In comparison to maintenance material, new work material is significantly different in several key ways. New work material is often predominantly sand with a varying amount of silt and clay range components. It is often free of anthropogenic contaminants since it is unlikely to have been exposed since the industrialization of the Bay Area. New work projects typically consist of large volumes of generally uniform material that can be acquired from a single source.

For these reasons, we believe that the document needs to reanalyze significant impacts in relation to the type of material (sand or silt/clay) and the various disposal option. For example, dredged material that is predominately sandy or clumpy may not disperse from the Alcatraz site. 35

Environmental Issues; Need for Appropriate Levels of Protection

The document outlines six issues that have been raised as concerns by agencies or the public related to the disposal of dredged materials. These issues include: 36

1. Redistribution of pollutants and/or release of contaminants during dredging and disposal;

2. Burial of bottom-dwelling organisms;

3. Resuspension of sediment particles and resulting turbidity;

4. Changes to the native sediment characteristics near the disposal site and shifts in the sediment budget and/or dynamics within embayments;

5. Impacts on migrating special status species such as the winter run chinook salmon; and

6. Degradation of pelagic and near-bottom habitat around the disposal sites that may lead to reduced fishing success.

In our comments below, we have tried to relate these concerns to disposal and reuse in each of the environments. In several instances, the document fails to fully address all "risk" in each of the environments. We believe that the agencies should try to address the concerns listed above more completely as described below.

37 The document substitutes the term "Risk" for the appropriate CEQA term "Significant Impacts". The term "Risk" is used to describe the potential for impacts rather than demonstrating that significant impacts occur, or are likely to occur, at a given level or frequency of disposal. What is more disconcerting is that a great deal of effort is put into trying to describe a "Risk" related to in-bay disposal whereas the potential risks for wetland creation, upland reuse and ocean disposal are largely ignored. The potential risks in each disposal/reuse environment (and for different types of dredged materials) are treated unequally. This uneven treatment seems to reflect a predisposition to select tidal habitat. Are there really problems with the current levels of in-bay disposal? Can SF-11 be managed to preserve in-bay disposal for clean maintenance material? Can dredged material be reused beneficially to create other habitats? Is wetland creation safe and practicable? The document doesn't answer these questions. Thus, it is impossible to determine if the policies established in the document would lead to net environmental benefits.

38 The document describes risk in a very general sense, and seems to assume that in-bay disposal poses risk. The risk analysis avoids discussion of the potential risk as it relates to different types of dredged materials as well as the different types of disposal sites (dispersive vs. non-dispersive). The analysis also avoids risk in terms of human cost and is incomplete in its analysis of contaminant threat over time. The document also tends to avoid subjects that we believe would lead to significant impact (not just risk) by saying that the effects would need to be evaluated on a case-by-case basis. It is inappropriate to say that alternative "A" poses a risk, so you must do alternative "B" but we will analyze those impacts later and let you know if alternative "B" is acceptable in your case. One of the goals of the document was to give the regulated community regulatory certainty. This level of analysis does not add certainty to the process.

39 Described below are several potential impacts that were ignored or not completely analyzed that can significantly change the risk evaluation:

39a 1. Most maintenance dredged material is predominately fine grain consisting of 50% to 99% silt and clay range material (see attachments). Even using careful dredging technique the material is predominately a slurry of water and fines. Dredging can be accomplished to minimize water, however this often doubles the cost of dredging. It can be expected that maintenance dredge material (using the clamshell method) would consist of >60% water. Suction dredging as conducted by the Essayons would have >70% water content. The Alcatraz disposal site (SF-11) is approved under the authority of the COE as a DISPERSIVE disposal site. The ocean disposal site (SFDODS) is permitted by the

EPA as a NON-DISPERSIVE site.

Disposal of fine grain maintenance material at SF-11 makes sense since maintenance material will disperse and erode, preventing mounding and operating within the parameters established for a DISPERSIVE site. New work material typically has a higher component of sand. In addition new work dredging often capable of getting large volumes of material and minimum amounts of water. Watching any maintenance dredging project and comparing to the Port of Oakland 42' deepening project would make this point quite clear. New work material is also typically 'clumpy'. The characteristics of new work dredging make it appropriate for disposal at NON-DISPERSIVE site such as SFDODS, but inappropriate for disposal at a DISPERSIVE site such as SF-11. In fact, the mounding problem at the SF-11 site was probably due to new work projects being disposed at SF-11. 39a

In contrast to the SF-11 dispersive disposal site, one of the major concerns raised regarding disposal at the SFDODS non-dispersive disposal site is since the site is so deep, fine grain material may not be deposited within the disposal site boundaries or hit bottom at all. Recent monitoring has indicated that the vast majority of the material disposed at SFDODS can be found within the site boundaries. However, the material disposed at SFDODS has been all new work projects consisting of mostly sand and has been clumpy in nature. The small amount that has not fallen within the site boundaries can easily be attributed to the slower falling, more dispersive "fluffy" material. Since maintenance material is mostly the latter type of material, a higher percentage of material from maintenance projects would fall outside the site boundaries.

The concerns raised in the document over in bay disposal are largely a result of the site being permitted as a dispersive site. Have the agencies now determined that dispersive sites are unacceptable? If so, then why were no new non-dispersive sites within the San Francisco Bay analyzed? The Port has recommended that the LTMS address non-dispersive in-bay sites on several occasions (see attached letters of comment). Environmental benefits can be achieved through non-dispersive site designation. For example, it is generally true that shallow water habitats within the Bay are of a greater value than deep habitats. Although this could be debated, this assertion is no more controversial than the disagreements regarding the conversion of seasonal wetlands to tidal wetlands. Maintained deep water channels could be converted to shallow water habitat cheaply and easily. The newly created contour could then be converted to eelgrass beds or other needed habitats.

39a There are several deep channels and berthing areas that may become available through the base closure process. This solution seems obvious, yet it was ignored as a possibility. Why were such high values placed on wetland creation over any other beneficial habitat? Shallow habitats can support endangered species and species of special concern as easily as wetlands with fewer controversial issues and at a fraction of the cost.

39b 2. There are several transport related risks that have been ignored or incompletely analyzed. Regardless of the weather conditions at the beginning of a trip to SFDODS, weather conditions can change rapidly causing loss of a load or even human life. In the short time that SFDODS has been in operation, one barge load of material and a tug were lost. Fortunately, due to the prompt response of the Coast Guard, there was no loss of life. The risk to human life is tangible but still ignored in the document. It is also worth noting that although the contractor is doing a good job in placing the material at SFDODS, the same contractor, using similar equipment has been fined by EPA for repeatedly missing the LA-2 disposal site (a site much closer to shore) and for spilling material in transit. Again, an issue and a tangible impact that is largely ignored in the document.

39c Additionally, truck transit impacts have not been completely analyzed. The document makes some general evaluations but largely side-steps the impacts caused by the huge number of truck trips (regardless of the distance) to move even a relatively small dredging project from a drying yard to the reuse/disposal site. The analysis indicates that there is a high risk with high levels of reuse as levee material. However there is no discussion for any other UWR trucking issue such as hauling to landfills, or for construction. The document states that approximately 5% of the total volume dredged will be determined to be NUAD material and require confined upland disposal. Based on this approximately 300,000 cy of the 6 million cy dredged annually will require confined disposal. Virtually all material passing through these facilities will require trucking. The most likely disposal option for this material is landfills. If this material is required to go to landfills, we can expect approximately 30,000 additional truck trips regionally.

