NOTES: Transportation

1. Donald Miller, Hawk Engineers, Inc. letter to Eric Harrison and David Knadle, Catellus Development Corporation, July 2, 1998.

2. The required grades would be about 9%, while the recommended grades by Caltrans or the American Association of State Highway and Transportation Officials (AASHTO) area between 3 and 6%.

3. Donald Miller, Hawk Engineers, Inc. telephone conversation with Wilbur Smith Associates, August 7, 1998.

4. San Francisco Public Utilities Commission, *Muni Metro East Project, Phase I Design, 16th Street Crossing Alternative Report*, prepared by Parsons Brinckerhoff Quade and Douglas, Inc., December 23, 1991.*

5. Donald Miller, Hawk Engineers, Inc., letter to Eric Harrison and David Knadle, Catellus Development Corporation, July 2, 1998.

6. Jack Fleck, Traffic Engineer, San Francisco Department of Parking and Traffic, personal communication with Wilbur Smith Associates, August 6, 1998.

7. Gerald T. Haugh, Executive Director, Caltrain, Memo to Peninsula Corridor Joint Powers Board, July 29, 1998.

8. Peter Straus, Director of Service Planning, San Francisco Municipal Railway, telephone conversation with Wilbur Smith Associates, June 24, 1998.

9. Peter Straus, Director of Service Planning, San Francisco Municipal Railway, telephone conversation with Wilbur Smith Associates, June 24, 1998.

10. Based on projected Interim Operating Segment p.m. peak period total ridership of 2,931 passengers, with 1,742 of those passengers being generated by Mission Bay.

11. Assumes 60% of the p.m. peak period load occurs in the p.m. peak hour, and a cumulative growth of 40%, which is based on projections of the revised MTC Model.

12. *BART Short Range Transit Plan*, 1997-2006, p. 3-10.*

13. State of California, Department of Transportation, *Project Plans for Construction on State Highway in the City and County of San Francisco at Various Locations from 0.1 Mile South of 23rd Street to Brannan Street,* August 1, 1994. Drawings Railroad Construction No. 5 and "A" Line Bent Elevations No. 1.*

14. Peninsula Corridor Joint Powers Board, *Caltrain 20-Year Strategic Plan, FY 1997/98 to 2016/17,* October 1997.*

15. Diane Oshima, Senior Planner, Port of San Francisco, telephone conversation with EIP Associates, August 10, 1998.

16. Wilbur Smith Associates, letter report to Paul Newman, San Francisco Parking Association, February 11, 1992. See also *Yerba Buena Center Final Subsequent EIR,* Planning Department File No. 91.355E, certified December 3, 1992, pp. 114-115.

17. San Francisco Planning Department, *Citywide Travel Behavior Survey 1993, Summary Findings Phase I,* page 3.*

18. San Francisco Planning Department and Federal Transit Administration, *Third Street Light Rail Project DEIS/DEIR*, Planning Department Case File No. 96.281E, State Clearinghouse No. 96102097, April 3, 1998, p. 2-30.

19. Eric Harrison, Project Manager, Catellus Development Corporation, personal communication with Wilbur Smith Associates, August 5, 1998.

20. Donald Miller, Hawk Engineers, Inc., personal communication with Wilbur Smith Associates, June 25, 1998.

21. *Roundabout Design Guidelines*, Ourston & Doctors, September 1995, pp. 15 and 48.*

22. Peter Straus, Director of Service Planning, San Francisco Municipal Railway, telephone conversation with Wilbur Smith Associates, August 13, 1998.

23. San Francisco Redevelopment Agency, *Mission Bay Design Standards and Guidelines*, Draft C, March 31, 1998, "Open Space Guidelines," pp. 78-79. See also p. V.E.102, noting the 10-foot wide sidewalks for Mariposa Street, and p. III.28 under "Setbacks," noting that the setback would be in addition to specified sidewalk widths.

24. Donald Miller, Hawk Engineers, Inc., personal communication with Wilbur Smith Associates, June 25, 1998.

25. San Francisco Planning Department and Federal Transit Administration, *Third Street Light Rail Project DEIS/DEIR*, Planning Department Case File No. 96.281E, State Clearinghouse No. 96102097, April 3, 1998, pp. 2-8 - 2-12.

26. John Barkey, Director, Financial Planning, Catellus Development Corporation, personal communication with Wilbur Smith Associates, June 25, 1998.

27. Arvind Joshi, Caltrans, and Jack Fleck, Traffic Engineer, San Francisco Department of Parking and Traffic, telephone conversations with Wilbur Smith Associates, July 14, 1998.

28. Catellus Development Corporation, *Response to UCSF Preliminary Campus Development Plan: Mission Bay Campus Master Plan, April 1, 1998*, August 18, 1998.*

* A copy of this report is on file for public review at the Office of Environmental Review, Planning Department, 1660 Mission Street, San Francisco.

AIR QUALITY

Comment

We are particularly concerned about pre-development conditions, when there is a significant level of blowing dust from uncovered surfaces. Dust monitoring stations need to be located to address the impact on residents of Mission Creek and other adjacent neighbors. (*Corinne W. Woods, Toxics Subcommittee Chair, Mission Bay Citizens Advisory Committee*)

Response

Existing fugitive dust emissions are regulated by the Bay Area Air Quality Management District (BAAQMD). Regulation 6-305 is intended to prohibit visible particles from annoying off-site individuals. Before development, this regulation would govern control of dust emissions in the Project Area. If studies called for in pre-development Measure J.1b show unacceptable levels of contamination in soils in some parts of the Project Area with existing exposed soils, dust control measures would be implemented as part of Measure J.1c (pp. VI.42-VI.43). As is the case throughout the region covered by the BAAQMD, persons wishing to report dust or other air quality problems should call the District's complaint number as listed in the telephone book.

NOISE AND VIBRATION

Comment

Please review statements regarding the length of time involved with bridge openings (five minutes) under Bascule Bridges (Third and Fourth Streets) on page V.G.6 and the length of time for openings (two to three minutes) under Bascule Bridge Openings on page V.G.22. The two statements appear inconsistent. *(W.R. Till, Chief, Bridge Section, U.S. Coast Guard)*

Response

The comment raises a consistency concern about the description of the length of time involved with bridge openings.

The apparent discrepancy between the two descriptions is largely due to the different sources of the descriptions. The first is derived from information on operation collected by the bridge staff. The second description comes from field data collected during noise monitoring for the SEIR. The variation in the description of the length of time is due to the nature of the openings. Page V.G.6 described the average time associated with opening the bridge, allowing boats to pass through, and closing. Page V.G.22 described the length of time associated with the physical operation of opening the bridge when it was tested for noise, without any boat passage.

For clarity, the second-to-last sentence under "Bascule Bridge Openings" on p. V.G.22 has been modified as follows:

> **Finally, the duration of the siren is very short and the total time for bridge openings is about ~~two to three~~ five minutes.**

SEISMICITY

Comment

The SEIR is a document that should be read from back to front by reviewers and concerned citizens; especially is this true of V.H. 1-24 and V.I. 1-45 in Vol. I (Seismicity and Health and Safety). I would not live in Mission Bay housing under any circumstances, nor in any other unstable area in San Francisco. For estimated frequency of earthquakes see Vol. III, G.1, second paragraph, especially lines 8-10. (*Doris Ostrander Dawdy*)

Response

As stated on p. V.H.11 of Section V.H, Seismicity, the Mission Bay Area is expected to be subjected to at least one major earthquake during the lifetime of the proposed project. Anticipated groundshaking intensities would be as high as VIII or IX on the Modified Mercalli Intensity Scale (very strong to violent on the old San Francisco Scale). To account for earthquake-related hazards, the construction regulations under which Mission Bay would be developed (described on pp. V.H.6-V.H.10) encompass the most stringent state and city building codes and seismic hazard zone requirements applied to development in San Francisco. The current 1995 San Francisco Building Code contains specific standards for structures in areas of San Francisco that are subject to failures from seismically induced groundshaking (structural damage, liquefaction, settlement). The summary tables (Tables VI.7 and VI.8) in Chapter VI, Mitigation Measures (specifically on pp. VI.63 and VI.64, and VI.87-VI.94 of the SEIR) indicate that the great majority of the concerns expressed about the seismic safety of the Project Area are now addressed by the Building Code or have been addressed by specific measures for emergency preparedness and emergency response to seismic conditions identified in Chapter VI, Mitigation Measures: Seismicity, on pp. VI.37 and VI.38. Thus, the 67% probability of a major earthquake affecting the Bay Area prior to the year 2020 (as indicated in the Seismicity Appendix, p. G.1) has formed a substantial component of project planning by the City, the Redevelopment Agency, and Catellus Development Corporation, and appropriate steps have been taken to regulate and design project structures to respond to seismic safety issues.

