



**Meeting Minutes
Restoration Advisory Board
Roosevelt Roads Naval Station
Club Cívico La Seyba, Ceiba, Puerto Rico
Meeting No. 13
August 19, 2009**

Note: This meeting summary is based on informal notes taken at the meeting. It is not intended as a verbatim transcript, and portions of some discussions may not have been captured. If comments or additional notes are provided within 30 days of distribution of these minutes, they will be added as an attachment to this summary.

I. Order of the Day and Welcome

The meeting began at 6:30 p.m.

Susana Struve (CH2M HILL) welcomed RAB members and invited members of the public to sign the sign-in sheet to receive information via mail or e-mail. Mark Davidson (RAB Navy Co-Chair) welcomed the public and asked everyone to introduce themselves. (See Attachment 1, Attendance.)

II. Action Items

Mark Davidson reviewed the action items from the last RAB meeting.

Item	Description	Discussion	Status
#1	Report back on what the specific metals were that were found at SWMU 62.	Included in tonight's Cleanup Update presentation	Closed
#2	Provide a map of the sites that are being worked on	Handout provided tonight	Closed
#3	Land reclaimed from the sea by filling	Discussed tonight	Closed
#4	Report of dead mangroves in the Los Machos mangroves restoration area	Discussed tonight	Closed

#3 Lands reclaimed from the sea by filling

The Puerto Rican Supreme Court passed a law a few years back, saying that any lands filled in or reclaimed from the sea belong to the Commonwealth of Puerto Rico. Lirio Márquez (RAB member) wanted to know how that affects Roosevelt Roads.

Mark Davidson: As far as I know, the Navy owns the property. When we convey the property our deed will include specifics about this reclaimed land. The bigger question is,

what can the new owner do with that property? Can he/she build on it? To be honest with you, we don't know the answer. Our lawyers have gone through all the paperwork and still don't have an opinion. It is a really complicated issue, which likely is going to end up in court. The way we transfer property is through a "quit claim" deed, under which we transfer all of our rights to the property. The new owner will have several problems if he/she wants to develop an area that has been filled in or reclaimed from the sea. The owner will not have a clear title to this property due to this issue, and I am sure will have a lot of trouble acquiring a loan from a bank to build on this type of land. I don't know if that answers your question. I'll be glad to give you an update, if I hear anything new.

Lirio Márquez: It really doesn't answer my question, but I understand that you don't have the answer to that. I think the government of Puerto Rico also has, or should have, something to say about the use of those lands. I don't know if there's something we can do. But if I were a potential buyer, I wouldn't put any money into those lands until I knew what kind of use they can have. Has the auction already begun?

Mark Davidson: No, it has not begun.

#4 Report of dead mangroves in the Los Machos mangroves restoration area

A RAB member observed that there are dead trees and wanted to know if there was a release of contamination out there.

Mark Davidson: We checked and confirmed that there were no releases that could have affected the mangroves. I talked with Tom Spriggs, with NAVFAC Atlantic, who comes every six months to monitor those trees. He said that these particular mangroves have been dead for a good while. He thought it was because the whole area has been starving from salt water. What they are doing now is going out into the mangroves along transects (lines) and measuring trees to make sure they are growing. Then they come back six months later, go out along the same transect, and measure the same trees. They are keeping track to make sure these trees are growing and to register the amount of the new water coming in. The new bridge is helping to solve the problem by allowing the water to come in. We think it is a natural process and that new mangroves are beginning to fill in the area.

Luis Velázquez (RAB member): I need to clarify that the minutes from the last meeting said "three mangroves" giving the impression that I was talking about only three trees; there are three parcels of dead trees. I know the area from when I was a child and I've never seen so many dead trees there. After Hurricanes Hugo and George, many trees lost their leaves, but they recuperated. What I said at the last meeting is that the Environmental Quality Board (EQB) should get involved and find out what happened to those trees. I think there are too many to be a natural process.

Mark Davidson: Thank you for the comment. What we know is that nothing was released to the forest out there.

III. Cleanup Update: Mark Kimes-Baker Environmental

Mark Kimes summarized the status of the environmental investigations since the May 2009 RAB meeting. (See Attachment 2, Presentations, for more details.)

Investigations

In June we were doing sampling at a number of different sites in the airfield area. EQB representatives were with us during that sampling event.

One of the first items that we completed was sediment sampling from the storm water drainage ditches at Solid Waste Management Unit (SWMU) 56. We needed some additional data from the sediments for our ecological risk assessment.

Another area in the airfield that we sampled was from the freshwater drainage ditches to help us develop the background for metals, which will assist us to determine if the metals are there due to Navy activities or if they are there naturally.

At site 56A, we collected samples of surface soil and sediment. We were trying to determine if it may actually be a new site. Those samples are being analyzed for volatiles, semi-volatiles, pesticides, polychlorinated biphenyls (PCBs) and metals. Now we are developing the reports from the airfield sampling.

The next sampling event that we did was last month at the Pole Yard (SWMU 78), an area with over 117 transformers. We took some samples of the oil in the transformers to validate whether or not PCBs are present, and to determine the proper disposal of the transformers.

The other sampling event, which we were actually doing today and will finish tomorrow, is at Area of Concern (AOC) F; this was one of the quarterly groundwater sampling events.

Reports

These are the documents we have submitted over the last few months. All of these documents are currently under review by the Environmental Protection Agency (EPA) and EQB.

SMWU 60 (Former Landfill at the Marina): We submitted the Draft Phase I RCRA Facility Remedial Investigation (RFI) Report to EPA and EQB. In that document, we are recommending a full RFI for the site due to the contamination that was identified during the investigation.

SWMU 70 (Disposal Area Northwest of the Landfill): Another Draft Phase I RFI Report was submitted to EPA and EQB. They provided comments on that document to us just a couple of weeks ago. That document also recommends conducting a full RFI at that site.

The RCRA Quarterly Progress Report for the period of February 1st to April 30th, 2009, was submitted to EPA and EQB.

SWMU 3 (Former Base Landfill): We submitted the final report from the September 2008 groundwater sampling event and the draft report from the March 2009 groundwater sampling event. We conduct groundwater monitoring two times each year at the landfill.

AOC F (Monitored Natural Attenuation sites): Similar to SWMU 3, we collect groundwater samples every quarter. In June we submitted the year 6 second quarter document, which was a final document; in May we submitted the draft year 6 fourth quarter report.

SWMU 68 (Former Southern Fire Training Area): In June we submitted the Final Corrective Major Study (CMS) report, in which we are recommending what type of cleanup should be done at that site.

SWMU 71 (Quarry Disposal Site): We submitted the final Phase I RFI report, also recommending a full RFI be conducted to investigate the contamination in soils and groundwater.

SWMU 78 (Pole Yard): We submitted the final Phase I RFI Report and again, we recommended a full RFI to investigate the contamination of the soils. SWMU 78 is a site that was identified by one of our RAB members. We followed up with an investigation and the site is now moving forward. It is good to see how the process works.

SWMU 1 (Former Army Cremator Disposal Site): We submitted the step 6 and 7 of the Baseline Ecological Risk Assessment. In that document, we are recommending the removal of pesticides, metals contamination in surface soils and removal of metal debris. The Navy has recently let a contract to a remediation firm to do that cleanup.

SWMU 9 (Area B: Tank 214 area): We submitted the Draft (full) RFI in July and are recommending that we go back and perform additional work for the ecological risk assessment. The good thing that came out of that investigation is that we finally have delineated all of the contamination in the upland habitat at that site.

SWMU 76 (Building 2300): We submitted a revised Final Phase I RFI Work Plan.

The following reports are being developed:

The Draft Phase I RFI Report for SWMU 62 which also recommends a full RFI be conducted to investigate metals in the soil; Year 7 Annual Report for AOC F; Draft Phase I of the Corrective Measures Study (CMS) investigation for SWMU 74 (the fuel pipelines and hydrant pits); RCRA Quarterly Progress Report for the period of May 1st to July 31st; and Draft Step 6 & 7 of the Baseline Ecological Risk Assessment for SWMU 2 (the former Langley Disposal Site).

We are also working on SWMU 61 (Former Bundy Area Maintenance Facilities). We had completed the investigation, but found that we haven't delineated all of the contamination at that site. Now we are waiting on funding from the Navy to do additional sampling before we send the report to the regulators.

We are working on a background report for soils at the airfield and evaluating the data from the SWMU 56 drainage ditch where we collected samples for AVS/SEM metals. We are also following up on the documents for the work that we did at the airfield for SWMU 56A, the source area investigation, and the fresh water drainage ditch background report.

If you have questions or want more information, please feel free to talk to me during break. Mark Davidson mentioned that at the last meeting someone wanted to know more details on the metals. I have the list and I gladly will share that information with you.

Susana Struve: I also want to remind everyone that on the table we have information with the acronyms and the RCRA process. As you can see, there is much to investigate and to do on these sites.

Discussion

Gerardo Coronado (visitor): This is my first time at the meeting; I came because I saw the announcement in the newspaper. My question is about all the structures in the base that are 50 - 60 years old. Have you done any kind of sampling to find out if there is asbestos in the construction materials and do you have plans to demolish them?

Mark Davidson: Yes, we tested buildings for asbestos and lead-based paint. We only remediate asbestos that is damaged, friable [*crumbling*] and accessible. It must meet all three of these criteria for the Navy to remediate it. When we transfer the property, we will disclose all the information from the sampling in the buildings. In the deed, we would say something like: "Warning, this building has lead-based paint" or "has asbestos tile." The Navy has no plans to demolish any building; the new owner will have this responsibility and will have to properly handle the asbestos or lead based paint.