For the purpose of this discussion, we assume that none of the NUAD material would be suitable for levee stabilization. If this is true, then the number of truck trips for NUAD and SUAD material need to be added to give the total number of trips associated with the proposed policies. Therefore, when the need for NUAD truck transport are combined with the +60,000 truck trips anticipated for levee stabilization, we are talking

39d about approximately 90,000 additional truck trips regionally. So trucking

related air impacts have been underestimated by 30%. Further, although air impacts due to pumping are considered, heavy equipment will be needed to contour and prepare areas to be restored, equipment needed to unload, dry, and reload trucks or barges. The document generally states that these emissions would be spread out throughout the estuary, however this is not the case. Most of the rehandling, restoration and disposal sites are located in the North Bay. The document also generally disregards air impacts since they are mobil sources. However, as with the scenario for repeated dumps at Alcatraz, impacts can be cumulative. Although air emissions may be transient, PM10 is not. 39d

Several large projects occurring at the same time and in the same area (ie. a north bay wetlands creation project and a significant amount of material going to Redwood Landfill from Port of Sonoma) could increase the risk of air impacts. These factors coupled with the impact of having to haul material further to rehandling or wetland creation sites far exceed the projected impacts expressed in the document. At some point, the environmental "benefit" of the LTMS policies will be overshadowed by the additional "risks" of implementation, especially when taking a regional perspective. A large percentage of the contaminants in dredged materials are from non-point sources, including air emissions. These additional impacts have not been addressed well and it is conceivable that the means of accomplishing the policies will be contributing to the concerns that lead to the policies in the first place.

Finally, are there any statistics on the number of fatal truck accidents per trips? If so, does the number of trips projected exceed a risk factor that is unacceptably high for the potential environmental benefits gained? The EIR for the Redwood Landfill Solid Waste Facilities Permit Expansion Project (Woodward-Clyde, 1993) determined that the additional truck traffic posed a significant impact and increased risk. If 90,000 additional truck trips are required yearly, the daily average increase in truck traffic would be 246 per day, everyday. In addition, it is likely that the additional truck trips would occur from one or two rehandling facilities. In all likelihood, these facilities would link to highways through unimproved accesses (ie. Port of Sonoma) The trucks would need to cross or merge with traffic traveling at highway speeds, often with limited visibility. In all likelihood, the number of trucks on any given day would be much higher than the 246 truck average. The additional risk of this level of unnecessary transportation may not warrant the benefits. 39e

3. The document side steps upland impacts in terms of short-term contaminant discharges to surface waters during material placement as being evaluated on a case by case basis. However, general risks can be 39f

39f evaluated on the basis of what types of discharges can be expected from "generic" dredged material. Additionally, long term discharges of contaminants from SUAD material when placed in a different environment have not been evaluated.

In general, sulfate concentrations in all sediments are elevated above water column concentrations. The discharge of slurry water or runoff is often high in total dissolved sulfate. The concentration of sulfate is related to the oxidation state of the materials rather than contaminants, therefore, even runoff from 'clean' dredged material can exceed water quality standards. Several papers and reports have described water quality issues during discharge from confined disposal facilities (CDFs) (Waterways Experiment Station Documents EEDP-02-13, EEDP-02-7, EEDP-02-9). Turbidity is also difficult to control. Runoff quality is controllable from rehandling facilities due to their specific design criteria. In contrast, control of discharge from wetland creation projects are often more difficult to control. If turbidity is an issue at Alcatraz, then turbidity could also be an issue for discharge from a wetland creation project. The document needs to explain why they are different especially in the context of potential impacts to near-shore migratory pathways.

There is also the potential for long term water quality impacts with the uncontrolled placement of marine water influenced dredged material in an upland or wetland site that could be irregularilly inundated with fresh water. There are several factors that control the availability of contaminants in dredged materials. These controlling factors include total organic carbon, particle surface area (grain size), acid volatile sulfides, pH, colloidal material, ionic charges and other factors. These factors can be modified depending on the disposal/reuse option. There are numerous papers that describe the mechanisms that will allow contaminants to mobilize over time from upland sites (Lee et al 1993, Lee et al 1995, Wood and Baptista, 1995, Burton, 1992, Baudo, Giesy and Muntau, 1990, DePinto, Lick and Paul, 1994, Kennish, 1991, Horowitz et al, 1989, Makos and Hrncir, 1995, Abu-Saba and Flegal, 1995, to name just a few.) Additionally, studies conducted by BCDC on the reuse of "clean" dredged sands for levees indicated that discharges can exceed basin water quality standards. By virtually all CEQA guidelines this would be a significant impact. These papers and documents describe how metals partition into and from water to sediment. In short, short and long term discharges from upland sites constructed of SUAD material can exceed water quality standards. It should be further noted that the disposal or reuse of dredged material in the aquatic environment, particularly in non-dispersive sites, would largely avoid long term solubility and discharge issues.

4. There is an additional environmental impact that may result from the inaccurate economic analysis and the limited scope of alternatives in the DEIR/EIS. Presently, there are areas of contaminated sediments within San Francisco Bay that affect the health of the Bay fish population and those that consume the fish. If the LTMS develops policies that make it financially impossible to dredge those materials, and restricts the possibilities for either capping those sediments in place or placing them in another marine area where the impacts of those sediments on the marine environment are reduced, those sediments will stay in place, at least for the forseeable future. We have provided information here that substantiates that upland disposal or reuse of those sediments could cost as much as $55/cy. Far more sediments could be remediated, and the risk that those sediments currently pose to the marine enviroment reduced, by non-dispersive alternatives. We believe that regulatory deadlock, (or mudlock) over the feasibility of disposal options has significant environmental impacts that must be addressed in the document. 39g

TURBIDITY AND DISPOSAL SITE IMPACTS

We strongly disagree with the assessment in chapter six of the environmental consequences of aquatic disposal. We would like to point out several areas where the analysis is incomplete and the logic is faulty. 40

In the affected environment section (page 4-29), the document cites Nichols and Parmatmat 1988, however there is more recent information that should be considered. The data report Summary of Suspended-Solids Concentration Data, San Francisco Bay, California, Water Year 1994 produced by the U.S. Geological Survey has quite different numbers than the much earlier study cited. The USGS report shows TSS concentration near San Pablo Bay ranging from near 0 to over 800 mg/L. Even if the extremes are thrown out of the database, there are many weeks with concentrations exceeding the 200 mg/L maximum indicated in the report. This is also true for the Central Bay data presented in the DEIS/EIR. The EIR reports a maximum TSS of 60 mg/L where as the USGS report sites a range from near 0 to peaks over 250 mg/L. The LTMS DEIR/EIS document also states that: 40a

> ...however, wind-driven wave action, tidal currents, dredging activity at Alcatraz, and sand mining operations have been associated with periods of higher suspended solids concentrations.

This statement seems to be contrary to several other documents (O'Connor, April 1991, O'Connor, May 1991, USGS 1995) Can you please reference this statement, give likely percentages for each TSS input cited and describe

40a whether you are referring to localized or regional TSS impacts.

40b There seems to be a contradiction in terms of the concerns over how SF-11 is functioning. SF-11 has been designated as a dispersive site, yet the agencies seem to be concerned over both mounding and dispersion. Since the site is designated as a dispersive site, the concern should be over mounding, and less over dispersion. In evaluating the site as being dispersive, it must have been conceived that material would leave the site resulting in turbidity. The issue is whether or not the dispersal of that material has significant impacts.

40c Several water quality parameters have been identified as concerns regarding disposal of material at the Alcatraz disposal site. These concerns include decreases in dissolved oxygen, and increases in dissolved pollutants, ammonia, sulfides, and suspended solids. The major effect attributed to the in-bay disposal sites is turbidity. The document describes that disposal at the SFDODS site presents a reduced risk over any in-bay disposal site. However, except for a table that ranks "risk" in each environment (Table 6.1-1), there is no documentation of why or how risk is higher in-bay than at SFDODS. The only reason given is turbidity, however as previously stated, any material that would erode from Alcatraz, would be difficult to place within the SFDODS disposal site. Erosive material disposal at SFDODS would increase the risk of turbidity and sediment deposition within the Farrallones or Monterey Bay Marine Sanctuaries. Based on the concern over dispersive material at the deep ocean site and the agencies concern over in-bay dispersion from the dispersive in-bay sites, permitting a shallow water non-erosive site would significantly decrease risk, cost, and controversy. Additionally, habitat benefits can be achieved through dredged material placement into non-dispersive sites.

