
**WETLANDS PROTECTION
THROUGH IMPACT AVOIDANCE:
A DISCUSSION OF THE
404(b)(1) ALTERNATIVES ANALYSIS**

Thomas G. Yocom, Robert A. Leidy, and Clyde A. Morris

*United States Environmental Protection Agency**
Region IX
San Francisco, CA 94105

Abstract: In order to receive a Department of Army permit to discharge dredged or fill material into "waters of the United States," including wetlands, a permit applicant may have to clearly demonstrate that the proposed discharge is unavoidable and the least environmentally-damaging practicable alternative. Failure to do so as required under EPA's 404(b)(1) Guidelines (40 CFR 230) may result in permit denial. Generally, the practicable alternative that involves the least amount of filled "waters" will be considered the least damaging; practicable alternatives that avoid "special aquatic sites" such as wetlands are always presumed to be less damaging environmentally than those that do not. "Practicable" alternatives are not unreasonably costly, but may produce less return on investment than is desired by the permit applicant. Such alternatives are considered available if they are owned by the applicant or if they can be obtained, utilized, expanded, or managed during the planning and permitting phases of the proposed project. In order for the analysis of alternatives to be useful to the permitting process, the project purpose must be defined generically, and separate analyses may be required for each component of a multiple-purpose project. The geographic scope of analysis must remain broad enough to reasonably consider all environmentally-preferable sites where the basic project purpose could be achieved. We conclude that an alternative analysis, performed properly and early in the project formulation stage can reduce project costs, increase certainty, and most importantly, result in avoidance and protection of valuable wetland resources.

Key Words: Clean Water Act, 404(b)(1) Guidelines, practicable alternatives, basic project purpose, avoidance, wetlands.

* Views represented in this paper are those of the authors and do not necessarily represent those of the Environmental Protection Agency.

INTRODUCTION

The objective of the Clean Water Act (CWA) is to restore and maintain the physical, chemical, and biological integrity of the nation's waters through the elimination of discharges of pollutants (33 U.S.C. 466 et seq.); among areas defined as waters of the United States are wetlands [40 CFR 230.3(s) (7)], and pollutants include dredged and fill materials [40 CFR 230.3(o)]. Inasmuch as the CWA identifies the goal of eliminating all discharges of pollutants after 1985 [Section 101(a) (1) of the CWA], there is little question that Congress intends the federal government to strongly discourage all discharges into the nation's waters, including wetlands.

The Environmental Protection Agency's (EPA) 404(b)(1) Guidelines (40 CFR 230) are the substantive environmental criteria used in evaluating permit applications to the U.S. Army Corps of Engineers (Corps), to discharge dredged or fill material into "waters of the United States," including wetlands [definitions at 40 CFR 230.3(s) and (t)]. Under the Guidelines, a primary screening mechanism to determine the necessity of permitting a discharge of dredged or fill material is the analysis of practicable alternatives [see 40 CFR 230.10(a)]. The Guidelines prohibit all discharges of dredged or fill material into regulated "waters," including wetlands, unless a discharge, as proposed, constitutes the least environmentally-damaging practicable alternative that will achieve the basic project purpose. However, even if a proposed discharge constitutes the least environmentally-damaging practicable alternative, it may be prohibited by other portions of the Guidelines and Corps' regulations.

The Guidelines recognize that certain areas regulated by the CWA ("special aquatic sites") are deserving of special protection because of their ecological significance and positive contributions to the overall health or vitality of an ecosystem of a region [40 CFR 230.3(q-1)]. "Special aquatic sites" include wetlands, mudflats, coral reefs, riffle-and-pool complexes, vegetated shallows, and sanctuaries and refuges (40 CFR 230.40-230.45). In addition, the Guidelines recognize that water-dependent projects (i.e., projects such as certain port or marina facilities that require access or proximity to, or siting within, "special aquatic sites" to fulfill their basic purpose), by their very nature are more likely to actually require discharges of dredged and fill material than are non-water-dependent projects.