Lirio Márquez: You found PAHs (polycyclic aromatic hydrocarbons) and TPHs (total petroleum hydrocarbons) at SWMU 78, the Pole Yard, but did you look for PCBs?

Mark Kimes: Yes, we did test for PCBs and did not find any. The majority of the transformers at that site were already labeled that they do not contain PCBs, but we took an extra step taking samples to make sure there weren't any PCBs.

Lirio Márquez About SWMU 2 - You said that you are going to submit the draft for the Step 6 & 7 of the Ecological Risk Assessment (ERA), what's that?

Mark Kimes: Good question. When we do an ERA, it has a process with 8 steps. Steps 6 & 7 are the end of that process. In the very beginning, steps 1 through 3A, we conduct data evaluation and screening against the ecological criteria before determining if there is a potential for ecological risk. If there is, then we go to steps 4 and 5. Step 4 is the work plan to do the baseline ERA. Step 5 is the field verification when we go actually in the field to make sure that you can implement the plan. Step 6 is your field investigation [*taking samples*] for the baseline ERA, step 7 is the report on that field investigation. The final Step 8 is when the EPA makes that final selection on the remedy based the outcome of the baseline ecological risk assessment.

Lirio Márquez: And that ERA is available on the website?

Mark Kimes: Steps 1 thru 5 are part of the Administrative Record (AR) [*on the public website*], because the documents are final, but what we submitted to the EPA recently are still draft documents. Once they go final, they will be uploaded to the AR.

Jorge Fernández Porto (RAB member): When you refer to the airfield, is it exclusively related to what was done by the Port Authority or is there another area being investigated at the airfield?

Mark Kimes: When we are talking about the airfield, we are talking about all of the Navy sites at the airfield. In previous meetings we talked about how the Port Authority damaged some of them, SWMUs 56 and 69, which are still being looked at by the Navy.

Jorge Fernández Porto: At SWMU 70 you found some kind of contamination with metal in the marine sediments. Obviously that meant that there is some kind of water body reaching the site. Is the landfill near by? How do you think the contamination reached the site?

Mark Kimes: Back in 2004, the environmental condition of property study for the base included an aerial photograph interpretation study. During that study, they identified areas from the historical aerial photos that appeared to be disturbed. One of those areas happened to be in this wetland. So, there is the potential that they had dumped materials in the wetland explaining the source for the metals.

Jorge Fernández Porto: In other words, you still don't know for sure the source of metals contamination. It could be from a disposal activity, or it could be a result of contamination that got there with the currents, right? The reason this is important is because we need to make sure the source of the contamination is not coming from upgradient currents. At these sites, both fresh and salt water merge and so the metals could reach the estuarine sediments from this site. But why are you finding metals in this specific wetland, but not in any other place? Could it be brought in by the creek which brings the fresh water into the estuary?

Mark Kimes: We have the same contamination in the upland soils, so there is the potential that it could be from overland flow, from rainwater that washes into the stream and wetland. The results of the investigation show that there may be metals upland. During the historical aerial photo analysis, they noticed piles of things that were dumped in the upland and wetland area so we think the contamination comes from the material dumped on the site. We even see some trash remaining.

Lirio Márquez: Just to make this clear, you call this an estuarine wetland because there's some kind of fresh water that comes into this wetland or that is part of this wetland?

Mark Kimes: We know it is an estuarine wetland based on the types of vegetation growing in it, like mangroves. The technical name is estuarine wetland, because it is the mix of the fresh water with the salt water, but it is also a mangrove area.

Lirio Márquez: I think Jorge's question refers in part to the terminology to define these bodies of water that are carrying these contaminants and that they might have been dumped upstream.

Mark Kimes: No, it is not a stream carrying contaminants; there are no drainage ditches present. We already know what the source of contamination is; it was identified in the aerial photos showing piles of debris in the upland and wetland area.

Jorge Fernández Porto: My last question, you submitted a report saying that at SWMU 1 you are recommending removing pesticides and metals contamination from the surface soil but SWMU 1 is also a big part of a wetland, are you also removing sediments?

Mark Kimes: For SWMU 1, we are recommending what we call an interim corrective measure, for the upland soils. The site is not a wetland. We have identified some hot spots with pesticide contamination, so what the Navy wants to do is remove those soils. This is not the final cleanup for that site; this is just an interim measure because of the levels of contamination, to protect the environmental receptors.

Daly Ávila (visitor): I have several comments and questions. First, based on the contamination found, how long do you think the cleanup will last?

Mark Davidson: That's a very good question. We are in the beginning stages of the RCRA Facility Investigation for many of the sites; we are trying to find out how much

contamination is there, what levels are there, and develop human and ecological risk assessments. With the results of the risk assessment, we can determine if the contamination could be harmful, or if it does not represent a risk. We follow the RCRA process to the Corrective Measures Study. At this stage, we look at the cleanup alternatives for the contamination at the site. Then we go into the cleanup phase for that site.

Daly Ávila: I am looking at one of the documents you distributed at the beginning of the meeting. The Navy is working using the old reuse plan and the Government of Puerto Rico just released a new reuse plan. It would have been a good idea if the Navy participated in this meeting [*July 2009 Local Reuse Authority public meeting*] because in the area we have been talking about with contamination, the new reuse plan is to build a large casino. The plan includes a large tourism development. The new Local Reuse Authority (LRA) director is promising the community that this new plan will generate jobs, but you just told us that it will take years to decontaminate the sites. Someone is deceiving the public. At the same time that the lands are being distributed, the town continues waiting for a project that involves the community. I think the community needs an explanation.

Mark Davidson: I am not from the LRA, I am from the Navy. We have the LRA's new "Caribbean Riviera" plan on the agenda later. If you can hold that thought, we'll try to discuss it.

Naida Dávila (visitor): All the investigations are being done with Navy's funds, right? You've said "because several large parcels have not been sold yet, there's no sale money remaining for cleanup so the Navy is currently relying on appropriations money from Congress to fund the cleanup." So, where is the funding coming from?

Mark Davidson: We gave detailed budget information at the last RAB meeting. At Roosevelt Roads, like any other BRAC property, the Navy intends to sell the property and use the proceeds from that sale as an "environmental pot of money" to conduct the cleanup. We have a similar situation in California where we have not been able to sell that property, so the cleanup money ran dry about a year or two ago and we had to request funds from Congress to continue. The Navy competes for these funds with other priorities of Congress. We hope we can sell the property in Roosevelt Roads, so we can quit depending on the taxpayers to fund the cleanup.

Naida Dávila: What is the current status of those funds, do you have them now?

Mark Davidson: Yes, we had almost \$11 million this year. I think Congress has appropriated \$4.5 million for Roosevelt Roads next year, \$6.5 million for 2011 and, as far as we know, we have money for 2012. We are still relying on Congress until we can start using the sale proceeds. The presentations from the last meeting had the funding breakdown.

Luis Velázquez (RAB member): Last meeting we talked about the problem that the Airport already owes the Navy \$500,000 for the issue they caused. The work at the airport continues but the new reuse plan may have a different idea for this area. I want to know if the LRA contacted you to get input on the new plan. Does the Navy know the current plan for the Caribbean Riviera? It could be that the LRA is planning to build an office building on top of contaminated areas. Also, we got information that they are using one of the hangars to store tires. We understood that you transferred the airfield so it can be developed into an airport and not into a landfill. I think the Navy should investigate this.

William Lourido (RAB member): The RAB is committed to make sure the cleanup is done correctly and that no new sites are contaminated. It is important that EQB and the LRA look into the tires issue. If the Navy gave authorization to dispose of the tires in Hangar 200, we should have an impact assessment. It seems there is no communication among the agencies, and the community is not informed. We want to know the truth of what is going on.

Mark Davidson: Navy does not own the property with the tires; it was transferred to the Commonwealth of Puerto Rico for the Port Authority [*not the LRA*]. There are representatives from two regulatory agencies (EPA and EQB) here tonight listening to your concerns, so they may be able to look into it for you. We'll try to address the question about the Caribbean Rivera later during this meeting.

Freddy de Jesús (LRA): I want you to clarify for the benefit of everyone that any site that has been identified for cleanup must be dealt with before any type of development.

Mark Davidson: We have cleanup objectives and we have to meet the legal requirements and satisfy the regulatory oversight for the cleanup.

IV. Restoration Update: Mark Davidson, Navy

(See Attachment 2, Presentations, for more details.)

Mark Kimes talked about investigations and risk assessments. Now I want to talk about the actual cleanup, which follows the investigation process. After the investigation is completed and the report is approved, normally we hire another contractor to perform the actual remediation. Currently, SWMU 7 & 8, 54 and 55 are in the remediation stage, implementing the corrective measures identified in the Corrective Measures Study (CMS). The CMS is a decision document on how to approach the cleanup of these sites. This remediation is being done by CH2M HILL.

SWMU 7/8 - Tow Way Fuel Farm

We treat these two SWMUs as one site. The site was built in 1957 as a bomb proof tank; it had marine jet fuel and diesel fuel, which was disposed after the base closed. Based on the Corrective Measures Study, we identified what we called corrective action objectives (CAOs), which include the level we want to achieve with this cleanup, how are we going to approach it, how to treat the surface soil. Primarily we'll look for PAHs (polyaromatic hydrocarbons) and arsenic. Arsenic is not really associated with fuels, but it was detected as a contaminant of concern here.