40d There is no analysis in the document as to why any level of disposal would cause a significant impact or why 1 MCY poses less risk than 4 MCY (other than the fact that it is a smaller number). This repeated substitution of the term "risk" for "significant impacts" and the lack of clear significance thresholds, undermine the utility of the document. It appears that the concerns regarding turbidity are derived from high volumes of disposal over short periods of time. The document states that although the average number of dumps at Alcatraz is about 7 per day, a maximum of 21 dumps per day could occur. The risk associated with this level of dumping is that there could be overlap between disposal events. It was estimated by Reilly (1992) that TSS concentrations return to near background conditions within 15 to 20 minutes. The document asserts that when the frequency of disposal is greater than 20 minutes, that there would be a compounding effect causing (wider and more severe?) turbidity effects. However, if there were as few as two dumps occurring at the SF-11 site, there is still a chance of overlapping within a 20 minute window. If the agencies have determined that turbidity caused by multiple disposal events within a 20 minute window is a significant effect, then mitigation measures

should be reviewed. A simple mitigation measure would be to prohibit multiple disposal events within a window of 45 minutes. This would give additional protection without all the additional cost and potential environmental impacts of upland disposal. This could be managed through the USCG Vessel Traffic Service (VTS). We believe that a 30-45 minute window is fair, inexpensive and protective. 40d

The available information regarding turbidity does not support the assertion in the document that dredging related turbidity poses an environmental risk. The Aquatic Habitat Institute (AHI) conducted two studies (AHI, May 1991, April 1991). These studies determined the following: 40e

> Analysis of turbidity and water surface elevation data showed that the periodic and substantial changes in turbidity that occurred at Alcatraz dredged disposal site were related to tidal action. There was no demonstrable relationship between turbidity measured at 4.6 meters and discrete disposal events. (AHI, May 1991)

Further, the April AHI report concluded the following:

1. TSS concentrations in the null zone can be several times greater than the highest TSS concentration measured in Central Bay. (The inference here is that migrating fish pass through the null zone and can tolerate higher concentrations of TSS than would be found in Central Bay).

2. The estimated increase in turbidity within the Central San Francisco Bay caused by dredged material disposal (approximately 7 mg/L) is within the range of variation caused by ambient factors. (The inference here is clear, dredging related turbidity is insignificant and typically falls within the background concentrations in the Bay. In addition, since there are moderate to high levels of turbidity in the Bay naturally, a dredging induced contribution of 7 mg/L would be less significant than the increase over background at the much less turbid SFDODS site. Further, wetland creation projects would occur predominately in the North Bay. Discharges from the wetland creation would result in some increased turbidity during placement. The placement related turbidity would occur in shallow, near-shore areas, near migratory pathways and in sensitive near-shore environments that younger life-stages tend to utilize).

3. TSS concentrations directly adjacent to dredged material disposal operations can be extremely high. These high concentrations dissipate rapidly. (Any effects are localized and generally within or near the designated disposal site).

4. TSS concentrations in the mid-water column of Central San Francisco Bay may vary from less than 10 mg/L to about 100 mg/L due to natural forces and transitory effects of dredged material disposal. The higher concentrations have been shown to dissipate within 20 to 25 minutes. The lowest TSS concentration recorded to have any impact even on sensitive life history stages of aquatic biota was about 100 mg/L for periods of time lasting from 10 to 24 hours. Such conditions have never been seen in the Central San Francisco Bay. The potential for impact to sensitive species in the Central Bay is very small. This has been taken directly from a AHI document prepared by Joe O'Connor. This document is contrary to the assertion in the DEIR/EIS and should be taken into account.

40f

40g Although we can agree to disposal windows (one dump every 30-45 minutes), we do not agree that turbidity and disposal related environmental "risk" constitute "significant impacts" that can only (or best) be mitigated by promoting disposal at SFDODS or upland disposal/reuse. The same concerns over discharge and water column effects would be true for any of the proposed disposal/reuse scenarios. Finally, as a general statement, any of the affects attributed to the in-bay site would also hold true for disposal or reuse in the upland or ocean environments. Each disposal site will be exposed to short term increases in turbidity, dissolved sulfide, ammonia, "contaminants", and decreases in oxygen. The ability of the water body to recover from the short term effects may vary slightly between sites depending on dilution factors and disposal area, but the vast majority of the "effects" are transitory and short in duration.

REGULATORY CERTAINTY

41 The LTMS promise of regulatory certainty is not delivered by this document. The agencies may agree that the reuse of dredged material and the minimization of in-bay disposal is the most acceptable means of achieving project certainty, however there are still several voices saying that there is insufficient analysis of the overall regional impacts of reuse. The LTMS agencies must hear all the concerns and work towards consensus before true regulatory and project certainty can be achieved.

Several issues must be resolved before regulatory certainty can be achieved:

41a First, a more complete analysis of habitat conversion must be completed. Although the document addresses some of the issues, seasonal wetland and tidal wetland values, conversion, and mitigation must be described more thoroughly.

Second, the LTMS should give a more even handed analysis of all potential habitat creation projects and not just tidal wetlands. The LTMS policy goals must be put into the context of the wider habitat goals of the region. 41b

Third, the LTMS should look for ways to encourage UWR ~~rather~~ than regulating aquatic disposal beyond the point where a nexus to significant impacts has been established. For example, if the agencies adopted a policy to allow the development of "mitigation banks" the benefits of the bank could greatly offset the additional costs and risk of wetland creation. We realize that there will be several serious concerns to be addressed, however mitigation banking may be the most efficient means of promoting wetland creation. 41c

Fourth, the LTMS is driving a wedge between the "large" and "small" dischargers by segregating projects by size and the agencies perception of who can afford to pay for various disposal/reuse options rather than "effects" or "risk". Risks are risks, regardless of the size or finances of the discharger. We may be the largest Port in the Bay Area, but we have severe budgetary constraints and must compete with larger ports in Southern California and the northwest. Making decisions on environmental risks and benefits based on perceptions of the discharger rather than risk is indefensible. Rather, the document needs to establish the significant impacts of dredged material disposal and then turn to the question of practicability. We believe that small projects, whether generated by a marina or a port maintaining a berth, have more practicability issues than do large projects. 41d

Fifth, the agencies must do a better job comparing all impacts in all environments. The policies of the LTMS could be setting the stage for a much worse situation than currently exists. What if tidal wetlands fail and valuable seasonal wetlands are destroyed in the process? What if the habitat values are not what was anticipated? What if we find that there is an increased risk with certain types of materials in certain habitats? Certainty is lost. Trust is lost and we are back to "mudlock". 41e

Finally, the agencies must understand that certainty is meaningless to us if we can not afford achieving that certainty. Look at our costs closely. Maintenance dredging needs to be segregated from new work. We will work for a federal cost share for habitat creation for both new work and O&M. However, the agencies and the public must be more realistic of what can be accomplished. 41f

ATTACHMENT 1

RELEVANT CHRONOLOGY OF LETTERS OF COMMENT FROM THE PORT OF OAKLAND TO THE LTMS AGENCIES

PORT OF OAKLAND

April 1, 1994

Becky Tuden/Gail Louis
EPA
75 Hawthorne Street
San Francisco, CA 94105-3901

Subject: Alternatives for Analysis in the EIS

Dear Becky and Gail:

This letter transmits formally the comments that I made at the LTMS EIS/EIR Interested Parties Meeting March 30, 1994. At that meeting we discussed alternatives that had been sent to the working group on March 24, 1994.

I strongly object to the structure of Alternative A and Alternative B, and recommend that this structure be changed. I see three major issues with the currently proposed structure. First, I believe that cost is one of the criteria for evaluating alternatives, not a basis for formulating alternatives. Second, the language establishing Alternative A and Alternative B implies that environmental protection and environmental enhancement and minimizing costs are fundamentally contradictory objectives and that both cannot be achieved. It further suggests that the only concern to the dredging community is cost. I disagree with this, and believe that structuring an alternative on this basis is inflammatory rather than illustrative.

The costs of ocean disposal are high enough to create economic incentives for lower cost disposal options. At the present, there remains very significant uncertainty about obtaining permits for alternatives to aquatic disposal. Any alternatives that have been permitted are too small to realize the potential economies of scale that might make those alternatives competitive with ocean disposal. However, I believe that habitat restoration and dredged material reuse could be competitive if the uncertainty is removed and the ingenuity of the dredging community is harnessed rather than restrained. Third, we think that the current division into Alternatives A, B, and C does not create a broad enough array of alternatives to provide the basis for NEPA or CEQA analysis.