Thus, if a project is 1) not water-dependent *and* 2) the project proposes to discharge dredged or fill material into a "special aquatic site," the Guidelines establish a regulatory presumption that a less environmentally-damaging practicable alternative exists, unless the permit applicant can clearly demonstrate otherwise [see 40 CFR 230.10(a)(3)]. If this presumption is not clearly rebutted, no permit may be issued for the proposed project.

It is this clear demonstration by the permit applicant that has been a significant source of frustration to applicants and regulators alike. Despite the

strong reliance of EPA and the Corps upon alternatives analysis in screening the permissibility of proposed discharges, very little formal agency guidance has been provided until very recently (Department of Army 1989) on how to properly conduct such an analysis. In this paper, we summarize the specific guidance that EPA Region IX has provided to applicants regarding alternatives analysis, and we discuss the most common areas of misunderstanding between federal regulators and the regulated public, using examples from selected projects within Region IX (California, Nevada, Arizona, Hawaii, and the Pacific Islands).

EPA'S 404(b)(1) GUIDELINES

Determination of the Least Environmentally-damaging Alternative

Projects that avoid discharges of dredged or fill material into "waters of the United States," including wetlands, are assumed generally to have less adverse impact to the aquatic environment than projects that require fill in such "waters." Similarly, projects that propose to minimize fill and/or that avoid ecologically-significant areas are assumed generally to be less harmful to the aquatic environment than those projects or project alternatives that do not.

Projects that do not propose discharges into "special aquatic sites" are always presumed to have less adverse impact on the aquatic ecosystem than projects that do [40 CFR 230.10(a)(3)]. These assumptions may be rebuttable in individual cases, but our experience indicates that these situations are rare.

Whether or not the activity associated with the discharge is water-dependent or proposes discharges of dredged or fill material into a "special aquatic site," it must constitute the least environmentally-damaging practicable alternative to be considered for permitting under the regulations. Applicants should realize that the "water-dependency" determination has more to do with the burden of proof than it does with any inherent permissibility of water-dependent versus non-water-dependent projects. The applicant proposing a non-water-dependent project in a wetland, for example, will have the burden of demonstrating clearly that there are no less damaging practicable alternatives.

Mitigation and the Determination of Practicable Alternatives

Applicants often contend that their project, with proposed mitigation measures included, has no net adverse impacts and that, therefore, there are no less environmentally-damaging alternatives. These applicants argue that on-site or off-site alternatives that might reduce or avoid discharges of dredged or fill material will not have less impact than their proposal (with mitigation included) that has none. EPA Region IX disagrees with this argument and has rejected alternatives analyses that are based on these assumptions for the following reasons.

We believe that EPA's 404(b)(1) Guidelines are written hierarchically to ensure that maximum efforts are made to achieve the objective of the CWA to eliminate all discharges of pollutants into the nation's waters. Discharges of pollutants that can be avoided reasonably should be avoided [see preamble to EPA's 404(b)(1) Guidelines--Alternatives--40 CFR 230]. The basic premise is that compensatory mitigation should not be used to offset avoidable impacts. To allow such mitigation proposals to determine the acceptability of a proposed discharge thwarts the objectives of the CWA. Accordingly, EPA generally will not judge the appropriateness of compensatory mitigation measures until the least environmentally-damaging practicable alternative has been identified.

Another important reason that EPA rejects the concept that compensatory mitigation take precedence over avoidance is that certain types of wetland mitigation proposals commonly fail to offset the impacts they are designed to mitigate (Baker 1984, Race 1985, Kusler and Kentula, in press). It has been our experience regionally and nationally that compensatory mitigation to replace lost functional values through habitat creation, restoration, or enhancement is only partially successful for many aquatic and wetland habitats (Kusler and Kentula, in press).

As a result of the uncertain success rate of many past mitigation proposals, mitigation measures now required in Department of Army permits have become much more complex and expensive. Often an applicant may not only have to buy mitigation property and deed it to a third party, but may have to fund extensive planning, grading, planting, and hydrologic modifications, as well as monitoring studies, to ensure that specified performance standards are met. In addition, the applicant may have to post performance bonds to provide for remedial actions if the mitigation proposal is not successful and to pay for long-term operation and maintenance costs of the mitigation in perpetuity or over the life of the project.