Comment

I did not have time to review Vol. II. Shortcomings of the SEIR from my limited perusal are the absence of geologic seismic maps which can be obtained from the U.S. Geological Survey, and the huge expenditure of money for a 3-volume project report that might be better spent by our water department for safer water. (*Doris Ostrander Dawdy*)

Response

The geologic, soils, and seismic conditions of the Project Area have not changed since publication of the 1990 Mission Bay FEIR. Issues related to geology and soils were covered adequately in that document and the information is summarized on pp. A.48-A.54 of the Initial Study of this SEIR.

Throughout the discussion the reader is referred to Section VI.K, Geology and Seismicity, of the 1990 FEIR, which has well-developed and informative geologic and seismic maps that still are reliable; some details are updated in the SEIR to reflect new information. These maps form part of the SEIR document by reference. Consequently, it was not necessary to reproduce them in the SEIR.

SEIR Figure V.H.1, Regional Geologic Map, and Figure V.H.2, State of California Seismic Hazard Zone, on pp. V.H.2 and V.H.8, respectively, contain the most current available geologic and seismic information from the United States Geological Survey (1994) and the California Division of Mines and Geology (1994, 1997) for regional and local geologic and seismic conditions in the San Francisco Bay area. Site-specific conditions, described in "Project Area Characteristics" on pp. V.H.5-V.H.6, and "Groundshaking," "Liquefaction," and "Exposure of Concentrated Populations to Seismic Hazards" on pp. V.H.11-V.H.13, are based on information from current and previous geotechnical investigations of the Project Area, information provided by the geotechnical and project engineers, and geotechnical investigations for nearby sites, as stated in Endnote 14 on p. V.H.21, and cited in Endnotes 15 through 17, and 30 through 35 on pp. V.H.21-V.H.23.

HEALTH AND SAFETY

Hazardous Chemical and Radioactive Waste

Comments

I want some assurances that they will not be producing hazardous wastes from biotech research or radioactive wastes and other pollution associated with other usage. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Since UCSF is exempt from local planning and zoning rules, I want assurances that they will not be producing hazardous or radioactive wastes and pollution from any research and that the City will have control over issues associated with any research there. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Response

Under "Estimated Hazardous Materials Quantities" on pp. V.I.17-V.I.22 of Section V.I, Health and Safety, the SEIR indicates that UCSF and some Commercial Industrial facilities would generate hazardous wastes as an unavoidable consequence of their Mission Bay operations. The use of hazardous materials would be critical to the pursuit of research and development goals; generation of hazardous wastes is a consequence of using hazardous materials. Commercial, retail, public, and residential uses would also generate hazardous wastes to various degrees, noted under "Types of Hazardous Materials Users" on p. V.I.10. Impacts associated with hazardous wastes generated within the Project Area by project residents, small businesses, Commercial Industrial facilities, and UCSF are discussed under "Residents and Similar Waste Generators" and "Larger Waste Generators" on pp. V.I.31-V.I.35.

Under "Hazard Assessment" on pp. V.I.26-V.I.27, the SEIR acknowledges that waste disposal would be one potential means of environmental exposure to hazardous materials. However, as indicated in Table V.I.8 on p. V.I.28, this potential impact would be mitigated by training workers, segregating wastes, collecting wastes for appropriate disposal, monitoring wastewater to the extent feasible, diluting and treating sewage from the site, checking loads at the San Francisco solid waste transfer station, labeling trash cans, and following federal and state hazardous waste disposal regulations and procedures, including those for hazardous waste manifest documentation. Appendix H, Health and Safety, provides additional information regarding routine waste disposal under "Routine Operations" on p. H.28 and unintentional waste disposal under "Upset Conditions" on pp. H.30-H.31.

The SEIR describes hazardous waste regulations and oversight in Table V.I.2 on pp. V.I.4-V.I.5 and in Appendix H under "Regulatory Setting" (pp. H.13-H.16). As stated in the SEIR, San Francisco

oversees some aspects of hazardous waste generation and disposal within the City through the San Francisco Hazardous Materials Permit and Disclosure Ordinance. The San Francisco Department of Public Health is the Certified Unified Program Agency for the City and is therefore responsible for implementing portions of the City's ordinance and many state-mandated hazardous waste management requirements.

The authority to oversee many state requirements has been delegated to the San Francisco Department of Public Health by the California Department of Toxic Substances Control. This authority extends to state institutions such as UCSF. As stated in Table V.I.2 on p. V.I.5 and in Appendix H on p. H.17, regulatory oversight of radioactive materials use and waste generation and disposal, whether by UCSF or a Commercial Industrial facility, would fall within the jurisdiction of the Radiologic Health Branch of the California Department of Health Services.

Although the project would contribute to cumulative increases in hazardous waste generation within and beyond San Francisco (discussed under "Hazardous Waste Disposal" on pp. V.I.40-V.I.41), the San Francisco Hazardous Waste Management Program is currently working to reduce the volume of hazardous waste generated in San Francisco. At the same time, the San Francisco Department of Public Health enforces requirements for hazardous waste minimization, a form of pollution prevention, as set forth in the San Francisco Hazardous Materials Permit and Disclosure Ordinance and state law.

Animal Testing

Comment

I'm also opposed to animal testing and research, and I want to have these assurances that the City will have some control over these issues. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Response

Under "Biohazardous Materials and Animals" on pp. V.I.20-V.I.22, the SEIR acknowledges that the use of animals for research and product development purposes would be a foreseeable outcome of the project. As stated in Table V.I.3 on p. V.I.14, the use of research animals is sometimes required to study biological effects that cannot be adequately evaluated through other techniques, or to produce biological products necessary for research, development, or manufacturing. The U.S. Food and Drug Administration requires that experimental drugs be tested on animals prior to conducting studies on humans. Under "Enforcement of Guidelines for Work Involving Biohazardous Materials and Animals" on pp. V.I.27-V.I.29, the SEIR addresses the potential environmental effects of animal use,

and Appendix H, Health and Safety, provides additional information and analysis relating to the routine and accidental exposure of workers (local effects) to animal-related hazards (pp. H.24-H.26) and the routine and accidental exposure of the larger community (off-site environment within and outside the Project Area) to animal-related hazards (pp. H.27-H.32).

In Table V.I.2 on p. V.I.5 and Appendix H on pp. H.17-H.21 (under "Biological Safety" and "Standard Industry Practices"), the SEIR summarizes requirements for the care and use of research animals. In addition to implementing Animal Welfare Act requirements, standard industry practices include complying with the National Research Council's *Guide for the Care and Use of Laboratory Animals*./1/ These guidelines relate to institutional policies and responsibilities, monitoring of animal care and use, veterinary care, training and qualifications of personnel, occupational health and safety, housing and husbandry, procurement and transportation, surgical procedures, pain and anesthesia, and euthanasia. As stated on p. V.I.27, no regulatory body requires businesses in San Francisco to follow such guidance unless the business receives funding from the federal government. For this reason, the SEIR identifies Mitigation Measure I.1 on p. VI.40 to ensure compliance with the *Guide for the Care and Use of Laboratory Animals* or its successor documents. Mitigation Measure I.1 would also require businesses and institutions to comply with guidelines set forth in *Biosafety in Microbiological and Biomedical Laboratories* and *Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines)*, or their successors./2/ These documents also relate, in part, to the use of animals for study purposes. As indicated under "Enforcement of Guidelines for Work Involving Biohazardous Materials and Animals" on p. V.I.27, UCSF accepts federal funding and therefore, as a matter of institutional policy, adheres to applicable guidelines related to the use of research animals. See the response in Project Description, "Constitutional Exemption" on p. XII.27 for a discussion of UCSF's constitutional exemption from local regulation.