It was heartening to hear general agreement from the members of the Interested Parties Meeting that the concept of maximum disposal should be the basis for EIS alternatives. I recommend that three alternatives, maximize ocean disposal, maximize in-Bay disposal,

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and maximize upland disposal, be used as the basis for the EIS. Clearly, the quality of the sediment and the capacity of the identified disposal sites indicates that complete disposal in any of these three media is impossible. However, an alternative that looked at maximum disposal should be able to indicate what will limit the volume, that is, establish the probably maximum, and then identify the environmental impacts of maximum disposal. This approach would also illuminate the technical, environmental, economic, and/or policy issues that would tend to limit maximum disposal for each medium.

If the basis structure of Alternative A and B is replaced by three "maximum disposal" scenarios, it will still be necessary to develop several alternative approaches which provide for a different "mix" of disposal. I think that mixture should be determined based upon the environmental analysis of the impacts of disposal into each medium, and the policy implications of increased disposal. For example, I think that "maximum upland disposal" will only be possible if there are changes in the State's nondegradation policy for discharges to the Delta. (Dredged material cannot be taken to the Delta and used to reinforce a levee without a discharge, and any discharge of soluble metal salts, including sodium chloride, constitutes a degradation of water quality.) The advisability of such a policy change depends on the environmental analysis. If, cumulatively, the environmental impact of reinforcing Delta levees with dredged material is small, and much less that the water quality risk of the current levee system, then the policy change might make good environmental sense.

For this effort to be a meaningful policy EIS, the mixture of alternatives should be derived from the impact analysis of the media, rather than established ahead of time regardless of impact. Stated more simply, there should be no sacred cows in this effort if we truly want to find the environmentally preferable alternative and see if it is possible to implement that alternative.

I also have a number of technical comments, as follows. 1) Terms need to be used with greater precision than in the current draft. Such terms as "suitable material" could differ for each potential use and/or impact area. Biological suitability is quite different from engineering suitability. 2) Concepts such as "maximize environmental benefit" are pretty vague, and may well conflict with terms such as "maximize reuse". "Maximize reuse" may, in turn, differ from "maximize beneficial reuse". Construction fill for levee construction is quite different from construction fill for engineered fill in an area subject to liquefaction. 3) I would not use the term "practicability" as it is in Option B; that is a term of art that is, in effect, the sum of the various evaluation criteria under existing law. I have the understanding that we are not necessarily limited by the existing legal framework. 4) Any discussion about minimizing the need for dredging must consider both that the higher cost of dredging will do that, and that the

closure of multiple bases in the Bay area is also likely to substantially reduce dredging needs.

I look forward to a revised draft and more animated discussion by the work group. I have enclosed, per Tom Wakeman's request, a copy of my recent letter to BCDC.

Very truly yours,

Jim McGrath
Environmental Manager

Enclosure

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PORT OF OAKLAND

May 24, 1994

Becky Tuden/Gail Louis
EPA
75 Hawthorne Street
San Francisco, CA 94105-3901

Subject: Alternatives approach in the EIS/eir

Dear Becky and Gail:

This letter augments the discussion we held at the last LTMS EIS/EIR Interested Parties Meeting May 17, 1994. At that meeting we again discussed alternatives and how to approach alternatives in the EIR/EIS.

I don't think that your follow-up memo of May 19, 1994, quite captures what I thought was a developing consensus. It does not reflect our concerns. I think that the approach to alternatives needs to have four sequential steps, as follows:

1. **Generic Disposal Analysis.** I think your documents reflect this starting point. It is essential to begin analysis with cross-media comparisons of disposal impacts. That analysis needs to consider the impacts, beneficial and adverse, of leaving material in-place; the no action alternative. For some sediments, e. g. those which are high in DDT, I believe that the no action alternative has significant, adverse impacts.

2. **Identify an "Environmentally Preferable" Alternative/Mix.** The essential policy work of this step must be done jointly by the Corps and EPA, with input from the IP group and using the results of step 1. There is the potential for conflict between the LTMS goals of "environmentally sound", "economically sound", and "maximize reuse". The EIS authors must tease out the "environmentally preferable" mix of disposal options from any conflicts.

3. **Distinguish between the "Environmentally Preferable" Alternative and "Practicable Alternatives".** Please note that there is a distinction between the term "environmentally preferable", which is a term of art under NEPA, and terms such as "practicable alternatives", which are terms of art under both the Clean Water Act and the MPRSA. The EIS effort is meant to identify alternatives that go beyond the existing MPRSA and CWA standards. To do so, the terms to be used with precision.

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4. Recommend Policy Changes. This is the critical stage of the process. To the degree that the "environmentally preferable" alternative is not a "practicable alternative" under existing laws, regulations, and policies, the LTMS process/EIS needs to recommend changes to allow implementation of the environmentally superior alternative. Items for consideration range from underlying legislation (the Clean Water Act, the MPRSA, the Water Resources Development Act) to policies such as the Corps' Principles and Guidelines for project planning and the State Water Resources Control Board's non-degradation policy for delta waters. This step is vital to protect the shipping community's interests. The measures required to improve the feasibilty and practicability of environmentally superior alternatives must be implemented by the responsible parties before the shipping industry can be required to implement an environmentally superior disposal option that costs significantly more, or has a significantly more torturous regulatory approval process.

We are making substantial progress in this area, and I look forward to resolution of this issue by the work group.

Very truly yours,

Jim McGrath
Environmental Manager

Enclosure

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PORT OF OAKLAND

September 21, 1994

Rebecca Tuden
EPA
75 Hawthorne Street
San Francisco, CA 94105-3901

Subject: Alternatives for Analysis in the EIS

Dear Rebecca:

This letter reflects my comments on the direction of the LTMS EIS/EIR effort. It is disturbing to see that the COE/EPA approach has not changed substantially since the Interested Parties Meeting of March 30, 1994. As I stated in my recent letter to Tom Gandesbery, the LTMS process badly needs a mechanism to resolve conflicts rather than simply postponing those conflicts. It seem that we have spent over 6 months on this issue, without resolution.

Substantial controversy was raised during the meeting of March 30 meeting about the direction of using "policy alternatives", and whether that approach would span the potential range of environmental impacts associated with implementation of the LTMS. This controversy has not been resolved either to the Port's satisfaction, or to that of most of the other interested parties. While you may feel compelled to maintain the EIS schedule, proceeding in the face of disagreement among the interested parties does not foster a sense of "stakeholder involvement". I urge the LTMS Management Committee to initiate efforts to resolve this conflict, rather than simply perpetuate it.

In both interested party meetings, there was general agreement that the concept of maximum disposal should be the basis for EIS alternatives. I still recommend that three alternatives, maximize ocean disposal, maximize in-Bay disposal, and maximize upland disposal, be used as the basis for the EIS. This approach must establish analytically what will limit the volume, that is, establish the probably maximum, and then identify the environmental impacts of maximum disposal. This approach would also illuminate the technical, environmental, economic, and/or policy issues that would tend to limit maximum disposal for each medium. Let me elaborate a bit on each medium, as the analytical points will illustrate the importance, and limitations, of the policy approach.

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4. Recommend Policy Changes. This is the critical stage of the process. To the degree that the "environmentally preferable" alternative is not a "practicable alternative" under existing laws, regulations, and policies, the LTMS process/EIS needs to recommend changes to allow implementation of the environmentally superior alternative. Items for consideration range from underlying legislation (the Clean Water Act, the MPRSA, the Water Resources Development Act) to policies such as the Corps' Principles and Guidelines for project planning and the State Water Resources Control Board's non-degradation policy for delta waters. This step is vital to protect the shipping community's interests. The measures required to improve the feasibilty and practicability of environmentally superior alternatives must be implemented by the responsible parties before the shipping industry can be required to implement an environmentally superior disposal option that costs significantly more, or has a significantly more torturous regulatory approval process.

We are making substantial progress in this area, and I look forward to resolution of this issue by the work group.