Increasingly, Department of Army permits require that mitigation be implemented and proven successful in meeting stated mitigation goals before project construction proceeds. Thus, projects that require extensive and complex mitigation measures may prove very expensive in terms of investments of initial capital costs and subsequent time delays. Clearly, a proposal that avoids or minimizes discharges of dredged or fill material into "waters" also avoids or reduces costs and delays associated with the 404 permitting process.

We believe that the financial costs and regulatory requirements associated with the 404 permitting process are creating an economic incentive for potential permit applicants to relocate proposed projects out of "waters of the United States." In fact, some developers have found that incorporation of natural water features into their site plans has real market value in its own right (i.e., avoidance can increase profitability). In one case in San Mateo County, California, a housing developer spent approximately \$200,000 in preliminary site analysis and design in order to avoid impacts to aquatic resources on the site. Not only did this planning and design effort result in avoidance of the federal 404 permitting process, including documen-

tation under the National Environmental Policy Act, but the developer estimates that the value of the development exceeds \$120 million (Del Davis, Ailanto Properties, Oakland, CA, personal communication, May 20, 1989).

Determination of Practicability

The Guidelines define "practicable" as available and capable of being done, taking into account cost, existing technology, and logistics, in light of overall project purposes [40 CFR 230.10(a)(2)]. For example, an alternative for a commercial project that is so unreasonably costly as to be unprofitable would not be practicable under the Guidelines. Similarly, an alternative site that is seismically unsound may, technically or logistically, not be a practicable alternative, even though the site could be obtained reasonably. However, a project alternative that achieves a smaller return on investment than the applicant's preferred alternative may be considered practicable for the purposes of 404 permitting, even though that alternative may not be financially acceptable to a particular applicant.

Availability

"Available" means obtainable for meeting the project purpose. Available sites may include property already owned by a permit applicant, as well as properties that could be obtained, utilized, expanded, or managed. In evaluating the availability of alternatives, a "look back in time" may be considered appropriate, particularly when a project has a long planning history. In certain cases, it may be determined that an alternative that was available in the planning phases of a project, but that is no longer available at the time of permit application, may be, nonetheless, practicable. In general, EPA Region IX has limited this "look back in time" to no earlier than the period during which the analysis of practicable alternatives has been a regulatory requirement (EPA's 404(b)(1) Guidelines were promulgated on December 24, 1980).

The most well-known example of EPA's requiring such a retroactive analysis of alternatives involved a proposed shopping mall in North Attleboro, Massachusetts. In that case, EPA determined that a previously available site was a less environmentally-damaging practicable alternative, even though the site was allegedly no longer available to the applicant at the time that a permit application was submitted to the Corps. In litigation at the U.S. District Court and on appeal to the U.S. Circuit Court of Appeals, EPA was upheld in its decision (*Bersani v. U.S. Environmental Protection Agency*, 694 F. Supp. 405 [N.D.N.Y. 1987]; *Bersani v. Robichaud*, 850 F. 2d 3b [2nd Cir. 1988]).

In evaluating the availability of off-site alternatives, it may be appropriate to review city and county records to determine whether upland sites upon which the proposed project purpose could be achieved have been bought, sold, optioned, or

leased within the planning period of the proposed project. In many cases, applicants cite zoning restrictions as rationales for eliminating alternative sites as impracticable. In certain cases, zoning may, in fact, be a legitimate measure of practicability. However, in areas where zoning variances or zoning changes are common, the zoned status of a parcel may be given little weight in determining the practicability of using that site under the Guidelines.