Characterization of Biohazardous Agents Risk Groups

Comment

Vol. III, H. 6-11. Risk Group 2 on p. H.6 lists "Agents that are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are *often* available." The term "rarely serious" is ill-advised. The parasite, Crypotosporidium parvum, invaded Milwaukee's drinking water plant in 1993. Sixty-nine deaths and some 400,000 illnesses, many requiring hospitalization, were attributed to Cryptosporidium in Milwaukee's drinking water. Under Bacterial Agents are two that are frequently mentioned in the press as causing death or serious illness with long term recoveries: Escherichyia coli (E. coli 0157:H7) which caused several recent deaths, and Campylobacter coli. (*Doris Ostrander Dawdy*)

Response

The comment questions the reasonableness of defining certain infectious agents listed in Appendix H, Table H.2 (p. H.6), as "agents that are associated with human disease which is rarely serious and for which preventative or therapeutic interventions are often available." This language (and all of Table H.2) is derived from the U.S. Department of Health and Human Services National Institutes of Health's *Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines).*/3/ The National Institutes of Health is a national authority on agents that are infectious to humans. The *NIH Guidelines* have been revised and updated several times over the years to reflect the best available scientific consensus. The most recent revision occurred in 1996.

The comment's examples of illnesses caused by *Cryptosporidium*, *Escherichia coli*, and *Campylobacter coli* do not relate to the use of these organisms in research or development applications. Numerous domestic and wild animals are reservoirs for *Campylobacter coli*, and *Cryptosporidium* is found in all surface waters and the feces of infected animals. Similarly, many strains of *Escherichia coli* occur naturally within the human gastrointestinal tract. These organisms have caused illnesses through exposure to contaminated water and food. For example, various news stories have reported *Escherichia coli* contamination of undercooked meat and inadequately treated swimming pools. The *Escherichia coli* strain most commonly used for research and development purposes is *Escherichia coli* K12, which, through mutations, has lost the ability to survive in humans.

As indicated in Appendix H, Tables H.4 and H.5 (pp. H.20 and H.21), standard practices for handling infectious agents, including those that would not be considered biohazardous, include decontaminating all wastes (see the response in Hydrology and Water Quality regarding "Water Discharges from Research and Development Activities" on pp. XII.361-XII.367). UCSF has adopted these industry standards and, for the reasons identified under "Enforcement of Guidelines for Work Involving Biohazardous Materials and Animals" on pp. V.I.27-V.I.29, their implementation would be required of Commercial Industrial facilities by Mitigation Measure I.1 (p. VI.40). Therefore, none of the agents listed in Table H.2 would be released to the environment under normal circumstances. As demonstrated by the hazard assessment provided in Appendix H (pp. H.19-H.32), research and development activities in the Project Area would not provide any reasonable exposure pathways through which these organisms could enter food or water supplies. Wastewater from the Project Area (which would not normally contain infectious agents used in research or development) would not be used as a source of drinking water. Beaches are posted whenever a combined sewer overflows occurs to avoid any potential health hazards of water contact recreation. For the reasons discussed above, the project would not affect any existing human health risks posed by these organisms.

NOTES: Health and Safety

1. National Research Council, *Guide for the Care and Use of Laboratory Animals*, 1996.

2. a) U.S. Department of Health and Human Services Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health, *Biosafety in Microbiological and Biomedical Laboratories*, 3rd ed., May 1993.

   b) U.S. Department of Health and Human Services, National Institutes of Health, *Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines)*, January 1996.

3. U.S. Department of Health and Human Services, National Institutes of Health, *Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines)*, January 1996, Appendix B.

CONTAMINATED SOILS AND GROUNDWATER

General

Comments

The toxics subcommittee retained a consultant, Dr. Martha Kohler, to review the sections of the Draft report relating to soil and groundwater contamination, as well as the technical studies and other source documents from the Regional Water Quality Control Board and Catellus Development Corporation.

Her report concluded that soil and groundwater investigations are adequate to determine the nature and extent of toxic contamination in the project area.

And the findings support the conclusion of the Regional Water Quality Control Board that the presence of residual chemicals in soil and groundwater do not pose an unacceptable risk to water quality, public health and the environment, provided the following conditions are met:

One, risk management plans for long-term operations acceptable to the Regional Board are submitted and approved that describe specific methods and procedures for managing soil before, during, and following site construction.

Health and safety plans for construction are submitted to and approved by the regional board.

Enforceable institutional mechanisms or deed restrictions restricting the owner or operator parcel usage to uses appropriate for the human health risks calculations conducted. Which means that you can't have any contact with native soils, no gardens, and that there is underground utility control so that workers aren't exposed to it.

These have to be submitted to and approved by the Regional Board.

The Pier 64 free product area. Pollution from former oil distribution facilities has to be investigated and remediated, if necessary, by the responsible parties.

The project needs also to fully comply with City and County requirements, such as the Maher Ordinance, which requires soil sampling and analysis and permanent approval conditions on any project that disturbs at least 50 cubic yards of soil.

Our consultant also found that the tidal influence study and the tidal influence model support the attenuation theory that metal concentrations in groundwater meet water quality standards when they get to Mission Creek or the Bay.

The technical documents support the conclusions that the near shore aquatic community is not at risk from volatile organic compounds or petroleum hydrocarbons found as chemicals of potential ecological concern in groundwater.

Technical memorandum No. 1 gives an outline of the risk management plans that will be submitted to the Regional Board. The risk management plans are critical in ensuring the potential effects on

human health in the environment are adequately addressed. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

It is acknowledged that the Mission Bay Citizens Advisory Committee Toxics Subcommittee's independent consultant has reviewed and agrees with the background soil and groundwater investigations on which the SEIR is based. The comment is an accurate restatement of some of the main issues and results presented in the Contaminated Soils and Groundwater sections of the SEIR.

Comments

The Redevelopment Agency, the planning department, and Catellus Corporation should make every effort to ensure that development will not become another Bayview/Hunter's Point with the highest cancer rates in San Francisco by neighborhood.

No stone should be left unturned in every effort to clean up contaminated soil and groundwater in this development. (*Victoria Winston, Bay Area Organizing Committee and St. Dominic's Parish*)

We need to go further in terms of toxic cleanup and remediation. (*Jon Rainwater, San Francisco League of Conservation Voters*)

Response

The Risk Management Plan or Plans described in Section V.J, Contaminated Soils and Groundwater: Setting and Impacts, on pp. V.J.61-V.J.67, V.J.70-V.J.72, V.J.74-V.J.76, and V.J.85, and in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, on pp. VI.41-VI.45, is proposed to be included in the project. As stated in Regional Water Quality Control Board Resolution No. 98-044, adopted on May 20, 1998, there is no requirement at this time to carry out further cleanup of chemicals in soils or groundwater in the Project Area, except for the petroleum free product plume that will be remediated separately from the Mission Bay development (see pp. V.J.58-V.J.59 for a discussion of the regulatory status of the free product area). The RWQCB found that conditions at the site do not pose unacceptable risks to water quality, public health, and the environment, and can be managed through operating and institutional controls that will be part of the project.

Regulatory Requirements

Comment

Pages V.J.93 and V.J.94, Table V.J.2. Potential Environmental Effects and Site Controls Associated with Remediation Techniques. It would be useful for the Subsequent EIR to identify specific statutes, regulations or ordinances which actions must comply with. For example:

- Excavation and Treatment and/or Off-Site Disposal. There are permitting requirements for treatment of hazardous wastes, including soils which are excavated and require treatment prior to disposal.

- Temporary Stockpiling. If hazardous waste is generated and stockpiled, the stockpile must, in addition to the criteria outlined in the Subsequent EIR, comply with the requirements of California Code of Regulations, Title 22, Division 4.5 and Health and Safety Code, Division 20, Chapter 6.5.

(Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency)

Response

The table referred to in the comment, Table V.J.2, provides a brief summary of possible environmental effects of various remediation techniques and the types of controls generally used to reduce these effects; it was intended to provide information about environmental impacts rather than to direct readers to the applicable laws and regulations. As discussed on p. V.J.92, the need for remediation within the Project Area has not been identified, except for the petroleum free product area. The Regional Water Quality Control Board (RWQCB) has agreed that chemicals in the soil and groundwater in the Project Area do not require cleanup at this time (in Resolution No. 98-044, adopted on May 20, 1998). The evaluation of potential effects of remediation was included in the impact analysis on pp. V.J.91-V.J.95 to recognize that there could be changes in circumstances or conditions that could affect the project-related impacts. If remediation were found to be necessary in particular locations in the Project Area based on more detailed information to be obtained as part of individual site development, the specific statute or regulation that would apply to a particular remedial action would depend on the nature of the remedial activity. While the SEIR does describe potentially applicable laws and identifies agencies with primary jurisdiction, it is not necessary to cite all potentially applicable laws and regulations in an EIR; legal requirements would apply whether or not they are specifically noted in the document. As noted in the first full paragraph on p. V.J.59, the impact analyses provided in Section V.J, Contaminated Soils and Groundwater, assume substantial compliance with applicable laws and regulations.