Very truly yours,

Jim McGrath
Environmental Manager

Enclosure

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PORT OF OAKLAND

September 21, 1994

Rebecca Tuden
EPA
75 Hawthorne Street
San Francisco, CA 94105-3901

Subject: Alternatives for Analysis in the EIS

Dear Rebecca:

This letter reflects my comments on the direction of the LTMS EIS/EIR effort. It is disturbing to see that the COE/EPA approach has not changed substantially since the Interested Parties Meeting of March 30, 1994. As I stated in my recent letter to Tom Gandesbery, the LTMS process badly needs a mechanism to resolve conflicts rather than simply postponing those conflicts. It seem that we have spent over 6 months on this issue, without resolution.

Substantial controversy was raised during the meeting of March 30 meeting about the direction of using "policy alternatives", and whether that approach would span the potential range of environmental impacts associated with implementation of the LTMS. This controversy has not been resolved either to the Port's satisfaction, or to that of most of the other interested parties. While you may feel compelled to maintain the EIS schedule, proceeding in the face of disagreement among the interested parties does not foster a sense of "stakeholder involvement". I urge the LTMS Management Committee to initiate efforts to resolve this conflict, rather than simply perpetuate it.

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MAXIMUM UPLAND DISPOSAL

The effort to date has established that the LTMS must plan for disposal of 270 million cubic yards (mcy) over the duration of the project. The mathematics, not only the costs and environmental impacts, impose certain restraints on the range of options. To try to dispose of 80% of this material in an upland environment involves planning for disposal of 216 mcy. The habitat restoration concept used at Sonoma Baylands involved about 7300 cy per acre. Rounding that volume up to 10,000 cy, a high estimate for habitat creation, disposal of 216 mcy for habitat creation would require 21,600 acres. There simply is not that much land available. It is also clear to me that it is not desirable from a habitat perspective to convert all seasonal wetlands and agricultural lands exclusively to tidal wetlands. Instead, a mosaic of habitat appears to be the environmentally preferable approach, and EPA needs to draw some policy conclusions from its North Bay wetlands planning effort to guide this approach.

The Port's experience with using Berth 30 material for construction and with disposal in landfills convinces us that these two "beneficial uses" are extremely problematic and substantially more expensive than generally acknowledged. This, in our view the only other potential upland disposal alternative for large volumes of dredged material is for reinforcing delta levees. This alternative conflicts directly with the State of California's non-degradation policy for delta waters. Despite that conflict, delta armoring may be an environmentally beneficial alternative, and EPA needs to determine whether delta armoring would be environmentally preferable to other alternatives such as ocean disposal. This analysis must be based upon quantitative analysis of environmental impacts, and is substantially impaired because the LTMS's pilot studies of delta disposal have not progressed to the point where any clear conclusions can be reached. Nonetheless, EPA must draw some policy conclusions about the appropriate role of delta disposal, and establish the different studies that must be completed and the manner in which decisions will eventually be made about the appropriate role of delta disposal.

MAXIMUM IN-BAY DISPOSAL

The severely constrained work program of the LTMS has crippled EPA's ability to provide an adequate analysis of this alternative. Again, the volume of material limits the options. With the LTMS not devoting any real effort at examining new in-Bay sites, options are severely limited. Monitoring of the Alcatraz mound indicated that approximately 13 mcy accumulated there during the period of time that about 40 mcy was disposed of at the site. Clearly, that site will not accommodate 270 mcy, and maximum in-Bay disposal will be restricted in volume unless new sites are established. The LTMS EIS must make some effort to establish what the sustainable disposal volume at the Alcatraz site is, what the impacts of that

disposal are, and what conditions (sediment quality, site management and monitoring) that are required.

It is probable that clean dredged material could be used to create habitat in navigation channels at abandoned military bases at a lower cost than ocean disposal. Unfortunately, the LTMS has not looked at this option, and this shortcoming in the work program for the LTMS may well be a fatal flaw for preparing an adequate EIS.

MAXIMUM OCEAN DISPOSAL

The LTMS has developed enough information to evaluate maximum ocean disposal. The probable environmental impacts are known with greater accuracy for this site than for the other alternatives. It is my personal view that the selection of a deepwater site beyond the extent of fishing and the rigorous testing protocols control the potential impacts of off the shelf disposal. Outside of the zone of heavier deposition within the site, the impacts associated with in-water dispersion and eventual deposition of dredged material appear to be less than the impacts of sediment efflux on outgoing tides.

DERIVING ALTERNATIVES

I think that EPA can and should derive alternatives that represent your reasoned judgement of what a likely mix of disposal alternatives might end up being. But I think that those alternatives need to be derived analytically rather than established simply by policy. To derive a second alternative for upland disposal, EPA needs to establish a clear train of reasoning that shows what (and why) you believe is a reasonable volume for tidal wetland restoration, for construction use, for use in landfills, and for levee reinforcement. Similarly, for in-Bay disposal you need to derive a sustainable volume for disposal at the in-Bay sites and draw some conclusions about the advisability of establishing new in-Bay sites. The analytical reasoning should be clear; everyone understands that the actual volumes for the various disposal options can only be approximated.

Very truly yours,

Jim McGrath

Jim McGrath
Environmental Manager

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PORT OF OAKLAND

June 9, 1993

Lt. Colonel Leonard E. Cardoza
LTMS Management Committee
Corps of Engineers
211 Main Street
San Francisco, CA

Subject: Contained Sites

Dear Colonel Cardoza:

Late in 1992 the Containment Sites Tasks Committee of the Implementation Work Group began meeting as part of our task under the LTMS to "develop a list of potential disposal sites capable of handling contaminated or unsuitable dredged material." Enclosed is a copy of the Report of that Task Committee.

In addition to reaching these conclusions, the Committee directed me to write directly to you and the LTMS Management Committee to express the Committee's concerns about the need for containment sites. The Committee concluded that management of material that need containment is a first order problem for disposal of dredged material, and for completion of needed dredging projects. Further, containment sites need to be available by 1994 (or earlier) to allow continued maintenance dredging under the revised testing protocols and to allow deepening dredging projects to proceed. Presently, contained disposal in upland sites is being looked at under LTMS work tasks in the Upland Work Group. Contained disposal in wetland sites is being coordinated by the same Regional Water Quality Control Board staff that manage the in-Bay LTMS tasks, assuring coordination and oversight by the LTMS work groups. However, confined aquatic disposal, such as for the Bay Farm Borrow Pit alternative to the Oakland 42-foot project, is not being coordinated within the LTMS at the present time. The Committee concluded that LTMS consideration of this option is essential, and that such consideration should take place in the in-Bay Work Group, as an explicit part of their work program.

Very truly yours,

James McGrath

James McGrath
Chairman, Containment Sites Committee

Enclosure

cc: Tom Wakeman, Steve Goldbeck, Michael Carlin

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FINAL REPORT
CONTAINMENT SITES COMMITTEE

TASK: Develop a list of potential disposal sites capable of handling "contaminated" or "unsuitable" dredge material.

The Containment Sites Task Committee held two meetings, the first on December 14, 1992, and the second on January 19, 1993, and reached a general consensus about its work. Four major areas of substantive work were involved, and the Committee reached a consensus in each area, as follows:

1. Locate major (probable) areas and amounts of "contaminated" or "unsuitable" dredged materials.

* After discussion with the Regional Board and review of their work on the Bay Protection and Toxic Cleanup Program (BPTCP), we concluded that it was appropriate to adopt a "planning" estimate of 10 million cubic yards that will need to be dredged over the next 10 years. This only involves material removed as part of dredging, and does not include clean-up of hot spots. This estimate was based on an estimate of 2 million cubic yards of unsuitable material in the Oakland deepening project, 1,000,000 cubic yards of unsuitable material in the Richmond deepening project, and 500,000 cubic yards each year (about 10-20%) of maintenance material that might be expected to fail tests for in-Bay or ocean disposal. This reserves up to 3,000,000 cubic yards of unsuitable material capacity for the Navy's deepening projects and for other projects and hot spots. This estimate should be updated when the Regional Board adopts a final report under the BPTCP.

2. Develop alternative strategies for addressing "contaminated" or "unsuitable materials, e.g., (a) leaving such materials in-place, (b) confined disposal--either upland or aquatic, and (c) treatment solutions.