The first objective was to remove this soil contamination. We used a geoprobe, which is a direct push type of sampling device, to take samples looking for polyaromatic hydrocarbons (PAHs) and arsenic. The sampling results found no PAHs that were above the CAOs, which was pretty good news. Eight samples exceeded the CAOs for arsenic with a pretty random distribution, leading us to believe that the arsenic is naturally-occurring. These results are still preliminary; we just completed the sampling this June.

The second objective was to recover the free product found in the groundwater. Free product is raw fuel that typically floats on top of the groundwater. The objective is to somehow get rid of this free product.

To do that, we dug 48 test pits (trenches) below the water table to see if any free product flows into the trench along with the groundwater. If it did, we recovered the free product by converting the trench into a temporary sump. That is essentially a pipe installed into the pit that is connected to a pump and periodically pumped to remove the free product floating on the water's surface). We then collected and disposed of the free product that accumulated on top of that water. In the 11 temporary sumps installed, none of them had free product greater than 1/8-inch thick. We also have 80 wells that are monitored once a month to measure how much free product is in the well, and pump out the oil for disposal. On a monthly basis we get roughly one to two gallons. We are not seeing a lot of free product out there. That's a good thing.

The third objective was the dissolved plume. We have free product on top of the groundwater and underneath it is petroleum that is mixed within the water, a dissolved plume. The objective is to determine the effectiveness of monitored natural attenuation (MNA) for remediating the dissolved plume. By measuring MNA parameters in the groundwater (dissolved O₂, geochemical data, etc), it can be determined if natural attenuation will remediate the contaminated groundwater.

SWMU 54: Bundy - Former Naval Exchange Car Repair Shop

The site had an underground storage tank (UST) with a capacity of 4,000 gallons, which was removed in 1992. We are not aware of anything disposed or released there, but there are two small groundwater plumes at the site. One plume consists of TCE contamination and one small plume consists of benzene contamination. We developed a CMS that has been approved for this site. The CMS proposed enhancement of in-situ (in the ground) biodegradation natural processes at both plumes.

We will treat the TCE groundwater plume anaerobically (without oxygen) by injecting emulsified vegetable oil into a small part of the plume. Then, if this pilot study works, we will go into a full scale operation to treat the entire TCE plume using that method. .

For the benzene plume, which is a very different constituent, we proposed it be treated aerobically (with oxygen), so we are going to inject what we call an oxygen-release compound.

SWMU 55

Like SWMU 54, SWMU 55 has a TCE groundwater plume. It is located near the waterfront, across the street from the Tow Way Fuel Farm, at a building where they maintained some of the watercrafts and boats. We think the TCE probably came from those operations. Here we proposed to install 4 injection wells and inject potassium permanganate into the plume. Then we'll measure the radius of influence of the potassium permanganate (how far out into the aquifer the injected potassium permanganate traveled from the well), how long the material lasts within the aquifer and we'll monitor TCE concentration again to determine if the injected material is breaking down the TCE. This work is scheduled for the next couple of months.

Discussion

Ismael Velázquez: I have two questions. Is there a way to know how many thousands of gallons were spilled in the area 55? Where are those tanks now?

Mark Davidson: I think we are talking only about a bucketful. It doesn't take much to contaminate groundwater; we are talking parts per billion, micrograms per liter.

Mark Kimes: TCE is a contaminant that actually sinks, it doesn't float on the water. When we did that investigation we were looking on the bottom of the aquifer to see if we can see it. If a large quantity like the one you mention was spilled, we should be able to see free product sitting at the bottom of the aquifer.

Ismael Velázquez: But what happened with all the thousands of gallons spilled on the site? I know there were 3 types of fuels spilled there; where did they go?

Mark Kimes: I think we may be confusing the sites. The Tow Way Fuel Farm (SWMU 7/8) is where the spill occurred. The TCE Plume at SWMU 55 has a totally different contaminant that has nothing to do with the fuel that was spilled at SWMU 7/8. Those thousand of gallons that you were talking about were diesel fuel or JP5. These are two different sites not related to each other. That is the main reason why EPA requested we make SWMU 55 a separate site.

Ismael Velázquez: I am not convinced that you won't find more fuel in this area. I know this area was filled in with soil, there is not much rock there, and the fuel should be somewhere. Are you still monitoring the site?

Mark Kimes: When those spills happened at the Tow Way Fuel Farm, they were controlled with vacuum trucks collecting a lot of the fuel that was spilled. A large amount of that fuel was recovered before it went into the ground. At the Tow Way Fuel Farm, we collected surface water and sediment samples to see if any of that contamination was going into the bay; the samples came back clean.

Tim Gordon (EPA): I know that free product was cleaned up at the Tow Way Fuel Farm. Since at least 1994 EPA has required actions to clean up free product that was floating on the groundwater at this site. There was more free product at one time, but the cleanup has been going on for 15 years. Tonight we are talking about recent activities trying to find what remains or where little pockets are still left.

Jorge Fernández: I want to know if the 11 injection wells you installed in SMU 7/8, where there were some hydrocarbons detections, are located randomly? Where are they?

Mark Kimes: The area where we have been getting product out of the ground in very small amounts shows a big cluster of wells location.

Luis Velazquez: I worked at dock # 1. When we were paving the area, approximately 20,000 to 30,000 gallons of fuel spilled from one of our trucks. We filled and paved the area after getting permission from the Navy. I witnessed this. I think the fuel is still there.

Mark Kimes: We have a number of wells at this location. If there is free product we should know about it.

Naida Dávila (visitor): You talked about the preliminary phase. When do you think you can have the final results before you send them for regulatory approval? How long does the process take until it is final?

Mark Davidson: All the sampling we talked about was done in June and July. For the soils, after we develop the report it goes to EPA and EQB for 90 days. After we get the comments from the regulatory agencies, the Navy sends a response to the comments and then a negotiation period starts until all the agencies agree with the determination. For the groundwater, if the technology we are proposing does not work we need to go back and start again. If the technology is working, we still have to address residual contamination, and that is when monitored natural attenuation comes into play. We will continue monitoring until the regulatory agencies are satisfied and the plume meets all the standards. I can't give you an exact time; for the soil it takes approximately 6 to 9 months to do the cleanup. The remediation of the groundwater is a much longer process. But if the pilot study works, it is probably 6 to 9 months before we can propose to go to full-scale operation.

Tim Gordon: Are you asking about the whole facility, or certain areas?

Naida Dávila: I am talking about the areas that are contaminated.

Tim: What Mark Davidson was talking about tonight is only three areas: SWMU 7/8, SWMU 54 and SWMU 55. Although the progress of the cleanup of these sites is significant, there are still a few other areas where they are just beginning with investigations. Different areas are in different stages, I just want to make that clear.

Naida Dávila: I am talking about the time it takes to prepare final reports.

Mark Davidson: Tim is talking about some Environmental Condition of Property sites, which are in the beginning of the process. They were indentified as a site only a year or two ago.

To submit one document, it is a 6-9 month process, the regulators have 90 days to review it, we have 45 days to address the comments, we send the document back to EPA and EQB, they either are going to agree with our responses or not, and then it goes back and forth until everybody is satisfied.

One thing I want to clarify is that during the whole process of selling the property, the Navy will only transfer what is clean, which is 98 percent of the base, so it's really a small portion of the base that is contaminated. The Navy is hanging on to those environmental sites. We'll continue to do our remediation process. If it takes 10 years, 5 years, however long, we are not going to transfer that property until the regulatory agencies are satisfied with the cleanup. We promise the owner that, once we get done with the cleanup, that owner will get the final pieces.

Naida Dávila: When you transfer the property will you issue a restricted deed?

Mark Davidson: It depends, if we clean up the property to unrestricted, or no further action, it will go as a clean deed, no restrictions on it. By law, we need to clean up to the intended reuse and we developed a reuse plan a couple of years back, so a lot of the property on the base is intended to be used for industrial purposes or commercial industrial, so that's the level we need to clean up to. If we only clean to an industrial level, then when we transfer the property, the restriction on the deed will say "this property can be used for industrial use only or commercial use only." In other words, it can not be used for residential use. Now, the new owner could take his property that has an industrial use restriction on it,

clean it up to a higher level standard and put a house there, as long as he gets it approved by EPA, EQB and the Navy and then we can release the restriction from the deed.

Susana Struve: The flyers we distributed at the beginning of the meeting show the process we are talking about, which includes a process for public review.

Gloria Toro (EQB): I would like to go back to the topic of the tires being stored in one of the hangars at the airport. That is not the specific area I work on, but I want to tell you that I took note of the concern and will follow up.

Jorge Fernández: I know that last March, EQB's President signed an emergency executive order to address over 2 million tires on the street. The order allowed opening temporary storage centers for the tires in Ceiba, Toa Baja, Utuado, Mayagüez, and I think Aguadilla. Those centers are supposed to be operational for 6-9 months before disposing the tires permanently.

Ismael Velázquez: What is happening is that we don't know all the information; there is no communication from the government or any other agency. If the LRA is in charge of the base reuse, why they don't tell us what is going on here?

Freddy de Jesús: I am glad we discussed this subject, but I want to clarify that the LRA does not have ownership of the airport area. That property now belongs to the Port Authority. And I agree that the central government has not done a good job at communicating.

Daly Ávila: I want to get on the record that the community is concerned about the tires being stored at the hangar and what happens if there is a fire. The site does not have water.