Regulatory requirements pertaining to the management of hazardous wastes in soil are identified in "Hazardous Wastes in Soil" and other Regulatory Framework subsections on pp. V.J.50-V.J.55. The various laws and regulations summarized on those pages and their applicability during the site development process, including situations in which remediation may be necessary, are also noted. The discussion focuses on statutes, regulations, and ordinances that would apply during routine site development activities because, with the exception of the free product area, the need for remedial action in the Project Area has not been identified. The various regulatory summaries presented on pp. V.J.50-V.J.55 acknowledge that the need for soil remedial action may be identified during the site development process. The state laws and regulations and local ordinances (e.g., Article 20) that are described would be implemented, as appropriate, during any remedial actions, including, but not limited to, those in which excavation, treatment, or off-site disposal or temporary stockpiling may be

necessary. Agencies with regulatory jurisdiction related to chemicals in soil and groundwater are also noted in the "Approvals Required" subsection of Chapter III, Project Description, particularly on p. III.51.

The following sentence has been added after the first sentence of the last paragraph on p. V.J.50 to provide citation to the specific regulations related to hazardous wastes in soils noted in the comment:

> **At the state level, the Cal/EPA Department of Toxic Substances Control administers hazardous waste laws and regulations pursuant to Division 20, Chapter 6.5 of the California Health and Safety Code and Title 22 of the California Code of Regulations, respectively.**

As explained on p. V.J.75, the California EPA Department of Toxic Substances Control (DTSC) has determined that soils excavated during construction in the Project Area can be moved around and reused in the Project Area without triggering hazardous waste management requirements, providing the actions are conducted in accordance with a Risk Management Plan. That determination was formalized in a letter from DTSC to the Regional Water Quality Control Board (RWQCB) in December 1997. In the event removal of soil and transport for offsite disposal or treatment is determined to be necessary (e.g., as a result of either testing or remediation carried out pursuant to Article 20 of the San Francisco Public Works Code), additional regulations would apply, as discussed on p. V.J.54.

The following sentences have been added after the first sentence of the second full paragraph on p. V.J.95 to acknowledge that various laws and regulations would apply to remediation and would be implemented as appropriate.

> **Remedial activities would be subject to various laws and regulations. Depending on the remedial action being undertaken, these statutes and regulations would include, but would not be limited to, hazardous waste management laws and regulations administered by the DTSC, water quality protection laws and regulations under the jurisdiction of the SWRCB and RWQCB, air quality management regulations administered by the BAAQMD, OSHA workplace safety requirements, hazardous waste transportation regulations and standards, and others that may apply.**

1900 Third Street Test Results

Comment

Page V.J.25: Figures V.J.5-6-7-8: The soils borings' results provided by 1900 Third Street are not shown on these figures and most of the base maps are from the prior Mission Bay Plan which

excluded the 1900 Third Street site. Please include, at least as an appendix, the report of the test borings that 1900 Third Street LLC provided. (*R. Clark Morrison, Morrison & Foerster L.L.P., representing 1900 Third Street L.L.C.*)

Response

Numerous individual and site-wide investigations have been performed subsequent to the 1990 FEIR, including those at the 1900 Third Street location. Those reports that contain additional site data are either specifically referenced in the SEIR or are included in Appendix Table I.1 on pp. I.2-I.4, as appropriate. The investigations performed for 1900 Third Street are cited in Endnotes 26, 71, 72, and 73 on pp. V.J.102 and V.J.105 at the end of Section V.J, Contaminated Soils and Groundwater. Thus, all of the identified reports, including those for the Castle Metals site, are part of the background documents and the administrative record for the proposed project. As discussed on p. V.J.19, the combination of these individual and site-wide reports, which include those areas that would be developed by other entities, has provided information to sufficiently identify potential soil and groundwater contamination hazards.

Soil and groundwater samples were collected adjacent to the Castle Metals site during the 1997 Mission Bay South investigation. An evaluation of the 1997 Mission Bay South investigation data indicates there is no evidence that the low levels of contaminants detected in soils at the Castle Metals site differ substantially from the adjacent locations that were tested during the 1997 investigation. That information, combined with site-specific data from the Castle Metals site obtained during the 1993, 1994, and 1996 LAW investigations, adequately characterizes conditions at the Castle Metals site. The SEIR contains sufficient data about chemicals in the soil and groundwater to inform the decision-making process. The addition of the site-specific information requested by the comment would not alter the discussion of existing conditions at the Castle Metals site or the conclusions regarding potential human health or environmental risk presented in the SEIR for that site.

Significance Criteria for Chemicals in Soil/Groundwater

Comment

Page V.J.84, Paragraph 3, sentence 3. As a clarification, DTSC has adopted U.S. EPA's policy of utilizing a risk range of 1 x 10^{-4} to 1 x 10^{-6}, with 1 x 10^{-6} being the point of departure for risk criteria. On a site-specific basis, DTSC has made risk management decisions, with community input, to utilize a risk criteria of 1 x 10^{-5} at other Sites. DTSC defers to the RWQCB's decision to establish the risk criteria at 1 x 10^{-5} at this Site. (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

Response

The Regional Water Quality Control Board (RWQCB) has been designated as Administering Agency, pursuant to AB2061, to oversee the site investigation and remediation of hazardous materials releases in the Project Area, as noted in "Regional Water Quality Control Board as Administering Agency" on pp. V.J.48-V.J.49. The Department of Toxic Substances Control (DTSC) is one of a number of Support Agencies that the RWQCB may consult with regarding contamination issues in the Mission Bay Project Area. In its role as Administering Agency, the RWQCB is granted jurisdiction over all activities regarding investigation and remediation. These activities also include preparation of any necessary human health risk assessments, such as that prepared for the proposed project, and any additional assessments that would be prepared in conjunction with Risk Management Plans. The assumptions and methods used in the risk assessments and the results of those evaluations are subject to RWQCB review and approval.

The discussion on p. V.J.62 notes that the RWQCB staff has determined that a risk criteria of 1×10^{-5} is appropriate to evaluate the potential risks to human health. The RWQCB staff formalized that decision in a letter to Philip Fitzwater at ENVIRON dated January 16, 1998. The basis for the decision was stated in that letter, which is cited in Endnotes 109, 117, 122, and 125 on pp. V.J.107-V.J.108 at the end of Section V.J, Contaminated Soils and Groundwater. The letter is also presented as Appendix G in *Site Investigation and Risk Evaluation Report, Mission Bay South of Channel, San Francisco, California*, prepared by ENVIRON and published in February 1998. As indicated in the January 16, 1998 letter, RWQCB staff recognizes that "EPA considers a cumulative incremental carcinogenic risk level of 1×10^{-4} to 1×10^{-6} . . . as the acceptable range of risk management scenarios." As indicated in its comment, DTSC has also adopted the EPA's policy of using a risk range of 1 x 10 -4 to 1×10^{-6}, with 1×10^{-5} used on a site-specific basis for risk management decisions. The comment indicates that it defers to the RWQCB's decision to establish the risk criteria at 1×10^{-5} for the Mission Bay Project Area.

To clarify SEIR text, the following sentence has been added as a new second sentence in the first full paragraph on p. V.J.62:

> **The DTSC has also adopted the U.S. EPA's policy of using a risk range of 1×10^{-4} to 1×10^{-6}; on a site-specific basis DTSC has made risk management decisions, with community input, to use 1×10^{-5}.**

The third sentence in the second full paragraph on p. V.J.84 has been revised to read:

Risk criteria used in the development of the SSTLs were 10 excess cancer cases per 1 million (1 x 10^{-5}) and a Hazard Index of 1, consistent with policies of the RWQCB and ~~DTSC~~ CalEPA; DTSC has deferred to the RWQCB's decision on this matter./145/

Endnote 145, on p. V.J.110, has been expanded to include the following:

Barbara J. Cook, P.E., Chief, Northern California - Coastal Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency, letter of June 8, 1998, commenting on the Draft SEIR.