* The committee judged that all of these options may be suitable strategies. Unfortunately, too little is known about the location, quantity, and degree of contamination of most material to be able to select the appropriate disposal option. Thus, the committee spent most of its efforts on confined disposal.

3. Determine whether any of the sites now under consideration could handle dredged materials, and if so, in what amounts.

* The Committee concluded that approximately 6 million cubic yards of disposal capacity was available as reuse for daily cover in Redwood Landfill, approximately 10 million cubic yards of capacity may available in the Montezuma Slough project, and

approximately 10 million cubic yards of disposal may be available in the borrow pit near Bay Farm Island. Other sanitary landfills and other drying and/or rehandling sites can also handle unsuitable material, but these three sites appear to be the most advanced of sites now under consideration.

4. Recommend at least 3 sites which should be brought on-line to handle "contaminated" or "unsuitable" sediment disposal needs.

* The Committee decided not to recommend specific sites, largely because several specific sites appear to be heading towards environmental review and permitting. Instead, the Committee established the following hierarchy of preference for disposal site types. This hierarchy reflects the relative certainty of confinement in the disposal site, and the ease of management.

First Choice: The preferred disposal location of the Committee is for upland disposal in landfills. The Committee understands that landfill capacity and permitting are issues for this option. However, the Committee concluded that this option provided the greatest certainty of containment and ease of management and provided the additional benefit of also acting as daily cover.

Second Choice: The Committee concluded that confinement in wetlands represented a suitable disposal option if done properly. In particular, the Committee believed it was essential to make sure that channels would not erode the placed sediments. The Committee considered this alternative to be less certain than landfill disposal because construction might involve hydraulic placement with more opportunity for runoff and because biological activity would disturb a portion of the covering soils.

Third Choice: The Committee concluded that confinement at in-water capping sites represented a suitable disposal option if done properly. However, in-water capping raises complex technical issues including the question of material loss during initial placement, long-term stability of the cap, and consistency with applicable laws. The Committee also concluded that the LTMS should be the forum for consideration of this option, and that such consideration should take place in the in-Bay Work Group, as an explicit part of their work program.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

September 24, 1993

Lieutenant Colonel Leonard Cardoza
Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105-1905

Re: Confined aquatic disposal of Oakland Harbor dredged material at the Bayfarm Borrow area

Dear Colonel Cardoza:

Thank you for inviting EPA to the meeting on August 24, 1993 to learn more about the Corp's studies at the Bayfarm Borrow area. As you mentioned in your August 26, 1993 letter, you are considering that area as an alternative disposal site for materials dredged from the Oakland Harbor Deepening Project. As per your request, EPA is providing a brief response to your letter. We have also commented on this issue in our scoping letters on this project referenced later in this letter and in various meetings with your Planning and Project Management staff. We would be more than happy to meet with you to discuss these issues in more detail, or to provide a more detailed response in the future.

In general, EPA believes that Confined Aquatic Disposal (CAD) can be a cost-effective and environmentally appropriate disposal option, in certain circumstances, for those materials not deemed suitable for aquatic disposal. However, evaluation of CAD in an environment as dynamic and sensitive as the San Francisco Bay/Delta estuary, requires the gathering of considerable information, as suggested below, before it can be considered as a viable alternative. EPA fully supports a comprehensive analysis of all potential confined aquatic disposal sites for "unsuitable" material through the efforts of the Long Term Management Strategy (LTMS) In-Bay Work Group or some other participatory and open process. We would be happy to work with you, the Bay Conservation & Development Commission, and the S.F. Bay Regional Water Quality Control Board to discuss how to integrate consideration of CAD sites into the Policy EIS/EIR we are developing for the LTMS and into LTMS implementation activities.

As I'm sure you are aware, EPA participated on the LTMS Containment Sites Tasks Committee, which released their statement on June 9, 1993. In that statement, the Committee delineated a hierarchy of preference for disposal options for "contaminated" material based, primarily, on the relative certainty of confinement at the disposal site and the ease of management of the site. The first preference expressed by the Committee is upland disposal in landfills, which provides the greatest certainty of containment and ease of management; this alternative also provides a benefit by providing daily cover material. The Committee's second choice is confinement in wetlands or nearshore fills, where dredged material can remain saturated and readily managed. However, remediation activities at these wetland sites would likely re-release some contaminants to the aquatic environment. The third and last tier is confinement at in-water capping sites, in part because this alternative raises "complex technical issues including the question of material loss during initial placement, long-term stability of the cap, and consistency with applicable laws." The final recommendation of this group is that the consideration of in-water capping sites should be done through the work of the LTMS In-Bay Work Group. EPA fully concurs with the views expressed by this Committee and urges the Corps to consider seriously its recommendations.

EPA first provided comments regarding confined aquatic disposal in our September 7, 1990 scoping letter on the Notice of Intent to prepare a Draft EIS for the Oakland Inner Harbor Deep-Draft Navigation Improvement Project, Phase I. As we stated in that letter:

> If capping at an open-water site is proposed as a preferred alternative, the DEIS should carefully assess the probable physical and chemical environmental impacts of this means of disposal...We would request documentation regarding the predicted areal extent of the disposed material and thickness of the cap; the predicted rate of colonization, species abundance, and population diversity; and the predicted future chemical composition of epifauna and infauna which colonize the cap. The DEIS should provide baseline data on the chemical composition of indicator species selected because they are known to accumulate heavy metals, hydrocarbons and other major classes of cont(a)minants. There should be a long-term monitoring program designed to detect and quantify changes in the areal extent, cap thickness and contour of the disposed material; migration of chemicals through the cap; and accumulation of chemicals by sedentary biota on and near the cap. Since this would be a permanent addition to an aquatic environment, we recommend monitoring be conducted over several decades to substantiate the predictions regarding ability of the cap to prevent release of contaminants to the aquatic environment.

More recently, we formally commented on confined aquatic disposal in our January 26, 1993 supplementary scoping comments on the Notice of Intent for the Draft Supplementary EIS (SDEIS) for this Project. In our detailed comments, we made the following points:

> Sufficient baseline oceanographic information must be provided in the SDEIS to evaluate the expected physical conditions, including site slope, seasonal current velocities; as well as the probable colonization by bioturbators which could penetrate the cap and reduce its effective thickness. Furthermore, existing on-site and nearby resource values (including seasonal use), and disposal technology and operational uncertainties must be evaluated in the SDEIS. The SDEIS must evaluate all reasonable alternatives, including the availability of other potential capping sites. Other "holes", in locations that are less dynamic oceanographically, may exist which lend themselves to a CAD project. The Bayfarm Island "borrow pit" should not be the exclusive focus of the CAD evaluation unless and until other potential sites have been evaluated and found to be less practicable or more environmentally damaging.

We have attached, for your reference, a list of the studies that EPA performed as part of the process for designating a deep water ocean disposal site for suitable material. These studies included gathering physical, geological, chemical and biological oceanographic data to characterize the ocean and seafloor environments. We would be happy to work with you to design a study plan for a potential confined aquatic disposal site that would address factors such as a shallower environmental setting, the ability to contain and isolate "unsuitable" material, and potential impacts to significant resources such as eelgrass beds.

At the August 24th meeting, your staff summarized the studies that the Corps has conducted on the Bayfarm Borrow area, including biological surveys, site characterization, and site design and monitoring analysis. We would recommend that you also collect new information regarding site hydrodynamics, instead of relying upon existing data; we are concerned about the limitations of using the models, with only existing oceanographic data, and the resulting potential uncertainty of the modeled results.

Given the current schedule for the Port of Oakland's deepening project and the level of knowledge about the site based upon existing studies, it may be impossible for the Corps to prepare an analysis of sufficient technical rigor to enable the use of the Bayfarm Borrow area as a viable alternative for this project. We are also concerned that the level of agency and public concern about the Bayfarm Borrow Area site will lead to further delays of this deepening project. Thus, we recommend that the Corps consider "decoupling" its analysis of the Bayfarm Borrow area as a potential confined aquatic disposal site from the EIS for the -42 foot deepening project at the Port of Oakland.