V. What's New: Mark Davidson, Navy

The Governor announced the initiative of the Caribbean Riviera in June, after our RAB meeting in May. The Navy did not know about it until it hit the papers. My understanding of what the LRA wants to do is still at the conceptual stage. The LRA asked the Navy to hold off the sale of Sale Parcel # 3 until the LRA can develop their plan, which will require special gaming legislation. We would like to open the sale again in January.

The LRA previously submitted an Economic Development Conveyance (EDC) application for the Science Park, University, the waste water treatment plants and the water treatment plant. Now, they've asked the Navy to put this EDC application on hold until the concept of Caribbean Riviera goes through. We were originally planning on selling Sale Parcel #3. So, if the LRA wants Sale Parcel #3, we'll have to negotiate a cost for the EDC with the LRA, so the Navy can get compensated for the property.

As explained to you before, the Navy will hang on to the contaminated sites and we will continue with the cleanup. That's the current plan. We don't know whether that will change. We don't want to hold off reuse. The LRA will have to work with the Navy, and of course, with EPA and EQB.

William Lourido: It seems to me from all this information that I got today that this is not an easy project. The government of Puerto Rico is really lying to the people. The way they came out is that this big project is going to create 42,000 jobs. They now claim that APRODEC opposes the development, at the same time that they don't allow them to submit their proposal.

Mark Davidson: I am not the LRA again, I am the Navy, but certainly there are some hurdles for them to overcome. I don't know about timeframes.

William Lourido: If the Navy decides to give back the land for free, isn't it supposed to be given back to the communities where these lands were taken from and not to the central government?

Mark Davidson: At Roosevelt Roads, and throughout the Department of Defense (DoD), they have what they call the "Department of Defense Office of Economic Adjustment." That office is tasked with identifying who will be the recognized local reuse authority that the Navy (or other DoD entity) will deal with for property transfer after BRAC. So the Office of Economic Adjustment went through that process and they identified Portal del Futuro as the legal Local Reuse Authority (LRA) and it's up to them to manage the development of the base. Unless the Office of Economic Adjustment tells us otherwise, that's who we are going to deal with.

William Lourido: Right, and that's why we are here. Now, because Portal del Future was working this out with the communities, that was the original plan for over two years. However, the new government came in, they changed the whole thing and then they went and put this out to the public - what they want to do with it. In other words, Portal del Futuro is out of it and they are going to do whatever they want.

They are going to enclose the base, just like they did with Palmas del Mar, and this is going to be big developments for the rich and for the investors from some other place. They are going to leave out the community of Ceiba and the surrounding parts which were supposed to get this land back. That's why I encourage the Navy to really look into this and go to the Congress and tell them not to sign this law for gaming, because we don't need more gaming in Puerto Rico. There's too much gaming as it is right now. These hotels are going to go out and get all those people who are getting Social Security, the old people, by buses and take them to that place. There is not going to be any development for the communities and surrounding areas. The surrounding areas are going to be poorer and the rich will be richer - we don't want this to happen. We want help from the Navy to look into this. Please don't give back this land to the central government because that's what they are going to do with the land.

Mark Davidson: The Navy can't take sides about the reuse. We just want to do the environmental cleanup and we hope to sell some property and get some money out of it, so we can fund some cleanup somewhere else. I would say that's up to the community. You have been doing a good job voicing your opinion.

William Lourido: Right now we are out. That's what they want to do, step over us.

Daly Ávila: The plan was not available even to the local LRA members; everything has been done behind the community's back. What I really want to know is if the new plan considers the contamination and the intended uses for the sites. I think their plan shows commercial areas, restaurants, and a casino on top of the landfill - does this make sense? The LRA is showing the mangrove areas that were transferred as a conservation area, as a big marina with high-cost housing; they even want to start selling without having a zoning plan. The project puts the community completely aside.

Mark Davidson: Certainly we agreed to a reuse plan years ago and most of this area was commercial or industrial. From my understanding, what they are proposing in the Caribbean Riviera is for commercial/industrial use. The mangroves area was transferred to DNER. Does that mean the new owner has the right to go in there and wipe out the mangroves and put whatever they want there? No, they still have to go through the permitting process with the Army Corps of Engineers or a local agency. You need permission if you are going to build in a wetland. Just because we sell the property, doesn't mean they can necessarily develop it.

Daly Ávila: I understand, but a casino on top of a landfill?

Mark Davidson: Certainly it's a big hurdle. Although the landfill was capped in the past, 40 acres still need to be capped and that's on our 2011 plan. Once a landfill is capped, I have seen golf courses going up on landfills. It would have to be approved by EPA, the Navy, and EQB, but there's potential to redevelop areas like landfills because the landfill is a big mound. As long as you are not disturbing what's in the ground, which has a soil cap on top of it, there's really no way to disturb the washing machines, refrigerators, whatever got dumped into the landfills.

Tim Gordon: If the remedy involves a cap, as this landfill did, you cannot disturb the cap. If they were to propose construction, the only way to disturb that cap would be to remove all the material underneath the landfill in the areas of the cap that they want to build on. This is what we call "re-opening the remedy." In other words, they would have to do a totally different type of final remedy. The landfill in particular is a very controlled situation with specific requirements - this cap has to be in place, it can not be disturbed, if you want to do something and change that, you have to reopen the whole remedy, and that doesn't mean it will be approved. It could be done, but it would be a much different remedy.

Rafael Montes (RAB member): I have three comments: We learned that the agency that does the health risk assessments came to Vieques to see how the bombs have affected the health of the community. My question is why they never mention Ceiba as an area that has been affected by contamination? All the employees are affected by heavy metals. Right now if we are seeing the effect of the Sahara dust, I am sure the bombs in Vieques can reach Ceiba. No one is worried about the health of the community of Ceiba. Ceiba has the higher number of deaths by cancer, Vieques is # 6. I understand that this is not the forum to discuss the health of Ceiba, but I don't know where else to go to request a health assessment for Ceiba.

The second comment has to do with the base security. I am a base employee and the other day one employee was sick (throwing up blood). We called the ambulance, which arrived an hour later. We were told that we should not have moved the person because of liability issues. Now which is more important?

My third comment is related. We have a lot of wild dogs on the base, which already attacked some people. They can be infected with rabies.

Luis Velázquez: I want to officially request a copy of the LRA reuse plan.

Freddy de Jesús: We don't have a concrete plan yet. The one we presented at the [July 2009] public meeting is at the conceptual phase. We don't have anything to share at this point.

William Lourido: There's a rumor running around that the government offered to take care of the maintenance of the base if you give them the money. Is that true?

Mark Davidson: Besides the environmental cleanup, the biggest expense the Navy has at Roosevelt Roads is the Base Operating Services contractor that runs the three waste water treatment plants, the water purification plant, and does maintenance on the buildings that the Navy still owns. Running those plants is the biggest expense and certainly the Navy would like to get rid of that expense.

Currently we have an EDC application from the LRA to take ownership of the University property, Science Park parcel, the waste water treatment plants and the water treatment plant. Technically, the Navy could act on this application and approve it, prepare the deeds, and transfer this property to the LRA. Then it would be their responsibility (and expense) to run these plants and the Navy would reimburse them for water and waste water services, just like the Army reimburses us for their use of our utilities.

With this whole new Caribbean Riviera concept, however, the LRA asked us not to act on that application and for us to delay the auction of the sale parcels. Thus, the Navy would have to keep paying this Base Operating Services contractor to operate the plants while the LRA pursues this new concept. So now the Navy is looking for some agreement that the LRA will take over the operation of the waste water treatment plant, in return for holding off on the EDC application and the auction of the sale parcels. That is being negotiated with the LRA.

William Lourido : Have you been to Ramey Air Force Base?

Mark Davidson: No, I have not.

William Lourido : I invite you to go over there. They gave it to the government and what they got is whole communities lost to the trees. That's how it is going to look if you transferred that to the government of Puerto Rico. They are going to use whatever they like and leave the rest. Please don't do that, don't deal with the government. The first example you have is the airport.

Mark Davidson: The only jurisdiction we have at the airport now are the environmental sites. We have no say in what they do on the rest of the property. We cannot stop them from putting tires on their property. We can only make them do something if it involves one of our environmental sites.

VI. Closing

Susana Struve thanked everyone for participating. The next RAB meeting will be October 28, 2009.

There were no new or ongoing Action Items for the next RAB meeting.