Risks to Existing and Future Residents

Comments

While we understand from the CAC Toxics Consultant, Dr. Martha Kohler, that the background technical [documents] address the impact on local residents of exposure durations and times, the D SEIR repeatedly refers to "Preliminary Remediation Goals (PRGs). . .for the protection of industrial land uses" (V.J.42) and "COPIC below Region IX Industrial PRGs adjusted to account for a limited six-month exposure period. . ." (V.J.43). Even though there are no (authorized) residents within the Project Area, Mission Creek Harbor Association is surrounded by the Project Area on three sides, and there are several new live-work units immediately adjacent to the Project area. We would like the SEIR to confirm that long-term residents of the immediate area, not just those who have a limited six-month exposure, are adequately protected, given the level of toxic materials in soil and groundwater. . .

As a result of Dr. Kohler's review, and information provided by Steve Morse, Chief of the Toxics Cleanup Division of the RWQCB, the Mission Bay CAC:. . .

3. Requests clarification in the final SEIR of how risk assessments and proposed RMP will protect businesses and residents in and adjacent to the Project Area, before, during and after construction. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

While the technical documents adequately address the impact on local residents of exposures, durations, and times, the EIR itself does not clearly explain those impacts and should include a more specific description on how nearby residents are addressed in the risk assessments.

This is needed for all three time phases included in the assessments: Prior site development, during development, and after development of the project is complete. In particular are the time durations and exposures appropriate to nearby residents. . .

We will be requesting clarification in the final EIR of how the risk assessments and proposed risk management plans will protect businesses and residents in and adjacent to the project area, before, during, and after construction. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

Comments have raised questions regarding how the risk assessments and the proposed risk management plans will protect the health of individuals who work and live in and around the Project Area. Although one comment acknowledges that the background documents adequately address the impact on local residents, and that the exposure durations and times used in the analysis are appropriate, the comment requests clarification in the final SEIR on how the risk assessment and proposed risk management plans will protect businesses and residents in and adjacent to the Project Area, for all three time phases: before, during, and after construction. In particular, the comments request confirmation that long-term residents of the immediate area, which includes Mission Creek Harbor Association houseboats and new live-work units immediately adjacent to the Project Area, would be adequately protected throughout development of the project.

The analyses prepared for pre-development conditions, for potential impacts during development, and for post-development conditions once the Project Area is built out, all take into account people who live and work in areas adjacent to the Project Area, either directly or indirectly. For example, in the discussion under "Exposure from Vacant, Undeveloped Sites" on pp. V.J.64-V.J.67, the individuals who could be affected would include Project Area residents, workers, or visitors at developed parcels adjacent to a vacant site. An evaluation that includes Project Area residents adjacent to a vacant site would also apply to residents of the houseboats or workers at a site across Mariposa Street, insofar as they may be adjacent to a vacant, exposed site. In the discussion of impacts from construction activities, the exposed populations could include construction workers or residents or employees in existing or new buildings in the Project Area (see p. V.J.68). As explained further in the background documentation for the discussion of construction impacts, the term "nearby populations" is "defined as those populations in the Project Area that might be directly adjacent to the area being developed, as well as populations that are further away or off-site from the area being developed."/1/ Thus, the houseboat populations were included in the overall definition of those who could be affected by construction activities. Finally, the analysis of post-development conditions described in the SEIR on pp. V.J.82-V.J.91 and in Appendix I on pp. I.64-I.75, summarizes the more detailed analysis prepared by ENVIRON International Corporation in the 1998 Mission Bay South Report and cited on p. V.J.82./2/ In the 1998 Mission Bay South Report, Appendix F identifies potentially exposed populations in the post-development period, specifically identifying on-site and off-site workers and residents, and specifically states that "residents living in houseboats (on China Basin Channel) will have potential exposures to constituents in soil and ground water similar to the offsite residents."/3/ The response below elaborates on how the analyses of pre-development, construction, and post-development conditions address potential effects to residents and workers on sites near the Project Area.

As described in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, on p. VI.41, development activities within the Project Area would not begin until a Risk Management Plan or Plans (RMP) has been prepared and approved by the Regional Water Quality Control Board (RWQCB) staff. The purpose of the RMP is to furnish a decision framework for managing the environmental conditions and to set forth the specific management measures for reducing any potentially significant risks associated with the development. Compliance with the provisions set forth in the RMP will enable phased development and occupancy of the Project Area to occur over time in a coordinated and health protective manner. As identified and discussed on pp. VI.41-VI.45, the RMP will describe the range of management measures that would control risks to human health and the environment during the three phases of the project: prior to, during, and post development. The conceptual plan for managing risks associated with development and occupancy of the Project Area was approved by RWQCB and the interagency Consultative Working Group (including representatives of the CalEPA Department of Toxic Substances Control [DTSC] and the City of San Francisco) in the adoption of RWQCB Resolution No. 98-044 on May 20, 1998. Further support of the plan by DTSC is provided in their written comments on the SEIR, as they have stated that they believe that "the project incorporates actions which would address any potential risk to human health or the environment."

A brief summary of the potential impacts associated with each of these three phases of development, and the management measures that are proposed to be implemented during the three phases to minimize those impacts on human populations that are present in the Project Area, and that therefore would minimize impacts on people adjacent to the Project Area, is provided in the following response. As described in the response, the approach used in evaluating the impacts associated with each of the three phases of the project relied on a series of conservative risk analyses, in which assumptions regarding the location of the populations, and the amount of exposure that they may potentially incur were developed with the intention of overestimating the magnitude of the potential impact.

Measures to Protect Human Health Prior to Development

As discussed on pp. V.J.60-V.J.61, development and occupancy of the Project Area would occur in phases over a projected 17-year period, where some areas would be developed and occupied while demolition and construction would be occurring in other areas. During the later phases of the development, some of the proposed commercial, industrial, and residential uses would be completed and occupied, while some surrounding parcels may still remain vacant. Consequently, over the course of the 17-year development period, an increasingly greater number of people could be affected

by chemicals in soil or groundwater on vacant sites and by construction activities involving the disturbance of soil or groundwater during the later phases of development.

As described on pp. II.23-II.24, V.J.42, and V.J.64-V.J.67, the RMP would evaluate in detail the potential for the current conditions within the Project Area to adversely impact the health of individuals who are working or living within or near the Project Area, including individuals who may move into the Project Area during the course of the development. The objective of the risk evaluation would be to evaluate whether exposure to exposed native soils that are present within the Project Area would pose a risk to populations who may be exposed during the interim period, which is defined as the period of time between initial project approval and complete build-out. The evaluation would be conducted by developing interim target levels (ITLs) for each of the chemicals present in the soil for those populations that could be exposed over time until development is complete, as explained on pp. V.J.65-V.J.66. This evaluation would be conducted using standard regulatory risk assessment procedures, consisting of the following steps, each of which is listed in the Project Features in Section VI, Mitigation Measures: Contaminated Soils and Groundwater on pp. VI.42-VI.43:

- Evaluate Sampling Results to Identify Constituents of Concern.
- Identify all current populations who exist within and around the Project Area, and the populations that are likely to be present once the development occurs. Exposed populations that will be evaluated include nearby residents (which would include current houseboat residents, and residents in the other areas, such as Potrero Hill, that are outside of the Project Area), future residents that may be occupying portions within the Project Area, visitors/trespassers, and workers within and adjacent to the Project Area.
- Identification of Exposure Pathways/Assumptions. Once the populations who could come in contact with the exposed soils have been identified, the risk evaluation would then describe the pathways through which the populations could be exposed to the constituents present in exposed soils between now and when the project build out is complete. The specific exposure assumptions would be based on existing USEPA and Cal/EPA Department of Toxic Substances Control recommended exposure assumptions./4/,/5/ Conservative reasonable maximum exposure (RME) assumptions recommended by USEPA for estimating the length of time that an individual may be present in the Project Area and may be exposed to chemicals would be used. Because the USEPA-recommended RME for the length of time that an individual may be living in one location is 30 years, this assumption will be used in the risk evaluation.
- Development of Health-Based Interim Target Levels (ITLs) for Interim Exposures. Using the specific exposure information that would be developed as described above, combined with toxicity values developed by the USEPA and Cal/EPA, contaminant-specific interim target levels (ITLs) would be established following regulatory risk assessment guidelines established by the DTSC and EPA.

- Comparison of ITLs for Interim Exposures to the Range of Concentrations Detected in Soils. The chemical-specific ITLs would then be compared to the range of concentrations detected in the exposed soils. Areas where the concentration in the exposed soils exceed the ITLs would be identified, as these will be the areas where potential interim risk management measures may be appropriate.