Please feel free to contact me at (415) 744-1953 or have your staff contact Brian Ross, Acting Sediment & Dredging Team Leader, at (415) 744-1987 if you would like to discuss this matter further. Thank you, again, for the opportunity to share our thoughts with you and the Corps.

Sincerely,

Clarence Tenley, Acting Chief
Wetlands, Oceans & Estuaries Branch

Attachment

cc: J. McGrath, Port of Oakland
R. DeHaven, US FWS
J. Bybee, NMFS
B. Stockman, NOAA
S. Goldbeck, BCDC
T. Gandesbery, RWQCB 2
B. Tasto, CDFG
R. Bachman, SWRCB

STATE OF CALIFORNIA

PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, SUITE 500
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Lieutenant Colonel Leonard Cardoza
District Engineer
United States Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, CA 94105-1905

February 25, 1993

RE: Non-Dispersive, Dredged Material Disposal Sites

Dear Lt. Colonel Cardoza:

Given the predicted dredging needs for the Bay, and continuing uncertainty regarding materials which are deemed "unsuitable" for unconfined aquatic disposal, staff would like to see further study of non-dispersive sites. Such sites have been studied by the Corps to a varying extent, and in particular the Bay Farm Island Borrow Pit site has been under study for some time. All information relative to studies of non-dispersive sites should be made available to the in-bay workgroup of the LTMS.

Regional Board staff feel that the Borrow Pit and other non-dispersive sites have potential to be operated as regional confined aquatic disposal (CAD) sites. LTMS is currently addressing future dredging needs by looking at every other conceivable disposal and beneficial use option but CAD. In-Bay CAD could be one very cost-effective option for "problematic" sediments and therefore represents a valuable resource to the entire community, as long as all significant environmental issues are resolved. As such, development of a pilot non-dispersive site and subsequent management plan could be conducted through the LTMS process. This approach is suggested because, based upon our involvement with state-funded Bay studies and LTMS, it appears that a significant amount of information on potential environmental impacts is needed before the Corps could consider Bay Farm or other site for non-dispersive disposal of dredged material.

If you or your staff have specific questions or would like to begin coordination of this endeavor, Tom Gandesbery of my staff is involved with LTMS and can be reached at (510) 286-0841.

Sincerely,

STEVEN R. RITCHIE
EXECUTIVE OFFICER

cc: Mr. Tom Wakeman, USACOE
Mr. Michael Kahoe, CalEPA
Mr. Alan Pendelton, Bay Conservation & Development Commission
Mr. Pete Phillips, Department of Fish & Game
Mr. James Trout, State Lands Commission
Mr. Harry Seraydarian, USEPA
Mr. William Shafroth, Resources Agency
Mr. William Norton, City of Alameda

Donald F. Boesch, Ph.D.

1770 Baltimore-Annapolis Boulevard • Annapolis, Maryland 21401 (410) 757-7965

February 20, 1993

Mr. Thomas H. Wakeman
LTMS Project Manager
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105-1950

Dear Tom:

This letter report summarizes my observations and comments on the Long-Term Management Strategy technical studies which were presented or discussed at the February 19, 1993 meeting.

General Comments on the LTMS

First, the general progress of the LTMS efforts is encouraging. I was pleased to learn that the Management Committee has elected the "high risk" option, requiring collective balancing of environmental and economic interests and coordinated management of both regional navigation dependent on dredging and magnitude of long-term environmental consequences from dredging activities. This is an important commitment--and one that will place considerable demands on the quality and pertinence of scientific information and understanding. The selection of an ocean disposal site and issuance of the Environmental Impact Statement for formal site designation by the Environmental Protection Agency has also been a very important step toward development of a comprehensive plan for dredged material management and disposal.

With these important developments in mind and as I learn more about the issues surrounding current disposal practices, I have a general outline in my mind about what the Long-Term Management Strategy will probably look like as the needed consensus forms:

1. The designation and effective management of an ocean disposal site will provide opportunity for new project dredging which has previously been stymied, but will not provide a feasible alternative for maintenance dredging for all but the largest channel projects. The key scientific/technical issue confronting the management of this disposal site will be the development and implementation of a reliable environmental monitoring program and the coupling of this monitoring program with realistic dispersion models.

2. Continuing and potentially unresolvable concerns over in-bay disposal will, in the short run at least, rule out designation of other in-bay disposal sites (except for wetland creation and enhancement) and will place unrelenting pressure to reduce the volumes and restrict the quality and timing of dredged material disposal. The recent Public Notices 93-2 and 93-3 illustrate this trend. The key scientific/technical issues which will influence decisions

governing in-bay disposal will be a) where does the material ultimately go and does the material leaving the disposal site degrade habitat quality elsewhere; b) how sure are we that the dredged material disposed in the Bay is "non-toxic;" and c) does the suspended or resuspended material adversely affect important fishery species during critical life history stages or migration.

3. As limits to in-bay disposal continue, if not tighten, and the ocean disposal option remains infeasible for all but major projects and for contaminated sediments disapproved for ocean disposal, the need for upland disposal will grow. Around the key issues identified in number 2, above, will revolve alternatives between in-bay and upland disposal. Habitat enhancements and reuse options should be pursued and may help change the public mindset of dredged materials as necessarily a harmful "waste" and may effect some environmental improvements. These options are, however, unlikely to accommodate any significant proportion of dredged materials which cannot be disposed in the ocean or in the Bay. Beyond the attendant social, economic, political and legal issues which play a major role in upland disposal, key scientific issues will revolve around the effects of potential loss of the dredged material or its constituents to surface or ground waters and, in that vein, the effectiveness of confinement of dredged materials deemed contaminated.

If this prospective is realistic, it seems to me that at this stage in the process the LTMS ought to take a hard look at the degree to which the issues identified are being resolved by ongoing studies and make every effort to move such resolution--or at least a narrowing of uncertainties--along.

In-Bay Studies

Three questions were posed for the meeting which deal with: 1) potential consequences on fisheries, hydraulics, and water quality; 2) limits on diversions of existing volumes of dredged materials to ocean or upland disposal without causing erosion of Central Bay mud flats and marshes; and 3) what additional studies are necessary to determine best management practices for continued in-bay disposal. Pursuant to the third question, based on the line of reasoning developed in my prospective above. LTMS studies should be addressing: a) where the material ultimately goes and the degree to which this degrades habitat quality beyond the disposal site; b) confidence in determination of potential toxic effects; and c) the potential that suspended or resuspended dredged material adversely affects important fishery species during critical life history stages or migration. These issues are embodied in, but are a subset of, the issues addressed in the first question posed for the meeting. The adequacy with which they are being addressed is discussed below. With regard to the second question, I do not believe there is a convincing *prima facie* case that erosion of mud flats and marshes would result from disruption of the sediment budget by reduction of dredged material disposal in the Bay. Other factors affecting the sediment budget, in particular those that interfere with riverine sediment input (flow variations and upstream trapping) or changes in relative sealevel, are far more likely to affect littoral accretion and erosion, in my opinion. Of course, I am not an expert on this subject and the opinions of sedimentologists might be sought.

With regard to the adequacy of the LTMS studies to address the three issues I suggested will influence in-bay disposal, I continue to be concerned that not enough is being done to relate--either through direct assessment or exposure-effect models--the susceptibility of early developmental or migrating stages of important fishery species (issue *c*). Although we received a presentation on only one aspect of the hydrodynamic/sediment transport studies, it is not clear to me that these studies will adequately address issue *a*. The development of sediment transport models based on fundamental theoretical considerations (such as presented by Ellen McDonald), although scientifically worthy, are not likely to yield realistically predictive models. Also, I got the impression that the hydrodynamic/sediment transport efforts have a broad regional perspective and are not focused on the environs of the disposal sites, where the critical effects questions reside. It seems to me that a more empirical, geographically focused approach to modeling changes in hydraulics, sediment transport and deposition of fine sediments outside of the disposal sites would be more valuable. Finally, I believe the ongoing studies should be relatively successful in resolving issue *b* through assessment of the risk of toxic effects.