ATTACHMENT 1 - Meeting Attendees: August 19, 2009

RAB Community Members in Attendance	RAB Community Members Absent
Jorge Fernández Porto	Carlos Brown
Rafael Montes	Samuel Caraballo
Agustin Velázquez Santos	Jimmy Concepción Robles
Ismael Velázquez	Angel de Jesús Matta
Luis Velázquez Rivera	José Díaz
William Lourido	Ramon Riós
Michael Dalton	Noraida Vázquez Arce
Lirio Márquez D'Acunti	Ramón Figueroa (RAB Co-Chair)
	Daniel González
	Myrna Maldonado
	Debra McWhirter
Community Members Visiting	
Jose Candelaria (NAPR employee)	Daly Ávila (APRODEC)
Naida Dávila	José A. Rosa (APRODEC)
Manuel Piñero	Fernando L. Zavala (AES International)
Gerardo Coronado (Green Earth Lead/Asbestos)	Antonio Ávila (APRODEC)
Carmen Arlito	Pedro Tejada
RAB Agency Members in Attendance	
Mark Davidson (Navy RAB Co-Chair)	Gloria Toro Agrait (Environmental Quality Board)
Tim Gordon (Environmental Protection Agency)	Freddy de Jesús (Portal del Futuro)
Other Agency Representatives Visiting	
Elizabeth Padilla (Fideicomiso de Conservación)	Art Sanford (Navy, BRAC PMO SE)
Santiago Oliver (Fideicomiso de Conservación)	Dan Kalal (Navy, NAPR)
Support Staff in Attendance	
Pedro Ruiz (Navy)	Yarissa Martínez (Tetra Tech)
Susana Struve (CH2M HILL)	Ralph Brooks (Tetra Tech)
Mark Kimes (Baker Environmental)	Linda Klink (Tetra Tech)
	Peggy Churchill (Tetra Tech)

ATTACHMENT 2 - Meeting Presentations: August 19, 2009



**Restoration Advisory Board
(RAB) Meeting**

**Former Naval Station Roosevelt Roads
Ceiba, Puerto Rico**

**Meeting #14
August 19, 2009**



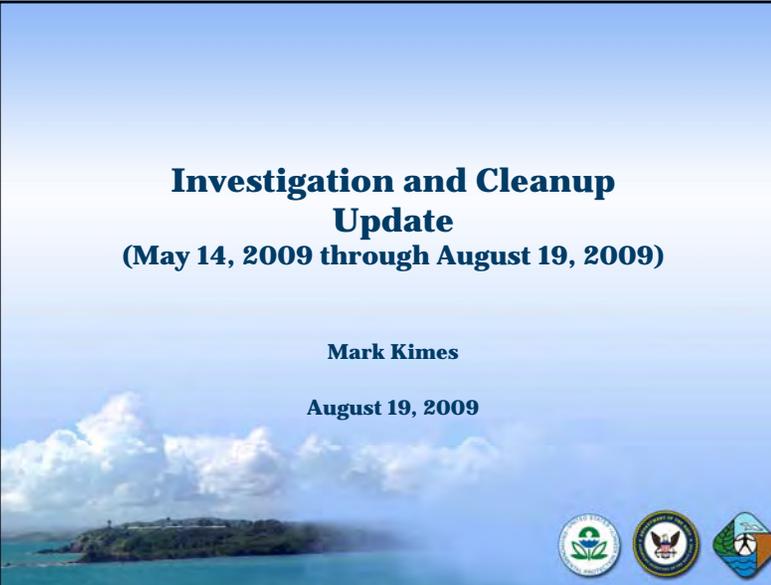
Tonight's Agenda

Welcome and Introductions	Mark Davidson, Navy Co-Chair
Investigation and Cleanup Update	Mark Kimes, Baker Environmental
• Field Work (Investigations)	
• Reports	
Cleanup Update	Mark Davidson
• SWMUs 7, 8, 54 and 55	
Break (7:15 – 7:30 pm)	
What's New	Mark Davidson
• "Caribbean Riviera"	
Other public comments and questions	Community Members
Planning Next Meeting and Closing	Susana Struve, Facilitator




Action Items from last meeting

Action Item	Status
Provide map of site locations	Handout at tonight's meeting
Specific metals found at SWMU 62	In tonight's presentation
Lands reclaimed from the sea by filling	Will be discussed tonight
Los Machos mangroves restoration area (report of 3 dead mangroves)	Will be discussed tonight

Investigation and Cleanup Update

(May 14, 2009 through August 19, 2009)

Mark Kimes

August 19, 2009



Field Work - Airfield Sampling

- Mobilized on June 21 and demobilized on June 29, 2009
- EQB was on site with Baker Environmental during sampling



Airfield Sampling Event, cont.

- Collected sediment samples from
 - Storm water drainage ditch down gradient (the direction that water flows) from SWMU 56
 - *For analysis of Acid Volatile Sulfides/Simultaneously Extracted Metals (AVS/SEM)*
 - Freshwater storm water drainage ditches
 - *To develop background data for inorganic compounds that naturally occur in freshwater sediment*



Airfield Sampling Event, cont.

- Collected surface soil and sediment samples associated with storm water drainage ditches
 - Potential contamination source from SWMU 56A
 - Completed laboratory analysis of the samples collected
 - *For volatile and semi-volatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals*
 - Completed data validation of the laboratory analysis



Airfield Sampling Results

- Developing reports
 - Addendum to the *Summary Report for Environmental Background Concentrations of Inorganic Compounds for Fresh Water Sediment*
 - Letter Report for SWMU 56A surface soil and sediment
- Evaluating data
 - AVS/SEM metals for the down gradient drainage ditch from SWMU 56
 - To see if they should be included in the Corrective Measures Study (CMS) for SWMU 56



Field Work - SWMU 78 (Pole Yard)

- Transformer Sampling
 - Mobilized on July 14, demobilized on July 17, 2009
 - Sampled the transformer oils to analyze for PCBs
 - *Before disposal of the transformers at the site*



SWMU 78 (Pole Yard), cont.

- Completed Laboratory Analysis of the samples
- Now developing Letter Report presenting the PCB results for the transformers



Field Work - AOC F

- Groundwater sampling at Monitored Natural Attenuation sites
 - Mobilized on August 18 and scheduled to demobilize on August 20, 2009
 - Conducting the Year 7 - 2nd Quarter groundwater sampling at sites 124/2842B, 1738, and 735 from AOC F
 - After sample collection is complete:
 - *Laboratory analysis of the samples collected*
 - *Data Validation of the laboratory analysis*
 - *Develop Quarterly Report for AOC F*



Reports Submitted

- SWMU 60 (Former Landfill at the Marina): Draft Phase I RCRA Facility Investigation (RFI) Report
 - Submitted to EPA and EQB on May 26, 2009
 - EPA and EQB comments received on August 12, 2009
 - The investigation found that a minor impact to the environment appears to have occurred
 - *Polyaromatic hydrocarbons (PAH) and metals in surface and subsurface soils, groundwater, and open water sediment*
 - *Total Petroleum Hydrocarbons (TPH) from diesel fuel and gasoline detected in subsurface soil at two locations*
 - A full RFI is recommended to further investigate contamination in the soils, open water sediment, and groundwater



Reports Submitted, cont.

- **SWMU 70 (Disposal Area Northwest of Landfill): Draft Phase I RFI Report**
 - Submitted to EPA and EQB on May 26, 2009
 - EPA and EQB comments received on August 12, 2009
 - The investigation found that a minor impact to the environment appears to have occurred
 - *Metals contamination in the surface and subsurface soils, estuarine sediment, and groundwater*
 - *Metals and VOC contamination in the groundwater*
 - A full RFI is recommended to further investigate contamination in the soils, estuarine sediment, and groundwater



Reports Submitted, cont.

- **RCRA Quarterly Progress Report for February 1, 2009 through April 30, 2009**
 - Submitted to EPA and EQB on May 26, 2009
- **SWMU 3: Final Semi-Annual Groundwater Monitoring Report, September 2008 Sampling Event**
 - Submitted to EPA and EQB on June 2, 2009
- **SWMU 3: Draft Semi-Annual Groundwater Monitoring Report, March 2009 Sampling Event**
 - Submitted to EPA and EQB on July 1, 2009



Reports Submitted, cont.

- **AOC F: Final Monitored Natural Attenuation Report for Year 6 - 2nd Quarter**
 - Submitted to EPA and EQB on June 2, 2009
 - Report on groundwater sampling, to determine if monitored natural attenuation is continuing to reduce contamination
- **AOC F: Draft Monitored Natural Attenuation Report for Year 6 - 4th Quarter**
 - Submitted to EPA and EQB on May 26, 2009



Reports Submitted, cont.

- **SWMU 68 (Former Southern Fire Training Area): Final Corrective Measure Study (CMS) Report**
 - Submitted to EPA and EQB on June 12, 2009
 - Recommended corrective measure:
 - *Surface soil contamination limited to two areas*
 - *Excavation and off-site disposal of soil*
 - *All waste removed from the site will be managed according to all federal, commonwealth, and local guidelines*
 - *A Corrective Measures Implementation (CMI) Closeout Report will be submitted for EPA and EQB approval*
 - EPA and EQB approved the CMS on August 6, 2009
 - A Statement of Basis is required
 - *Summary for public comments*



Reports Submitted, cont.

- **SWMU 71 (Quarry Disposal Site): Final Phase I RFI Report**
 - Submitted to EPA and EQB on June 12, 2009
 - The investigation found that an impact to the environment appears to have occurred at SWMU 71
 - *Polyaromatic hydrocarbons and metals contamination in the surface and subsurface soils; and metals contamination in the groundwater*
 - A full RFI is recommended for SWMU 71 to further investigate contamination in the soils and groundwater



Reports Submitted, cont.

- **SWMU 78 (Pole Yard): Final Phase I RFI Report**
 - Submitted to the EPA and EQB on June 12, 2009 addressing comments from EPA and EQB
 - The investigation found that an impact to the environment appears to have occurred at SWMU 78
 - *Polyaromatic hydrocarbons, total petroleum hydrocarbons from diesel fuel, and metals contamination in the surface soil*
 - *Metals contamination in the subsurface soil*
 - A full RFI is recommended for SWMU 78 to further investigate contamination in the soils



Reports Submitted, cont.