For example, several county general or specific plans in California have zoned wetlands for housing developments and related facilities, while restricting such development on certain upland locations (e.g., ridge tops zoned for open space). In this situation, EPA Region IX may determine that upland sites are available for housing regardless of local zoning restrictions. In one case in Los Angeles County, a parcel containing wetlands and zoned as a "mountain preserve" was purchased by an applicant, after which the property received a variance and was re-zoned residential. EPA did not consider this new zoning status as eliminating the need for the applicant to consider other sites for the proposed housing development.

In addition to considering undeveloped properties, sites with existing development could be considered practicable alternatives if the existing development could be converted (or removed) to accommodate the basic project purpose profitably. When considering the costs of 1) filling a regulated site, 2) developing the site, and 3) mitigating unavoidable impacts, use of a previously developed site may be less environmentally damaging, less costly to develop, and therefore, practicable.

Although it may appear that the Guidelines are land-use regulations, EPA does not, in fact, regulate local growth. EPA regulatory actions are not intended to affect growth management or control. However, it may be that an unintended but unavoidable result of a particular action is to regulate growth to some extent, where that growth requires the discharge of dredged or fill material into regulated "waters," including wetlands.

Capable of Being Done

"Capable of being done" means that it is possible to achieve the basic project purpose on a given site, after considering cost, existing technology, and logistics. Construction of a dam in a site that is seismically unsound would not be considered "capable of being done," for example, even though it may physically possible to construct a dam on that site in a cost-effective manner. Similarly, an applicant may be incapable of constructing a nuclear power plant on a site that is too near to a human population center, even though the costs and technical considerations would not preclude its construction.

Overall Project Purpose

It is the legal opinion of EPA Region IX that the term "overall project purposes" means the basic project purpose plus consideration of costs and technical and logistical feasibility. The term "overall project purposes" does not include 1) project amenities, 2) a particular return on investment (unless a certain minimum return can be shown to render a project impracticable--i.e., a negative benefit/cost ratio), 3) "highest and best use of land", or 4) certain desired size requirements. "Overall project purposes" also may not include a market-area that is so narrow as to only include an applicant's specific desires, such as "upscale" or "water-oriented" housing.

For example, a permit applicant in Alameda County, California, proposed a "rail-served" warehouse development and only considered alternative development parcels in a narrow geographic area that could accommodate a rail spur. EPA did not question the advantages of a "rail-served" amenity but did, however, reject the alternative analysis because it artificially narrowed the basic project purpose of warehousing. An analysis of the market supported EPA's rejection of the rail-served amenity because "non-rail-served" warehousing had been successfully developed recently within the area.

EPA Region IX also reviewed and rejected analyses for two reservoir projects in which the permit applicants stated that their overall project purposes included site-specific secondary requirements. In one instance, an agency proposing a dam and reservoir project in San Diego County, California, argued that the "overall project purposes" included capturing unregulated run-off in the very stream where the proposed dam was to be constructed. The obvious consequence of EPA's accepting such an argument would have been to automatically reject all otherwise legitimate reservoir alternatives in other watersheds, even if they could practicably supply equivalent water to proposed service areas in environmentally-preferable ways.

In a similar instance, EPA Region IX rejected an argument that the basic or overall project purposes of a proposed dam and reservoir in Monterey County, California included flow releases at the dam site for enhancement of downstream fish habitat. Region IX accepted that such enhancement is a desirable aspect or secondary benefit of the applicant's preferred alternative. However, EPA rejected the premise that other viable alternatives to supply water to the people of Monterey County should be rejected, simply because those alternatives might not be capable of the site-specific secondary operations (i.e., flow releases for fisheries) of the applicants preferred alternative.

It is noteworthy that in each of these two reservoir cases, less environmentally-damaging practicable alternatives were identified ultimately that would supply equivalent or greater quantities of water with similar or reduced costs. Such results should be the rule, rather than the exception, if the alternatives test is applied

properly. Thus in simple terms, the least environmentally-damaging practicable alternative is that project proposal whose discharge of dredged or fill material into "waters of the United States" a) has the minimal adverse environmental impact, b) achieves the basic project purpose, and (for profit-making ventures) c) is profitable.