- Identification of Interim Risk Management Measures. If areas are identified where the health-based ITLs exceed the concentrations detected in the soil, then the specific Interim Risk Management Measures (IRMMs) that would reduce potential risks to Project Area occupants and visitors during the interim period would be identified. The types of IRMMs that could be required and that would be sufficient to minimize any potential interim risks include measures such as the following: restrict access to soils through fencing; hydroseed or apply other vegetative or nonvegetative cover to the uncovered areas; include safety notices in leases; and conduct periodic monitoring and audits of the Project Area.

Using the human health-based risk assessment approach described above to identify areas of potential concern, and then implementing the appropriate interim risk management measures would reduce, to acceptable levels, any potential human health impacts posed by exposed soils that may exist in the interim period prior to permanent development.

Measures to Protect Human Health During Development of the Project Area

Pages V.J. 67-V.J.82 identify the types of activities that may be associated with the construction and development of the Project Area that could potentially impact the health of construction workers, or any other workers, residents, or visitors in the nearby vicinity of the construction activities. As described, the activities that could result in exposures of either nearby populations or construction workers include: 1) excavation, grading, trenching, and other soil movement/stockpiling activities where workers and the public could come into direct contact with exposed soils/stockpiled soils, or be exposed to fugitive dusts; and 2) the excavation of unknown structures and the identification of unknown areas of contamination. Additional activities, such as construction dewatering or utility trench excavation, could contribute to the spread of impacted groundwater. Further, soils from an active construction sites could be carried off-site into nearby surface water bodies after a large rain storm.

Following the identification of each of the potential impacts, the SEIR then provides an analysis of the impacts, followed by a discussion of the specific management measures that would be included in the RMP in order to minimize any potential impacts associated with the development of the Project Area. The analysis of the particular impacts included a discussion of the potential impacts on all populations potentially impacted, including nearby residents, workers, and visitors. The management measures

identified were developed specifically to protect the existing nearby populations, as well as the populations that would be present in the Project Area once the phased occupancy begins.

During the construction of the Project Area, the nearby residents, workers, or visitors who may be directly adjacent to an area under development would be protected through the implementation of the dust control measures. The project features that would be implemented to control dust are identified in Section V.J, Mitigation Measures: Contaminated Soils and Groundwater, Measure J.1f, on p. VI.43, and in Section VI.F, Air Quality, Measure F.2, on p. VI.33. As described on pp. V.J.68-V.J.70, a risk assessment was conducted to determine whether continuous, 20-year exposure to unmitigated dust emissions from the development process would adversely impact the health of individuals in the Project Area. The analysis concluded that even if dust suppression methods were not implemented, and if someone were to be exposed continuously for 20 years to high dust levels (as if they were directly adjacent to a development area, in the areas of greatest potential for dust exposure, for the entire 20 years), the risks to human populations would be considered acceptable by the U.S. EPA and would be below the level defined by BAAQMD to represent a significant threshold for exposure to cancer-causing chemicals. Because the analysis was prepared for someone immediately adjacent to a construction site, this conclusion also would be applicable to all current populations within and adjacent to the Project Area who would be located further from a construction site (including the community of houseboats, and existing worker populations), and would likewise hold for the future populations who may be present in the Project Area once the phased occupancy begins. Nevertheless, the dust control measures detailed on p. VI.33 are proposed to be implemented as part of the RMP in order to keep dust levels to a minimum. As stated on p. V.J.71, compliance with the BAAQMD recommended dust control measures would reduce temporary impacts associated with dusts to insignificant levels.

The dust control measures would control dust generated from demolition and excavation activities, truck traffic, wind traversing soil stockpiles and dusts generated from loading transportation vehicles. The dust control measures would be supplemented by the implementation of an off-site dust monitoring program. The off-site dust monitoring plan would be used to demonstrate that the health and safety of individuals not engaged in construction activities (i.e., visitors, workers, and residents) were not being adversely impacted by dusts that may be generated by construction activities, as described on p. V.J.71 in Section V.J, Contaminated Soils and Groundwater, and on p. VI.44 in Section VI.J, Mitigation Measures.

Other general soil handling/management protocols that would be detailed in the RMP, and that are also identified in the SEIR, would minimize the potential for human contact with soils during the development of the Project Area. General soil handling and management protocols to be described in

the RMP include the adoption of health-protective criteria for all imported soil to be used in the landscaped areas, and restrictions on where native soil from within the Project Area may be placed. Additionally, the soil management protocols would describe the management and placement restrictions on soil stockpiles. Compliance with the soil handling and soil management protocols that are described in the SEIR on pp. VI.43-VI.44 and that are proposed to be contained in the RMP would minimize the potential for human populations to have direct contact with native soils.

Potential impacts to the construction workers engaged in the development of the Project Area, or other workers who may have direct contact with subsurface soils and/or groundwater would be minimized through compliance with the applicable Cal/OSHA worker safety regulations. Compliance with worker safety regulations, as described on pp. V.J.73- V.J.74, would also reduce potential hazards to non-construction workers and occupants because required site monitoring, reporting and other controls would be in place. Specific site access controls, described on pp. V.J.75 and VI.43, would be implemented during construction, and would minimize the potential for unauthorized personnel, such as visitors, or trespassers, to gain access to construction sites and come into direct contact with exposed soils. The RMP would also specify contingency monitoring, notification, and control procedures to be implemented if, and when, unknown areas of contamination are identified during the development of the Project Area. Compliance with the appropriate Cal/OSHA worker safety regulations and the contingency procedures would minimize potential impacts on workers and surrounding populations associated with the identification of unknown subsurface structures or areas of contamination because site personnel will be trained to recognize potential hazards, and will know how to respond to these hazards.

Additional management measures are described in the SEIR and would be discussed in the RMP to minimize the potential impacts associated with offsite transport of soil through surface water runoff. As discussed in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, in Measure J.1g on p. VI.44, and in more detail in Section VI.K, Mitigation Measures: Hydrology and Water Quality, Measure K.1 on pp. VI.45-VI.46, offsite transport of soil would be controlled through the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would be prepared in accordance with guidelines contained in the State's General Construction Activity Stormwater Permit and would be based on the Best Management Practices (BMPs) contained in the *Construction Activity Best Management Practices Handbook* (see pp. V.K.59-V.K.60 in Section V.K, Hydrology and Water Quality). Compliance with the SWPPP and implementation of the BMPs would control untreated discharges of stormwater runoff and sediments from the construction area into the nearby San Francisco Bay or China Basin Channel. As discussed on p. VI.44 in Measure J.1g (a project feature), the RMP would also identify protocols for managing groundwater, which would include measures to prevent unacceptable migration of contamination from defined plumes

during dewatering, and procedures for the installation of subsurface pipelines and other utilities, where necessary, to prevent lateral transmission of chemicals in groundwater.

Implementation of these management measures that are described in the SEIR and are planned to be presented in the RMP, would protect the current and future populations within and around the Project Area from the potential adverse impacts associated with project development.

Measures to Protect Human Health After Development of the Project Area is Complete

A quantitative human health risk assessment was prepared by ENVIRON to evaluate the potential human health effects associated with the post-development conditions in the Project Area. The risk evaluation is summarized on pp. V.J.82-V.J.90. Based on the specific development plans for the area, the risk evaluation assumed that all exposed soil locations would ultimately be covered with pavement, buildings, landscaping, or fill. Based on the land use plans for the Project Area, the populations who were evaluated in this risk assessment include: on-site and off-site retail and commercial workers; visitors to and shoppers at commercial and retail establishments; child care and school facility attendees; students, faculty and support staff of UCSF; onsite and offsite residents and park visitors. The risk evaluation concluded that the potential risks posed by the chemicals present in the soils and groundwater after project completion are below the applicable human health criteria and would not be significant.

As discussed on p. V.J.85, the analysis of post-development effects assumes that certain land use restrictions within the Project Area remain in place. The land use restrictions to be documented in the RMP include: covering of the Project Area; limitations on future development within the Project Area, specifying that no residences with unrestricted access to soil in single-family residences with front yards or backyards would be allowed; prohibition on the use of shallow groundwater; and the establishment of protocols for future subsurface activities by workers involved in maintenance, construction, or repair work.

Considering the intended uses of the Project Area, and the site management procedures that could accompany these uses, the risks posed by the environmental conditions following the development of the Project Area would not exceed applicable human health guidelines; the environmental conditions within the Project Area are appropriate and health protective for the intended use.