- **SWMU 1 (Former Army Cremator Disposal Site): Draft Steps 6 and 7 of the Baseline Ecological Risk Assessment**
 - Submitted to the EPA and EQB on July 1, 2009
 - Recommends removing pesticides and metals contamination in the surface soil
 - *As an Interim Corrective Measure*
 - Recommends that SWMU 1 proceed to a Corrective Measures Study (CMS)



Reports Submitted, cont.

- **SWMU 9–Area B, Tank 214 Area: Draft Full RFI Report**
 - Submitted to EPA and EQB on July 14, 2009
 - Investigations found that an impact to the environment appears to have occurred at this site
 - *Total petroleum hydrocarbons (TPH) from diesel fuel and metals contamination in the surface soil*
 - *TPH from gasoline and diesel fuel (lesser) in the subsurface soil*
 - *Volatile organics and lower level polyaromatic hydrocarbons (LLPAHs) in groundwater*
 - *TPH from diesel and gasoline, metals, and LLPAH's in estuarine wetland sediment*
 - The extent of contamination has been defined/delineated for surface and subsurface soil, and groundwater
 - Recommends Steps 1 through 3a of the Ecological Risk Assessment process be repeated for estuarine wetland sediments



Reports Submitted, cont.

- **SWMU 76 (Building 2300):**
Revised Final Phase I RFI Work Plan
 - Submitted to EPA and EQB on July 24, 2009
 - Investigation to determine if operations conducted by the US Army Reserve at Building 2300 had a negative impact on the environment
 - Proposes the collection of soil and groundwater samples from the site



Reports Under EPA and EQB Review

- **SWMU 62 (Former Bundy Disposal Area):**
Draft Phase I RFI Report
 - Submitted to EPA on February 6, 2009
 - The investigation found that an impact to the environment appears to have occurred at SWMU 62
 - *Metals contamination in the surface (barium and tin) and subsurface soils (barium) is limited at the site*
 - A full RFI is recommended for SWMU 62 to further investigate metals contamination in the soils



Reports Being Developed

- **AOC F: Draft Monitored Natural Attenuation Year 7 Annual Report**
 - About groundwater sampling conducted May 2009 and an evaluation for an entire year of monitoring at AOC F
 - Report on the groundwater sampling to determine if monitored natural attenuation from the previous year is continuing to reduce contamination
- **SWMU 74 (Fuel Pipelines and Hydrant Pits):**
Draft Phase I of the CMS Investigation
 - Findings from soil and groundwater sampling conducted along the underground fuel pipelines and valve pits of the bulk fuel system



Reports Being Developed, cont.

- **RCRA Quarterly Progress Report**
 - Providing the status of all the work conducted under the RCRA 7003 Administrative Order on Consent for May 1 through July 31, 2009
 - *Including the Tow Way Fuel Farm Quarterly Progress Report for that period*
- **SWMU 2 (Former Langley Drive Disposal Site)**
 - Report on the findings of the field verification and investigation of the upland soils, estuarine wetland sediments and open water sediments
 - *Draft Steps 6 and 7 of the Baseline Ecological Risk Assessment*



Reports Being Developed, cont.

- SWMU 61 (Former Bundy Area Maintenance Facilities)
 - Letter report addressing the need for additional investigations based on the findings from the CMS investigation
- Airfield Soil Background Report
 - Addendum to the Revised Final II Summary Report for Background Concentrations of Inorganic Compounds
- SWMU 56 Freshwater Drainage Ditch Sediments
 - Letter Report on the findings of the AVS/SEM metals sampling conducted in June 2009



Reports Being Developed, cont.

- SWMU 56A Source Area Investigation Report
 - Letter report on the findings of the field sampling for the upland soils and freshwater ditch sediments
 - To determine if this is a source of contamination into the freshwater ditch sediments
- Freshwater Drainage Ditch Background Report
 - Data from sampling in June 2009 will be used to develop background inorganic concentrations of freshwater drainage ditch sediments
 - Addendum to the Summary Report for Environmental Concentrations of Inorganic Compounds



Cleanup Update SWMUs 7/8, 54, and 55

**Contractor:
AGVIQ-CH2M HILL**

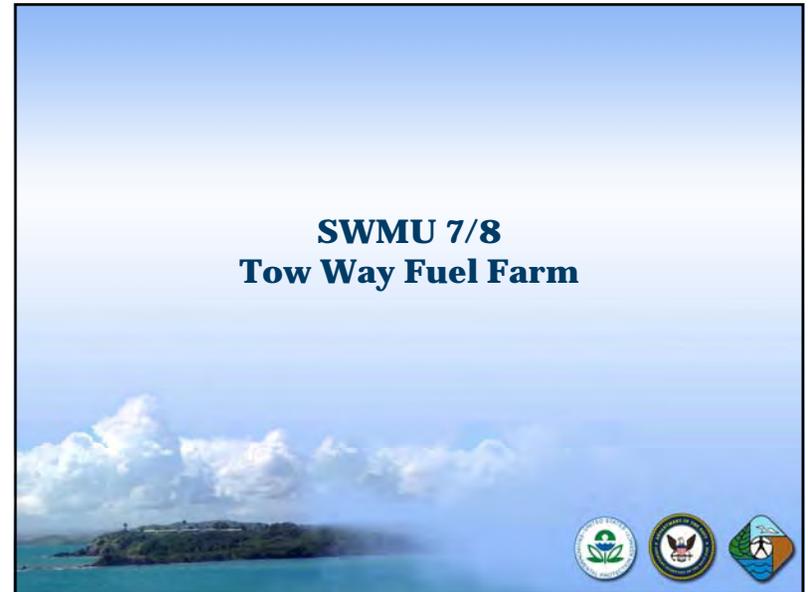
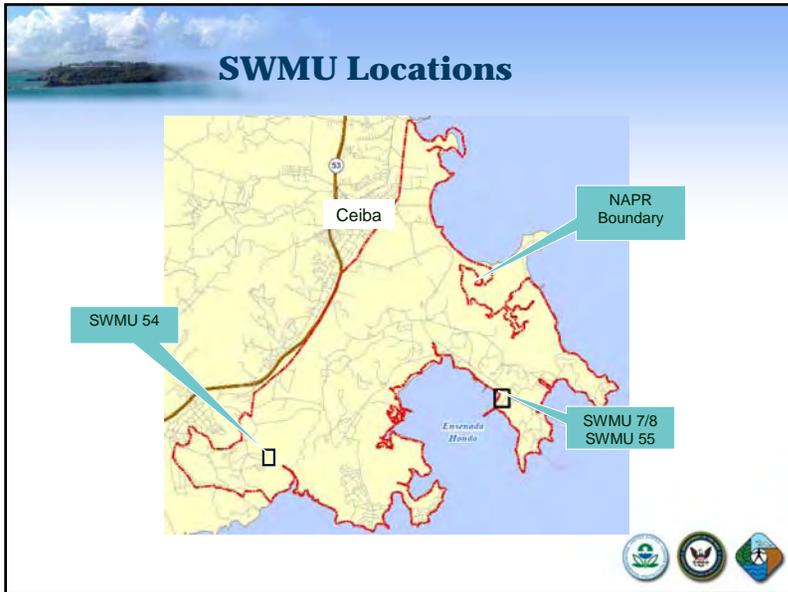
**Mark Davidson
August 19, 2009**



SWMUs 7/8, 54, and 55

- A Corrective Measures Study for Tow Way Fuel Farm (SWMU 7/8) was approved by the U.S. EPA in February 2006
- A Corrective Measures Study for SWMUs 54 and 55 approved by EPA in February 2006





- ### SWMU 7/8 History
- The Tow Way Fuel Farm is located on a hillside along Forrestral Drive north of Ensenada Honda.
 - The fuel farm was constructed before 1957
 - Originally consisted of nine bomb-proof underground storage tanks (USTs).
 - The tanks were used for the storage of marine diesel fuel, jet fuel (JP-5), and Bunker C fuel.
 - After base closure, all USTs and piping were drained and are now empty.
 - During the facility's operational history, numerous releases occurred from storage tanks.
-



SWMU 7/8 Corrective Action Objectives (CAOs)

- Surface Soil
 - Excavation and disposal of soil contaminated with polyaromatic hydrocarbons (PAH) and arsenic, above the CAOs.
- Groundwater
 - Recovery of Petroleum Product
 - *Reduce product thickness in all wells to 1/8-inch or less after 2 years of system operation.*
 - Plume Dissolved in Groundwater
 - *Measure natural attenuation parameters to determine if monitored natural attenuation is a viable remedial action for groundwater.*



SWMU 7/8 Soil Delineation Sampling Event

- Soil sampling was conducted in June 2009.
 - Soil samples were collected using a Geoprobe™ direct-push sampling technique or hand auger in non-accessible areas.
- Soil samples were analyzed for polynuclear aromatic hydrocarbons (PAHs) and arsenic.
 - 72 soil samples collected for arsenic
 - 18 soil samples collected for PAHs



SWMU 7/8 Soil Delineation – Direct Push Technique Rig



SWMU 7/8 Soil Delineation Sampling Event – Results

- Polynuclear Aromatic Hydrocarbons (PAHs)
 - No PAH constituents were detected above the surface soil Corrective Action Objectives at any of the sample locations analyzed for PAHs.



SWMU 7/8 Soil Delineation Sampling Event – Results

- Arsenic
 - 69 of the 72 soil samples had detections.
 - Ranged from 0.81 to 4.3 mg/kg
 - Average of 1.9 mg/kg
 - 8 samples exceeded the surface soil Corrective Action Objective (CAO) of 2.65 mg/kg for arsenic.
 - Distribution seems to be random, does not indicate a distinct distribution pattern; most likely naturally occurring.
 - 95% upper confidence limit (UCL) is 2.5 mg/kg
 - Indicates site arsenic levels are within background levels, and not exceeding the surface soil CAO.