Determination of the Basic Project Purpose

Although defining the basic project purpose would seem obvious, this determination has been among the most controversial aspects of the analysis of alternatives. EPA Region IX consistently treats the basic project purpose as the generic function of the activity. From a regulatory perspective, for example, the basic purpose of a residential development is to house people or provide shelter, whether an applicant has proposed "water-oriented housing" with finger piers, upscale, single-family housing, or resort housing with a golf course. Similarly, the basic purpose of a restaurant is to feed people, even though the applicant may be proposing a waterfront restaurant [See preamble to EPA's 404(b)(1) Guidelines--Water Dependency--40 CFR 230].

In adopting a generic viewpoint, Region IX is not questioning the validity of an applicant's business decision, nor suggesting that an applicant adopt a different basic project purpose. Rather, EPA is seeking to evaluate whether or not an activity has available options in order to comply with the CWA goal of eliminating all discharges into "waters of the United States."

EPA, therefore, would not question whether a waterfront restaurant, for example, would be a better business opportunity than the same restaurant on a site not on or near the water. Instead, EPA must provide a means to screen projects to ensure that only projects that absolutely need to be sited in "waters" and/or "special aquatic sites" receive what amounts to a "waiver" from the objective of the CWA to eliminate all discharges after 1985.

Analysis of Multipurpose Projects

Multiple-purpose projects are considerably more complicated. In some cases, the basic project purpose is the activity that is driving the project financially. Under the regulations, a planned community development, for example, may be viewed essentially as housing, even though it seeks to include recreational and commercial facilities. Similarly, a "world-class destination resort" may, for regulatory purposes, be viewed as a hotel. Again, EPA is not suggesting that a destination resort or planned community are not valid purposes from the applicant's perspective, or that they are not sound business proposals. EPA's regulatory role is rather to evaluate whether discharges of pollutants into the nation's waters should be permitted, particularly if the activities can be practicably relocated into uplands.

Certain multiple-purpose projects really are multiple projects. For example, an applicant in Alameda County, California, proposed a "world-class"

horse-racing facility in association with an office park, hotel, commercial development, recreational vehicle parking area, and family amusement park. The permit applicant stated that the racetrack by itself would not be feasible financially, and that the other project components had to be built to financially support the race track. In this case, EPA and the Corps required that the alternatives analysis be structured to evaluate options that included placing the various components in separate locations. As a general rule, separate project components that are not linked functionally will be considered separate projects for the purpose of the 404(b)(1) alternatives analysis. The rationale is that if some of the project purposes can be built practicably in uplands, they should be (see preamble to EPA's 404(b)(1) Guidelines--Alternatives--40 CFR 230).

Even if an applicant can demonstrate that certain elements of a multiple-purpose project are necessary to financially support other elements, as the applicant contended in the Alameda County case, the alternatives analysis process will assume that this financial support can be provided, even if certain project elements are built on upland sites. In other words, financial linkage does not constitute the functional linkage justifying permitting of the entire project in a "water of the United States." Unless there is a compelling functional reason that the projects be on the same site, the analysis of alternatives will consider other sites that could accommodate the entire multiple-purpose project and/or smaller, individual project purpose elements.

Obviously, project proponents ultimately design their projects to utilize particular parcels of land. If that parcel happens to be on or in the water, it may be wise from a developer's perspective to incorporate water-oriented facilities and/or amenities to maximize the use and potential profits from that parcel. For example, an applicant in Contra Costa County, California, proposed an "historic entertainment park" in a tidal wetland. A "Chinese fishing village," complete with fishing boats, was added to the proposal to take advantage of the waterfront location. In order to comply with EPA's regulations, the applicant was asked to consider the practicability of alternatives that avoided "waters," such as an entertainment park without a fishing village or with a substitute "dry-based" fishing village.

To have considered these site-specific facilities and amenities as the basic purpose of the project for regulatory purposes would have eliminated consideration of any alternative sites or configurations that were not in or near the water. The result would have been to reduce the scope of alternatives to "waters of the United States," the very areas that the CWA seeks to avoid as discharge sites.