In summary, a detailed conceptual plan for managing the potential risks associated with the site conditions prior to, during, and after construction has been developed, and was approved by the RWQCB and the interagency Consultative Working Group (i.e., including representatives of DTSC

and the City of San Francisco) in the adoption of the RWQCB Resolution No. 98-044. The plan was based on information gained from extensive soil and groundwater testing in the Project Area, knowledge of existing and future land uses and populations, and identification and analysis of potential human health risks to existing and future populations from existing conditions and planned future activities associated with the project.

Comment

Section II, Page II.23, Contaminated Soil and Groundwater, Existing Conditions, Paragraph 1, last sentence. This sentence states that "As of April 1998, no state or local regulatory agency has indicated that remediation is necessary in other Project Area locations." As a clarification, DTSC believes that the project incorporates actions which would address any potential risk to human health or the environment. It is our understanding that the project incorporates the use of environmental restrictions and implementation of risk management plan(s) to achieve a permanent remedy in areas outside the free petroleum product area. Therefore, "remediation" will take place. The risk assessment included in the Technical Memorandum #4 indicates that there is not an acute risk (based upon a six month exposure period) and therefore immediate actions are not required. However, additional risk evaluation will be conducted as part of the Risk Management Plans to determine the need for implementation of remedial actions over the 20-year construction period. These actions could include vegetating vacant lots, fencing properties to prevent access, and/or covering open areas with asphalt or concrete. (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

Response

The sentence referenced in the comment is found in the "Existing Conditions" section in Chapter II, Summary, under "Contaminated Soils and Groundwater." The sentence was intended to refer to existing conditions in the Project Area, except for the area near 16th Street that is discussed earlier in the paragraph. In order to clarify this portion of the SEIR Summary, the last sentence in the first paragraph under "Existing Conditions" on p. II.23 has been revised to read:

> **As of April 1998, no state or local regulatory agency has indicated that current conditions require remediation ~~is necessary in~~ other Project Area locations.**

As discussed in Chapter II, Summary, under "Potential Effects of the Proposed Project," and in Section V.J, Contaminated Soils and Groundwater: Impacts, Risk Management Plans and deed restrictions would provide for "remedial" measures on exposed sites prior to development and during development of individual sites, if such measures are determined to be necessary based on risk evaluations.

Construction Dust Effects

Comments

The technical documents state that absent control measures, construction related dust could have an impact on terrestrial and avian wildlife, as well as potential exposure to aquatic organisms through deposition of particulates onto surface water bodies. This is not considered a significant impact because:

> "current and future conditions within the Project Area do not provide habitat capable of supporting a significant terrestrial wildlife community. Further, although various avian species use the area around China Basin Channel (Mission Creek) for loafing and foraging, . . . the avian species would likely make use of foraging habitats, such as mudflats, over a large home range area, and would not be present in one foraging area for an extended period of time. . . .it is unlikely that avian species could be exposed to significant exposures of dusts, and the chemicals adsorbed to the dusts, during the construction of the project area."

Please note that there are currently two nesting gulls in Mission Creek, and this is a valuable salt marsh habitat for foraging birds and a protected nursery for several species of fish, including herring, pile perch, and anchovies. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

The technical documents state that absent control measures, construction-related dust will have an impact on terrestrial and avian wildlife. Because there's not supposed to be any wildlife there, this is not supposed to be a significant impact.

We do feel that this is a significant impact, and we'll be addressing that in our written comments. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

The comments suggest that construction-related dust could have a significant environmental effect on the aquatic and terrestrial environment.

The SEIR discusses potential dust-related effects on fish and wildlife on pp. V.J.72-V.J.73. Contrary to assertions in the comments that the SEIR bases its conclusion of no significant construction impacts on a statement that the Project Area supports no wildlife, the SEIR states that current and future conditions "do not provide habitat capable of supporting an *important* terrestrial [that is, land-based] wildlife community." The SEIR, on p. V.J.72, also states that "The potential impacts of construction-related dusts on the ecological environment could include potential *exposure to* terrestrial and avian wildlife. . ." [emphasis added]. As noted in Section V.L, Vegetation and Wildlife, on p. V.L.1, the Project Area supports only common, widespread terrestrial plant and animal species; there are no special status terrestrial species in the Project Area. This being the case, project construction dust could not cause significant impacts to special status terrestrial species.

The presence of some nesting gulls in or near the Channel would not change the basic conclusions about the potential significant effects of chemicals in soils in the Project Area during construction, because gulls are not rare, endangered, or threatened. The SEIR discusses factors that influence the potential exposure of foraging birds to construction-related dust on p. V.J.72. The SEIR also states, on p. V.J.72, that under uncontrolled conditions, there could be impacts on the aquatic environment from windblown dust deposition on nearby water bodies. However, the text goes on to explain that even without dust controls, the impact would not be significant because windblown dust would be dispersed over a wide area, with no one area receiving a significant amount of dust. As stated on p. V.J.73, "Thus, potential impacts on the aquatic environment from uncontrolled dusts blowing from the construction zone and depositing onto surface water would be less than significant, even if dust control measures were not implemented." Thus, fish and other aquatic species would not experience significant environmental impacts from construction dust. In addition, dust control measures are proposed to be included in the project, such as watering active construction sites at least twice daily; covering storage piles; sweeping paved access routes, streets, and construction parking areas; installing wind breaks and/or planting trees and other vegetation; and suspending excavation and grading on high wind days, as explained on p. VI.33 in Measure F.2 (a project feature).

Risk Management Plans (RMPs)

Public Review and Comment on RMPs

Comments

But in the EIR, all of the mitigation is in the form of RMPs or risk management plans, which, of course, are not the function of the EIRS.

So I think what we really need is to have those RMPs developed and done in an open process as quickly as possible so that we know what's going to happen and how is this going to be handled, especially during the development process.

Because this is a long-term development for the largest part of the time, what's going to occur is that you will have people living and working near open sites or near native soils which contain a high degree of toxics. And we are really concerned about how those are going to be handled and how those RMPs plan to protect the citizens over the long term. (*Jennifer Clary, Board of Directors, San Francisco Tomorrow*)

Contaminated Soils and Groundwater

Every reference to the long and short-term handling of soil and groundwater contamination in this document is coupled with the use of RMPs (Risk Management Plans). It seems clear that more than one RMP will be developed to cover all aspects of the project. However, this document neither gives a timetable for the adoption and implementation of the RMPs, nor gives any clear idea as to how many will be required and what each one will cover. We think that the RMPs should have been

developed and circulated with the EIR. If that is no longer possible, they should still have the same circulation and comment process as the EIR, and certification of the EIR should be contingent on adoption of the RMPs. The final EIR should also include a table listing the RMPs that are developed for the project. (*Jennifer Clary, Mary Anne Miller, Norm Rolfe, San Francisco Tomorrow Mission Bay Committee*)

The Absence Of A Risk Management Plan At This Time Makes It Impossible To Fully Comment On The SEIR.

RMP should already have been prepared and submitted to RWQCB staff. The Summary alone takes a number of pages to describe what the drafters expect the RMP to include, indeed it is the primary proposed mitigation measure for the potential risks posed by contaminants found in the soils at the Mission Bay project site. Vol. I at II.24 [pp. II.23-II.24 in the Final SEIR]. There is no reason for the RMP not to be available at this time. The review of the RMP by Regional Board staff is not subject to formal public comments. Not having this critical document available at this time means that the interested public will not have an opportunity to comment on this critical component of the proposed risk management at the Mission Bay site. The CEQA analysis should await the preparation of the RMP. (*Michael R. Lozeau, Executive Director San Francisco BayKeeper*)

As a result of Dr. Kohler's review, and information provided by Steve Morse, Chief of the Toxics Cleanup Division of the RWQCB, the Mission Bay CAC:. . .

2. Would like to have the ability to review and comment on the RMP(s) that are proposed for approval by the RWQCB, to ensure that public health, water quality, and the environment are protected before, during and after construction. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

Comments ask that the Risk Management Plan or Plans (RMP) proposed by Catellus be included in the SEIR, and ask for the number of Plans and the timetable for adoption and implementation. Other comments note that review of the RMP by Regional Water Quality Control Board staff would not be subject to formal public review and comment, and therefore request that the RMP be circulated for public comment in an open process either separately or prior to SEIR certification.