SWMU 7/8 Product Investigation South of Forrestal Drive

- Free product investigation was conducted from June 1, 2009 to July 7, 2009 in the areas immediately north and south of Forrestal Drive.
- A total of 48 test pits were excavated to the water table and allowed to stay open for at least 7 days.



SWMU 7/8 Product Investigation South of Forrestal Drive

Test Pit Excavation



SWMU 7/8 Product Investigation South of Forrestal Drive



- Open test pits were excavated to a depth that intersected the water table
- Each test pit was checked daily for visual signs of petroleum product



SWMU 7/8 Product Investigation South of Forrestal Drive



- If an oily sheen, or a greater thickness of petroleum product, was documented, a temporary sump was installed to remove petroleum product



SWMU 7/8 Product Investigation South of Forrestal Drive - Results

- Temporary sumps were installed in 11 test pits.
- Measurements were collected on July 6 and August 5, 2009.
- None of the 11 temporary sumps exceeded the Corrective Action Objective (CAO)
 - Measured petroleum product >1/8-inch thick



SWMU 7/8 Path Forward – Petroleum Product Recovery

- Install product recovery wells around monitoring wells that exceeded the Corrective Action Objective (CAO)
 - Measured petroleum product >1/8-inch thick
- Evaluate the performance of solar powered pumps to high vacuum-extraction technologies for product removal
- Perform a pilot study using Enhanced Fluid Recovery
- Operate product recovery system



SWMU 54 Former Naval Exchange Repair/Maintenance Shop

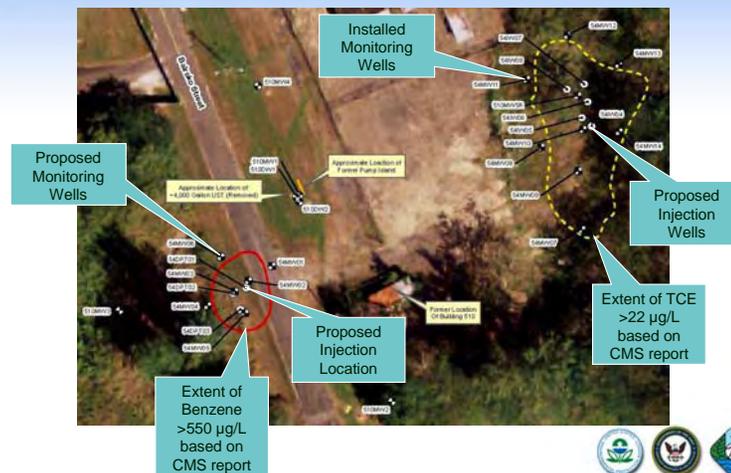


SWMU 54 History

- SWMU 54 is the Former Naval Exchange Repair/Maintenance Shop (Building 1914)
 - Constructed in 1979
- An underground storage tank (UST) of about 4,000 gallons was present at the site and used to store fuel
 - Removed in December 1992
- No wastes are known to have been disposed of at the building.
- No known contaminant releases are related to the building.



SWMU 54 Site Map



SWMU 54 Corrective Action Objectives (CAOs)

- Enhanced In-situ Biodegradation (ISB) natural processes at both plumes
- Trichloroethylene (TCE) Plume
 - ISB via anaerobic treatment
 - Inject emulsified vegetable oil (EVO) solution
- Benzene Plume
 - ISB via aerobic treatment
 - Inject Oxygen Release Compound® (ORC)



SWMU 54 Current Activities

- Completed Tasks:
 - Installed and developed 9 monitoring wells within the dissolved TCE plume: July 14, 2009
- Remaining Tasks for Current Mobilization:
 - Install 5 monitoring wells within the dissolved benzene plume
 - Conduct baseline sampling events for both dissolved plume areas



SWMU 54 Current Activities



- Clearing vegetation before drilling activities



SWMU 54 Current Activities

Hollow-stem auger drilling rig used to install monitoring wells



SWMU 54 Current Activities



- Advance the hollow-stem auger casing and install monitoring well
- Store soil cuttings produced by drilling activities in sealed, labeled 55-gallon drums



SWMU 54 Current Activities



- Develop well using surge techniques
- Use a submersible pump to remove sediment
- Store purged water in sealed, labeled 55-gallon drums



SWMU 54 Current Activities



- Completed monitoring well with protective steel casing and lock
- Installed 4 steel, painted bollards around the well to protect it



SWMU 54 Current Activities

- Soil cuttings and development water are stored on pallets in a containment area



SWMU 54 Path Forward – Pilot Testing

- TCE Plume
 - Install ≥ 5 injection wells
 - Conduct pilot scale emulsified vegetable oil (EVO) injections of about 5,000 lbs
 - Measure injection radius, determine injection rates, and assess how long EVO stays in subsurface
 - Monitor TCE concentration over time to evaluate technology success



SWMU 54 Path Forward – Pilot Testing

- Benzene Plume
 - Install ≥ 3 injection wells
 - Conduct pilot scale Oxygen Release Compound® (ORC) injections of about 600 lbs
 - Measure injection radius, determine injection rates, and assess how long ORC stays in subsurface
 - Monitor benzene concentration over time to evaluate technology success



SWMU 55

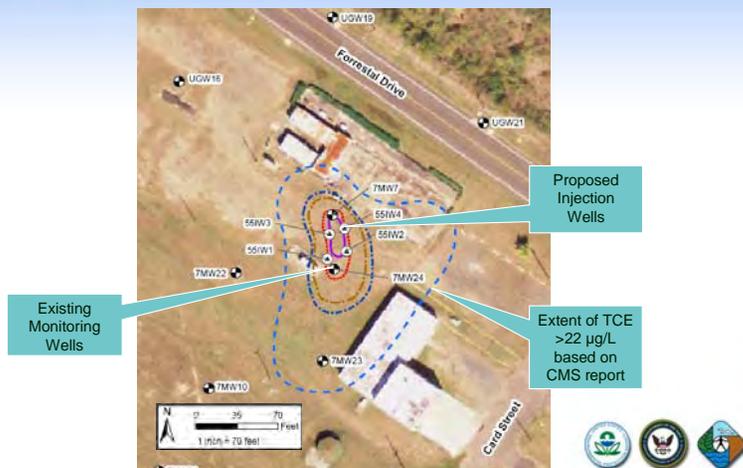


SWMU 55 History

- Building was reportedly used for the storage and maintenance of small watercraft.
- Delineation of a trichloroethylene (TCE) plume in the groundwater and investigation of the source of contamination performed September 2003.
- Maximum TCE concentration in groundwater was 1,800 micrograms per liter.
- The approximate vertical extent of contamination ranges from 10 to 35 feet below ground surface.
- The size of the plume is approximately 150 feet by 180 feet.



SWMU 55 Site Map



SWMU 55 Corrective Action Objectives (CAOs)

- Pilot test to evaluate the use of In-Situ Chemical Oxidation (ISCO) with potassium permanganate to remediate contaminated groundwater exceeding the CAOs.
- Reduce TCE concentrations in groundwater below the human health-based CAO of 22 micrograms per liter.



SWMU 55 Pre-injection Baseline Groundwater Sampling Event

- Groundwater baseline sampling activities were conducted on July 8, 2009.
- Six (6) groundwater samples were collected from existing monitoring wells and analyzed for Trichloroethylene (TCE).
- TCE was detected in 4 of those samples, based on preliminary results.

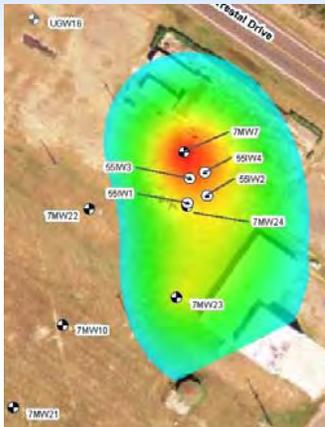
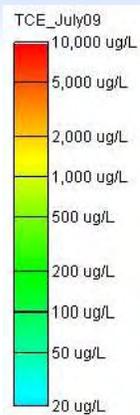


SWMU 55 Pre-injection Baseline Groundwater Sampling - Results

- Detected TCE concentrations ranged from 1.86J to 14,500 micrograms per liter.
- 3 samples exceeded the human health-based Corrective Action Objective of 22 micrograms per liter for TCE in groundwater.



SWMU 55 Pre-injection Baseline Groundwater Sampling - Results



SWMU 55 Path Forward – Pilot Testing

- In-situ chemical oxidation (ISCO)
 - Install ≥ 4 injection wells
 - Conduct pilot scale potassium permanganate injections between 5,000 – 8,300 lbs
 - Measure injection radius, determine injection rates, and assess how long potassium permanganate stays in subsurface
 - Monitor TCE concentration over time to evaluate technology success



What's New?

Mark Davidson
August 19, 2009



“Caribbean Riviera”

- Did anyone attend the Portal del Futuro community meeting in July?
- Status of Sale Parcels I, II, and III
- Status of the Economic Development Conveyance
 - Under the current plan, 275 acres for a Science Park and University, plus the water treatment plant and wastewater treatment plants
- What all this means for the cleanup program



Other public comments and questions?