Unacceptable Project Purposes

There are no basic project purposes that are invalid under the 404(b)(1) Guidelines but many unacceptable ways of defining them. As stated earlier, EPA and the Corps do not, for example, consider "waterfront housing" to be an accept-

able basic or overall project purpose under the Guidelines. Similarly, "development" or "redevelopment" is not a valid basic or overall project purpose for regulatory purposes, being too general to allow an applicant to conduct a meaningful search for alternative sites or configurations.

"Making money" or "increasing a tax base" or "generating revenues for redevelopment" are further examples of inappropriate basic project purposes under the Guidelines. Given that there are an infinite number of ways to "make money," an applicant proposing an undefined project to achieve this basic project purpose would theoretically have to consider all alternative ways to achieve this purpose and all available sites where money could be made. Such an analysis would be impossible, and the applicant would be unable to rebut the presumption that less environmentally-damaging practicable alternatives are available.

An example of another difficult purpose to evaluate is flood control. In general, we consider flood control to be a valid project purpose where the proposed activity is designed to protect existing upland development, recognizing that in many instances EPA Region IX believes that flood control can be built outside of "waters of the United States" (set-back levees, for example). However, if the project is being built in order to enable development in a floodplain or wetland, we consider the project purpose to be the basic purpose of the enabled development, rather than flood control.

For example, EPA Region IX reviewed a proposed "flood control" project in Sacramento County, California, where the stream course was known to flood, but where there was no existing development in need of immediate protection. The project included plans to channelize and levee the stream, and to construct housing behind the levees. The permit applicant argued that the housing was necessary in order to provide funding for the flood control project through property assessments. EPA rejected that the project purpose was flood control and asked that the applicant evaluate alternatives available to achieve the basic project purpose of housing.

For EPA to have done otherwise would have led to an unworkable situation, since virtually any project that requires fill in "waters of the United States" is placing that fill for the main purpose of raising the base of the project so that the project does not flood. Taken to the extreme, one could argue that all fill projects are flood control projects.

Finally, there are instances where the "no-project" or "no-action" alternative may be considered a practicable means of achieving the basic project purpose. This situation may arise in cases where the basic project purpose is defined by the applicant as expansion of an existing, profitable operation. From a regulatory perspective, it may be considered practicable to achieve the regulatory basic project purpose without the expansion.

For example, a ski resort at Lake Tahoe, California, proposed construction of a reservoir in a sub-alpine wetland to increase water storage for snow-making. This project would allow the resort to extend the ski season and increase revenues.

However, because the resort already had snow-making capability in certain areas and was operating profitably, EPA considered the "no-project" alternative as a less-damaging practicable alternative to achieve the basic purpose of skiing.

Geographic Scope of the Alternatives Analysis

The geographic scope of analysis will, to some extent, be determined on a case-by-case basis and may vary, depending on a number of factors. For example, the basic purpose of a project will in many cases serve to set the reasonable scope. Constraints that are inherent to siting a nuclear power plant are obviously different from those governing the siting of housing or restaurants. In general, the scope will include all areas that would be reasonable to consider in the particular industry.

A developer seeking to build housing within a certain community may be forced under 404 regulations to consider sites somewhat removed from that community should the developer propose a project in a regulated wetland site. Clearly, there are no 404 regulatory concerns if the developer selects a site within the desired community that has no regulated "waters of the United States" that would be filled. If, however, a regulated wetland site is proposed, the developer may be required to consider other nearby communities within which housing could be built practicably without filling wetlands or other "waters of the United States," or where such filling would have less adverse environmental impacts. This requirement may lead to conflicts between 404 regulations and local zoning ordinances.

Certain projects may entail very large geographical scopes if the project purpose is one that could be built practicably almost anywhere and/or that cannot be tied reasonably to any particular market. For example, a "destination" resort proposed on a scale to attract clients from great distances could, by its very nature, achieve its basic purpose on sites in a large geographic area. In such cases, a proposed "destination" resort should consider a multi-state geographic area.

