress Report

Former Mare Island Naval Shipyard

July 30, 2015

USS *Grayback* (SSG 574), at Mare Island, March 1958

1.0 INTRODUCTION

The Department of the Navy prepared this monthly progress report (MPR) to discuss environmental cleanup at the former Mare Island Naval Shipyard (Mare Island) in Vallejo, California. This MPR does not discuss cleanup work by the City of Vallejo or its developers, Lennar Mare Island and Weston Solutions, through the Environmental Services Cooperative Agreements (ESCA). The work completed through those agreements this month is reported separately. This MPR discusses progress made during the reporting period from June 26, 2015 through July 30, 2015. The information provided in this report includes updates to fieldwork and removal actions, document submittals, the progress of regulatory reviews, issues associated with Navy environmental programs, and Base Realignment and Closure (BRAC) Cleanup Team (BCT) and Restoration Advisory Board (RAB) meetings.

2.0 FIELDWORK, REMOVAL ACTIONS AND UPCOMING EVENTS

During the month of July 2015, the Navy performed the following fieldwork at the South Shore Area (SSA) and Investigation Area F1.

South Shore Area Remedial Investigation:

The fieldwork for the Remedial Investigation (RI) at the SSA began July 14, 2015 and is scheduled to continue through August. The SSA was primarily used for staging and unloading of munitions from ships. The current investigation follows the munitions Non-Time Critical Removal Action (NTCRA) conducted between May 2012 and July 2013. The primary project objectives are to complete the site investigation for potential chemical impacts through groundwater and soil sample analysis. Nine groundwater wells and over sixty soil samples are planned. The Navy will also evaluate the existing data related to munitions at the site. Data from this and previous investigations will be used to complete risk assessments for the site, which will be presented in the RI report.

Initial land survey of potential soil boring location at the SSA

Geophysical survey of Debris Pit in Grid AF011 of SSA using electromagnetic methods

2.0 FIELDWORK, REMOVAL ACTIONS AND UPCOMING EVENTS (continued)

Investigation Area F1:

The Navy did not conduct PCB remediation in Investigation Area F1 in July because of pending laboratory analytical results. The Navy will be resuming PCB remediation of concrete flooring in Investigation Area F1 in August at Buildings A734, A17, A71, A142, and A166.

3.0 DOCUMENT SUBMITTALS AND PROGRESS OF REGULATORY REVIEW

The Navy submitted the following documents during the reporting period, listed below:

- Draft Basewide Site Management Plan
- Draft Record of Decision/Final Remedial Action Plan, IR Site 05, Dredge Pond 7S, and Western Magazine Area

The Navy received comments or concurrence from regulatory agencies on the following documents during the reporting period:

- Comments from the San Francisco Bay Regional Water Quality Control Board (Water Board) on the Revised Draft Final Closure Report for Former Underground Storage Tank 993-4 Site
- Concurrence from the Department of Toxics Substances Control (DTSC) and Water Board with the Final Remedial Investigation Work Plan, South Shore Area

4.0 REGULATORY REVIEW: YEAR-TO-DATE PROGRESS

The documents presented in the following table include only documents that address sites where the Navy remains responsible for the cleanup work.

Number of Documents Submitted by the Navy	13
Number of **DTSC** Comments Received by the Navy	11
Number of **Water Board** Comments Received by the Navy	11
Number of **EPA** Comments Received by the Navy	1

BCT meetings are held regularly with the Navy, DTSC, Water Board, and the United States Environmental Protection Agency (EPA) to discuss the progress of environmental cleanup at Mare Island. The next BCT meeting will be held on Thursday, September 24, 2015.

****The Navy BRAC Office Has Moved****

Please update your records with our new address:

Navy BRAC PMO West
33000 Nixie Way, Building 50
San Diego CA 92147

NAVY CONTACT INFORMATION

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BRAC Environmental Coordinator
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San Diego Telephone: (619) 524-1924
San Diego Fax: to be determined
www.bracpmo.navy.mil

RESTORATION ADVISORY BOARD MEETING SCHEDULE

The RAB meets the last Thursday of every other month, **unless otherwise noted in bold**. The next RAB meetings are scheduled for:

- September 24, 2015
- **December 3, 2015**
- January 28, 2016
- March 31, 2016

Meetings begin at 7:00 p.m. and are held at:
Mare Island Conference Center
375 G Street, Vallejo, CA 94592