Closing: next RAB meeting

- Next RAB meeting November 2009?
 - At Club Cívico La Seyba, if available
 - Please remember to call ahead, or send an alternate, if you cannot attend
- Agenda suggestions for next time?
 - Call Ramón Figueroa, RAB Community Co-Chair (787-235-1473)
- Thank you for participating!





Questions between meetings

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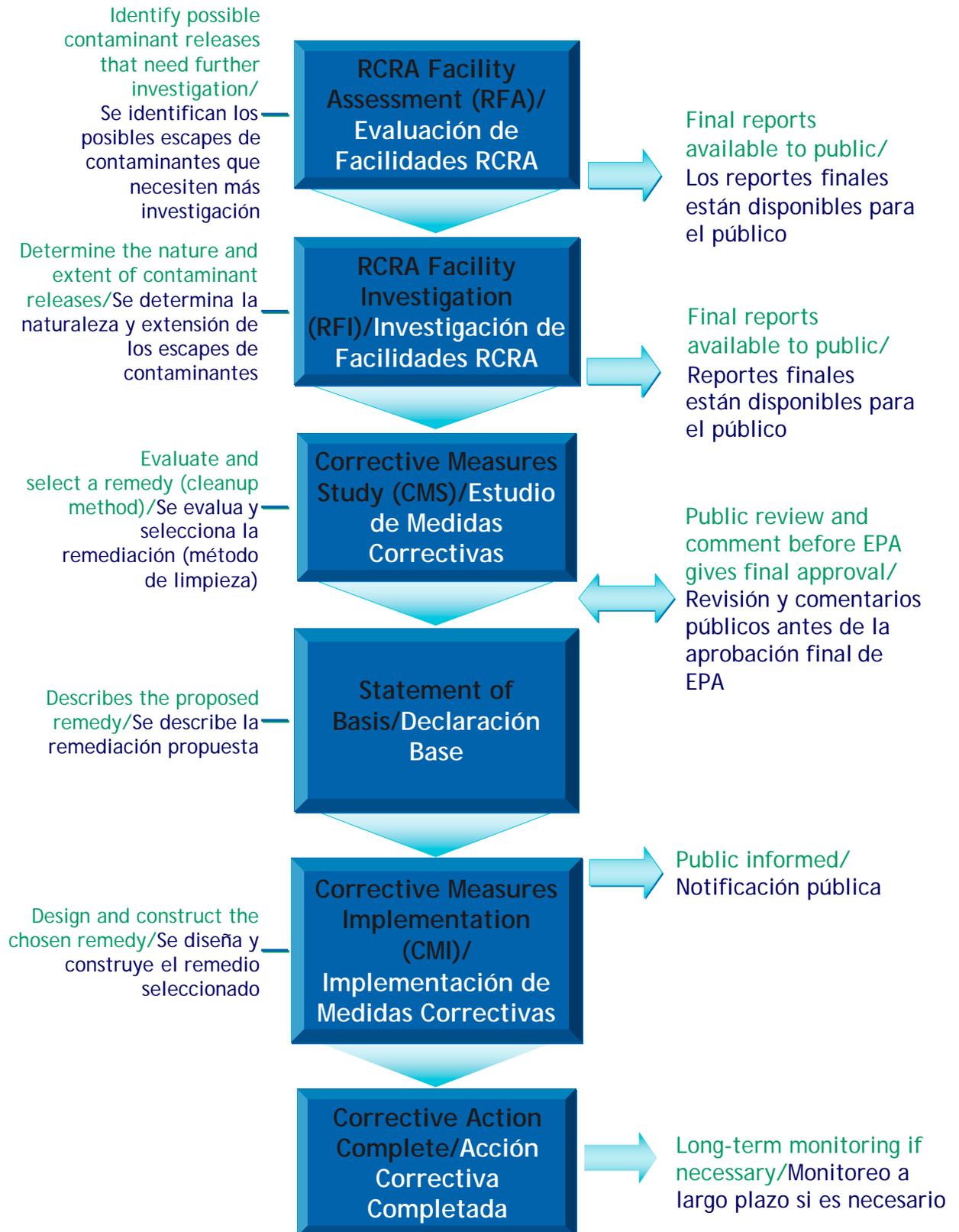
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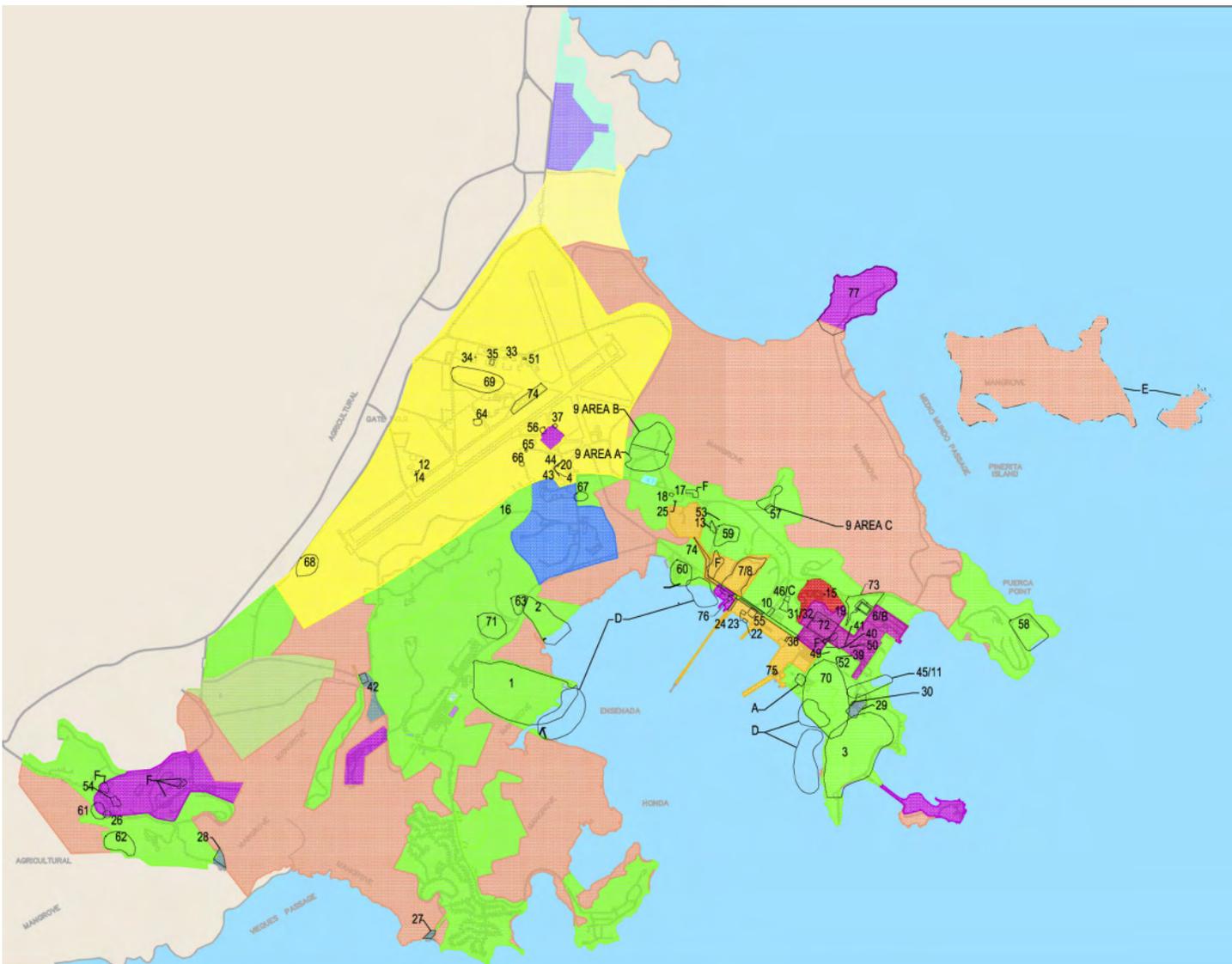
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RCRA Corrective Action Stages

Etapas de una Acción Correctiva RCRA





Map Showing Sites and Planned Land Use at the Former Naval Station Roosevelt Roads

Mapa Mostrando los Sitios y el Uso Planificado en la Antigua Base Roosevelt Roads

LEGEND		LEYENDA	
PLANNING ZONES		ZONAS DE PLANIFICACION	
	AIRPORT		AEROPUERTO
	BOWLING ALLEY		BOLERA
	CONSERVATION		CONSERVACION
	EDC (FIRESTATION)		EDC (ESTACION DE BOMBEROS)
	FEDERAL		FEDERAL
	GOLF COURSE		CAMPO DE GOLF
	HEALTH CLINIC		CLINICA PARA LA SALUD
	HOMELESS PROVIDER		PROVEEDOR PARA PERSONAS SIN HOGAR
	HOSPITAL		HOSPITAL
	LOS MACHOS BEACH 1		PLAYA LOS MACHOS 1
	LOS MACHOS BEACH 2		PLAYA LOS MACHOS 2
	LOS MACHOS BEACH 3		PLAYA LOS MACHOS 3
	PRPA (CG RANGES)		PRPA (CG RANGES)
	PORT		PUERTO
	SALE		PARA LA VENTA
	SCIENCE PARK		PARQUE DE CIENCIAS
	UNIVERSITY		UNIVERSIDAD
	WATER TREATMENT		PLANTA DE TRATAMIENTO DE AGUA
	SITE		SITIO