In cases where a local or county government seeks to sponsor a project, the basic project purpose generally will determine the appropriate geographic scope. Thus, if a city is seeking a permit for housing as part of a redevelopment plan, the scope of alternatives will be similar to that which would be required of a private housing developer and generally should include sites outside of the city boundaries.

EPA addressed this problem in two cases involving housing developments. In one case, a city in Solano County, California, sought a permit to fill a regulated wetland as part of its redevelopment plan. The city argued that its proposal to build housing on the site was necessary to generate sufficient revenues to support nearby commercial aspects of the redevelopment plan. EPA Region IX rejected "redevelopment" as a legitimate basic project purpose under the regulatory framework of the 404(b)(1) Guidelines. Rather, EPA considered the basic project purpose to be housing. Similarly, EPA rejected the notion that filling wetlands could be justified by the need for revenues to support other projects on other sites.

In another case, an applicant in Los Angeles County, California, sought to limit the geographic scope of analysis by stating that the basic project purpose included providing tax revenues to the city within which the housing project had received local approvals. The applicant did not consider any alternative sites outside of the limits of that city. EPA rejected this analysis and recommended that the Corps direct the applicant to consider other sites within the Los Angeles Basin.

Assessment of Project Scale and Configuration

In determining which alternative constitutes the least environmentally-damaging practicable alternative for 404 permitting, any project that achieves the basic project purpose practicably should be considered. Thus, a housing project that can avoid or reduce impacts by alteration of its configuration ("footprint"), reduction of units, and/or relocation to an alternate site or sites and remain practicable will not be permissible as originally configured by the applicant. By regulation, only the least-damaging practicable alternative can be permitted.

For example, an applicant in Alameda County, California proposed a project that, among other features, required "upscale, single family houses" on a parcel that contained both wetlands and uplands. While EPA recognized that the applicant could receive a higher return on his investment by building single family units, the basic project purpose of housing could be fulfilled by building higher density, multi-family units on uplands and avoid wetlands.

Assignment of Project Costs Under the Alternatives Analysis

In general, the "sunk costs" associated with one site cannot be assigned to alternatives. For example, consider a developer who has invested in site-specific architectural designs or has installed infrastructure on a regulated site. In evaluating alternatives under the Guidelines, these "sunk costs" cannot be added to the costs of developing a less-damaging design or site. The project proponent assumes a certain risk in moving forward financially for a project that requires, but has not received, 404 authorization. This risk cannot be transferred to the costs of another site, nor can these "sunk costs" be used to justify a finding that another site is not practicable on the basis of costs.

For example, an applicant in Santa Clara County, California had already completed considerable work on development, design, and mitigation plans on a research and development facility proposed in a regulated wetland. In the alternatives analysis, several alternative upland sites were eliminated as too costly after the "sunk costs" associated with developing the wetland parcel were added to the costs of utilizing each upland parcel. EPA did not consider these "sunk costs" to be a valid justification for eliminating otherwise practicable alternatives, and recommended that these costs be removed from the economic evaluations.

Financial Standing of the Applicant Under the Alternatives Analysis

In general, the financial standing of an applicant is not considered applicable in determining whether or not the basic project purpose can be achieved practicably. The Guidelines state specifically that the term "cost" was used in defining "practicable" so as to avoid construing the term to "... include consideration of the applicant's financial standing, or investment, or market share, a cumbersome inquiry which is not necessarily material to the objectives of the Guidelines" (Preamble to EPA's 404(b)(1) Guidelines--Alternatives--40 CFR 230).

Accordingly, a developer with insufficient resources to acquire an available upland site where the project could be built profitably will be unable to obtain a permit for the project on a wetland site. Similarly, a large, multinational development corporation generally will be asked to consider the same market area and constraints as a local developer seeking to build for the same basic project purpose.