We were asked to provide comments on descriptions or scopes of work for several proposed studies. I offer the following:

Reference Site Study

This study addresses the vexing problem of unexplained mortalities of amphipods in presumably clean, reference sediments. Resolution of this problem and determination of reliable reference sites are of critical importance for insuring the reliability of the primary method for determining potential toxicity of dredged material. Not a lot of detail on the study design is included in the write-up. The use of *Eohaustorius* as opposed to *Ampelisca* or *Rhepoxinius* seems reasonable given its wide salinity tolerance. It is unclear why the sampling and testing need to be done quarterly. I would prefer more concerted effort during fewer time periods.

Bioaccumulation Study

The information need is important and the study approach seems reasonable. The focus on organics, and PAHs in particular, seems justified. I wonder whether similar organisms and sediment types will be found at all of these sites to allow good comparisons. To the greatest extent possible, the same species should be used for analysis of field specimens and for laboratory testing for a given site.

Evaluation of Techniques to Measure Bioavailability of Metals

I am less convinced about the need for or effectiveness of this study. I share the concern that there is little evidence that trace metals in sediments, particularly those that are reducing, are either taken up or cause serious biological effects in benthos. In addition, there are great difficulties in sampling or experimenting with sediments or pore waters that preserve the state in which the metals exist in nature. This study may be justified because of other RWQCB requirements, but would contribute little to the development of the LTMS.

Simplified Test for Predicting Surface Runoff Water Quality

As I indicated in my general comments, the contamination from runoff from upland disposal sites is an issue which will have to be resolved. The development of the test offers the prospect of predicting the effects of surface runoff on water quality at required test scales and within reasonable test periods. Experts at the Waterways Experiment Station have extensive experience in this area.

I hope these comments are helpful. Of course, if there are any questions about them which arise among LTMS participants, I would be happy to respond to them.

Sincerely yours,

Donald F. Boesch

PORT OF OAKLAND

October 8, 1992

Steve Goldbeck
Bay Conservation and Development Commission
Thirty Van Ness Avenue, Suite 2011
San Francisco, CA 94102

Dear Steve:

I wanted to follow up our meeting on September 28, 1992, on the LTMS Upland Study work program. That discussion resolved most of my major concerns about the direction and timeliness of that effort, and I want to document those agreements so that we avoid future misunderstandings about the level of detail and effort of the various tasks. One of the useful aspects of last week's meeting on the work program and the Implementation Group meeting was to establish clearer boundaries between the work of the Upland Group and the Implementation Group, and to direct the contractor the focus of the current land use effort where the work program remains too general.

WORK ELEMENT B, OPPORTUNITIES AND CONSTRAINTS

This element will screen potential sites down to a reasonable number. It also has started the essential work of identifying the regulatory hurdles that upland disposal faces. I am particularly elated that this effort will identify the Cargill site as a highly feasible site. This site has great potential as a regional site, but is too large for any of the ports to implement on their own. Working on the institutional problems that might prevent use of the site will be an important task for the Implementation Group.

WORK ELEMENT D, I MATERIAL ACCEPTABILITY

We remain concerned about the schedule for this element, and the overlap between the tasks outlined in your September 10, 1992, Work Program and ongoing work by the Regional Board. Despite this concern, the first element of this task was accomplished with publication by the Regional Water Quality Control Board of their draft "Sediment Screening Criteria" on September 18. We agreed that Task 2, modifying the material acceptability criteria, was a policy task for the Implementation Group rather than the Upland Group. We also agreed that ongoing regulatory determinations such as determination of acceptable sediment quality for the Navy Section 103 ocean disposal project and the Port's 42-foot project might actually drive the policy decisions that are made for material acceptability, and that the LTMS should not duplicate this work.

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WORK ELEMENT D, III NATURAL RESOURCES ELEMENTS

You pointed out quite pursuasively that most of the diked baylands suitable for disposal of saline dredged material are potentially subject to 404 jurisdiction. Thus, I agree that some work on the general issue of 404 permitting and alternatives needs to be addressed in the LTMS, and agreed to look again at the Scope of Work. That scope of work remains too broad and duplicates work done in relation to other wetland restoration projects. I would support focusing that effort on the 404 process, in accord with your concerns about the regulatory process. This is essentially Task 6 of the Scope, however, suggestions on modifications to the regulatory process are more properly the mandate of the Implementation Group.

WORK ELEMENT D, IV LAND USE ELEMENTS

Unfortunately this contract was let with a very general work program. However, in our meeting and with several meetings with the contractor, the thrust of the effort has been focused. First, the effort will focus on land use issues in the jurisidictions of the more feasible sites, e.g. Sonoma, Napa and Marin Counties. Second, the prior Corps effort on the Zone of Siting Feasibility will be used as baseline economic information on the various dredging locations. This will in turn be used to break the dredging needs and sites down geographically, as the economics of disposal vary dramatically for the different dredging locations. We remain concerned about expending resources in areas such as the Delta where salinity is an issue. My understanding is that the effort will focus on dredging sites that are proximate to the disposal sites. This work will be at a relatively low level of effort, and will proceed more as a long-term option depending on the outcome of pilot projects. However, most of those pilot projects will use materials from fresh water areas, and remain of limited utility for the LTMS. Fourth, the production in this effort will focus on hurdles and constraints such as funding restrictions, agency policies, and underlying legislative mandates. The question of whether or not to seek changes in this network of hurdles will primarily be the function of the Implementation Group, using the products from this study.

I trust that this reflects our understandings, and appreciate the efforts made by you and Tom Wakeman to accommodate our concerns.

Very truly yours,

Jim McGrath

Jim McGrath
Environmental Manager

cc: Tom Wakeman

PORT OF OAKLAND

December 16, 1991

Mr. Steven Goldbeck
San Francisco Bay Conservation
and Development Commission
30 Van Ness Avenue, Suite 2011
San Francisco, CA 94102-6080

Dear Steve:

Thank you for the opportunity to suggest demonstration projects for the LTMS upland/reuse studies work element. I am encouraged that BCDC is taking an active role in identifying dredged material disposal options. I have several comments regarding your list of possible projects distributed at the upland/reuse workgroup meeting on December 12, 1991.

1. The Port is currently investigating whether contaminants in dredged material (primarily PAHs) can be bioremediated. If our preliminary investigation shows promise, we will work with the RWQCB to develop a 10,000 cubic yard pilot project. The pilot project may be appropriate for an LTMS demonstration project.

2. The Sherman Island levee construction project is already an approved demonstration project of the SFEP and is underway. I believe it would be useful if the information gained from this project were disseminated within the LTMS.

3. I suggest that the category entitled "Wetlands Creation, Restoration, and/or Enhancement" should be broadened to "Habitat Creation/Restoration/Enhancement". This would allow consideration of other types of habitats including uplands and eelgrass beds. The NMFS has expressed an interest in restoring eelgrass and fisheries habitat in the nearshore areas of the Borrow Area offshore of Bay Farm Island. Such a project would appear to be a suitable demonstration project for the LTMS. Clean sand could also be used to create sand islands or diked areas for wildlife nesting. Sandy areas created by placement of dredge spoil can provide critical habitat for endangered species including the least tern, as demonstrated by the "D Street Fill"

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in Chula Vista.

4. Many dredged material reuse projects require that the material be dried first off-site. The one drying yard of which we are aware (Port Sonoma) has limited capacity. I encourage you to continue your efforts to establish a dedicated rehandling facility.

5. I suggest that the category called "Approved Bay Fills" be renamed "Upland Fill" to more accurately reflect the fact that dredged material can used for construction fill or other uses on upland sites (both within and outside of BCDC jurisdiction). I concur that the use of the sediments dredged from the Port's Berth 30 would be an appropriate demonstration project.

6. I suggest an additional category of "Confined Upland Disposal" be considered for a possible demonstration project. This category would include confined disposal of sediments that are unsuitable for unconfined aquatic disposal. The port is continuing to pursue this option at the site of the Galbraith Golf Course on Port Property for "unsuitable" material to be dredged from the Oakland Harbor Deepening project. This effort may also be appropriate for an LTMS demonstration project.

Please contact me if you have any questions.

Sincerely,

James McGrath
Environmental Manger

JM/JZ

cc: T. Wakeman