The Relationship Between the 404(b)(1) Alternatives Analysis and the Corps' Public Interest Determination

Before granting a permit pursuant to Section 404 of the Clean Water Act, the Corps must determine that the project complies fully with EPA's 404(b) (1) Guidelines and that the project is not contrary to the public interest (33 CFR 323.6). Therefore, a project that the Corps finds to be not contrary to the public interest will not qualify for a permit if it fails to comply with the Guidelines. Similarly, although a project might comply with the Guidelines, it will not receive a permit if the Corps determines that issuance of the permit would be contrary to the public interest.

For example, the Corps requested that an applicant proposing a research and development park in wetlands in Santa Clara County, California, supply information on the vacancy rate of similar existing facilities within the project area. The Corps was questioning whether, under its regulations, it would be contrary to the public interest to discharge fill material into a "water of the United States," if there was evidence of little public need for this type of development. In this case, the reported 90 percent vacancy rate for research and development parks was leading the Corps toward permit denial when the applicant withdrew the application.

CONCLUSIONS

In order for the analysis of practicable alternatives to serve its intended purpose as a planning and screening tool, the analysis must be applied by potential permit applicants as early in the planning phases of their projects as possible. This analysis process should streamline the permitting process rather than hinder and

delay it, but the degree to which this streamlining is successful will largely depend upon the applicant. Obviously, if the analysis has identified practicable alternatives that avoid discharges of dredged or fill material into "waters of the United States", the delays and uncertainty associated with Section 404 permit processing can be avoided altogether.

On the other hand, if the analysis is improperly designed to simply justify an applicant's preconceived proposal and does not seriously consider alternative sites and configurations, delays and uncertainties are likely to be magnified, as will be the possibility of permit denial. In this latter regard, the federal government has an important role in providing strong incentive to prospective permit applicants to thoroughly analyze practicable alternatives early in their planning processes. This incentive should come not only from the denial of permit applications that have not clearly demonstrated that the proposed discharge of dredged or fill material is unavoidable, but from improved regulatory guidance to the regulated public and to regulators that establishes criteria on how to conduct and how to evaluate a proper analysis of alternatives.

We believe that alternatives analysis potentially is the best and most useful means to achieving the goals and intent of the CWA in a reasonable manner. The analysis, if performed 1) early in the project planning stages and 2) in good faith by regulators and permit applicants, should ensure that most projects are sited out of the nation's waters, and that only projects that are absolutely necessary and environmentally acceptable receive permits. The analysis should be a process that helps planners and developers rather than hindering them.

ACKNOWLEDGMENTS

The authors acknowledge Suzanne Schwartz, Gregory Peck, and Clifford Rader of EPA's Office of Wetlands Protection for their critical review of drafts of this paper. Many of the ideas presented herein were an outgrowth of numerous discussions with EPA Regional staff, most notably Loretta Barsamian and James Broadway, as well as Ann Nutt, John Cooper, and Hugh Barroll of EPA's Office of Regional Counsel. We also thank the staff of EPA Region I (Boston), including Douglas Thompson and Anne Williams-Dawe, for clarifying many of these complex issues through their continued strong efforts to protect wetlands. Finally, we acknowledge the helpful comments of Peggy Lee Fiedler and two anonymous reviewers.

LITERATURE CITED

- Baker, G. F. 1984. An analysis of wetland losses and compensation under the Clean Water Act Section 404 program: managing natural resources through mitigation. MS Thesis, University of San Francisco, San Francisco, CA, USA.
- Department of Army. 1989. Memorandum from General Patrick J. Kelly to the Commander, U.S. Army Engineer District, New Orleans, LA, regarding permit elevation, Plantation Landing Resort, Inc., April 21, 1989.
- Kusler, J.A. and M.E. Kentula. *In press*. Executive Summary. *In* J.A. Kusler and M.E. Kentula (eds.) *Wetland creation and restoration: the status of the science*. Vol 1. Regional reviews. EPA/600/3-89/38a. Environmental Research Laboratory, Corvallis, OR, USA.
- Race, M. S. 1985. Critique of present wetlands mitigation policies in the United States based on an analysis of past restoration projects in San Francisco Bay. *Environmental Management* 9: 71-82.