The SEIR contains a considerable amount of information about chemicals in the soil and groundwater in the Project Area, and substantially more than was available in the 1990 FEIR. The SEIR generally describes the expected contents of the RMP that are planned to be prepared to establish the detailed approaches to managing soils and groundwater before, during, and following construction in the Project Area in Section V.J, Contaminated Soils and Groundwater. Measure J.1, a project feature discussed on pp. VI.41-VI.45, contains a detailed description of required elements of the RMP, implementation of which will assure that impacts are less than significant. The entire text of the RMP is not necessary in the SEIR to inform this part of the decision-making process on the project. This level of detail would be available as specific development phases are proposed. In light of the

considerable information available about chemicals in soil and groundwater and the level of analysis in the SEIR, it is not expected that that detail would raise significant new environmental issues.

Separate from the Mission Bay SEIR process, the Regional Water Quality Control Board (RWQCB) staff has created a process for both interagency and public review of critical working documents for development of the Catellus- and city-owned portions of the Mission Bay Project Area, prior to making its recommendations to the Regional Board. For example, ENVIRON's February 4, 1998 *Site Investigation and Risk Evaluation Report, Mission Bay South of Channel* contains the data from the soil and groundwater investigation of Mission Bay South and an assessment of the human health and ecological risks posed by soil and groundwater in Mission Bay South. The data contained in this report has been shared with interested environmental groups in the summer of 1997, as it became available. BayKeeper, through its "Clean Waterfront Project," was an active participant in this process. After the February 1998 report was issued, the RWQCB staff 1) met with BayKeeper in April to discuss the contents and findings of the report, 2) met with BayKeeper again in a separate meeting to explain the fate and transport model and results, 3) shared with BayKeeper an early draft of the RWQCB staff report regarding the proposed approval of the completion of the investigation, the risk assessment, and of Catellus' proposed conceptual approach toward the management of soil and groundwater conditions in the Project Area, and 4) met three times with the interagency Consultative Working Group (including representatives of DTSC and the San Francisco Department of Public Health) established under the AB 2061 process to discuss the regulatory oversight and approval process. (The AB2061 processes is described on pp. V.J.48-V.J.49.) RWQCB staff also met several times with and provided information to the Mission Bay Citizen's Advisory Committee and its Toxics Subcommittee. The RWQCB held a public meeting on May 20, 1998, at which time public comment was accepted on whether the proposed resolution concurring with the Consultative Workgroup and RWQCB staff recommendation that the investigation of soil and groundwater for Mission Bay North and Mission Bay South is complete. The RWQCB adopted Resolution No. 98-044 on May 20 following the public hearing.

While a public hearing before the RWQCB on the text of the RMP is neither required nor proposed, the RWQCB staff will similarly solicit input from interested parties on the contents of the draft Risk Management Plan or Plans (RMP) for the Catellus and city-owned parcels in the Project Area. The interagency Consultative Working Group continues to meet to review and approve various documents, and the RWQCB staff plans to meet with interested members of the public (including representatives from The Regents of the University of California, BayKeeper, the Mission Bay Citizens Advisory Committee, and other interested members of the public who have previously expressed or newly express an interest in the RMPs) to explain the proposed Catellus RMP(s) and gather input prior to approval by the RWQCB staff./6/ Ultimately, a proposed environmental Certificate of Completion

under Section 25264 of the Cal. Health & Safety Code (which would be based in part on the protections provided by the RMP and in deed restrictions) is expected to be presented to the nine members of the Regional Board for their approval at a public hearing. Members of the public would have the opportunity for advance notice and public comments on that proposed Certificate of Completion, and to present testimony at the public hearing. No schedule has been established for this process.

No construction activities would take place until the RMP is approved by the RWQCB staff. To obtain a Certificate of Completion, the RWQCB would require an approved RMP and recorded deed restrictions./7/ It is not known whether there would be one RMP or several covering the Catellus and city-owned properties in the Project Area. Implementation would be carried out for each development phase on a site-by-site basis; predevelopment measures to the extent required (Measures J.1b and J.1c, which are project features) would be carried out as part of complying with the RMP and recorded deed restrictions, a prerequisite to obtaining the Certificate of Completion.

On p. II.25, the second sentence in the last paragraph has been revised to read:

> **Because the RMP is not yet completed and approved by RWQCB staff, this SEIR defines required features of the RMP that are necessary to reduce potential hazards to a less-than-significant level.**

Enforcement Procedures for RMPs

Comment

DTSC suggests that copies of the RMP(s) and environmental use restrictions be provided to the following City and County of San Francisco departments: Department of Public Health, Department of Public Works, and Department of Building Inspections for placement in their files. Therefore, if permits are requested in the future, staff can assist the RWQCB in ensuring that the work proposed is consistent with the RMP requirements. (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

Response

The suggestion that copies of the Risk Management Plan or Plans (RMP) be supplied to various city agencies to enhance enforcement opportunities is appreciated. Although the RWQCB will have primary enforcement authority over the RMP, as the lead agency under the AB2061 process, the City will have an enforcement role primarily through the Public Works Code Article 20 (Maher Ordinance) process. Article 20 currently includes review for compliance by the Department of Public Health prior to issuance of building permits by the Department of Building Inspection. Therefore, it

would probably be appropriate for these departments to have copies of the RMP or RMPs and of any property use restrictions. The RWQCB, in its May 20, 1998 approval of Catellus site investigation work, stated that it would require the RMP(s) to specify a framework for coordinating Article 20 compliance with other parts of the RMP(s). Thus it is expected that coordination between the City's role in overseeing Article 20 compliance and other features of the RMPs will be clarified as the RMP or RMPs are developed.

Applicability of RMPs to All Properties in Redevelopment Areas

Comments

Section II, Page II.26, Paragraph 1. Please clarify when a property owner of any portion of the Project Area would not have responsibility for property maintenance as this appears to limit who would be apprised of the RMP and its contents and who would be required to comply with its provisions. (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

General: When an RMP is being scoped and prepared for Catellus' property in Mission Bay South near 1900 Third Street, the 1900 Third Street LLC would like to be notified of its outcome if any of the impacts or risk management actions would directly or indirectly affect the use or developability of 1900 Third Street. (*R. Clark Morrison, Morrison & Foerster L.L.P., representing 1900 Third Street L.L.C.*)

Response

As noted in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, the analysis of Contaminated Soils and Groundwater impacts assumes preparation and implementation of a Risk Management Plan or Plans (RMP) for the Project Area as a feature of the project. One comment asks how the RMP that Catellus is developing will affect non-Catellus property. One comment questions the Summary discussion of the RMP, as it explains the applicability of the RMP. The sentence questioned (the second sentence in the third paragraph on p. II.25 of the Final SEIR [first paragraph on p. II.26 of the Draft SEIR]) has been revised to more clearly summarize Measure J.1a as follows: (Measure J.1a, a project feature, is in the "RMP Enforcement" subsection on p. VI.41.)

> **Deed restrictions would be recorded for all property, placing limits on future uses in the Project Area consistent with the provisions of the RMP, and ~~each owner of any portion of the Project Area with responsibility for property maintenance would be apprised of the RMP and its contents~~ current and future property owners would thereby be provided notice of these use restrictions and other requirements in the RMP and would be required to comply with ~~its~~ applicable provisions of the RMP.**

The deed restrictions included in this project feature are discussed on p. VI.41. As part of the project, Owner Participation Agreements are proposed between Catellus and the Redevelopment

Agency. As to the other property owners, the Redevelopment Plans provide that, as a condition to participation in redevelopment, that each private property owner enter into an Owner Participation Agreement. Owner Participation Agreements or other agreements between each property owner and the Redevelopment Agency would provide a vehicle to require all property owners to record deed restrictions for their property, providing all current and future property owners with notice of the RMP referenced in the deed restriction, whether or not the owners have property management responsibility. The deed restrictions would include use restrictions on the property based on the RMP for that property, would require property owners to inform occupants of the property of the RMP, and would inform property owners of the residual regulatory authority retained by the Regional Water Quality Control Board. The owner of 1900 Third Street therefore would be required to record a deed restriction for its property as a condition to an Owner Participation Agreement or other agreement between 1900 Third Street and the Redevelopment Agency. The 1900 Third Street owner would need to have an approved RMP from the Regional Water Quality Control Board (RWQCB) staff in order to record the deed restrictions. This RMP would be separate from and likely would be different than the RMP prepared by Catellus, based on the limited nature of the chemicals found in the soil on the 1900 Third Street site.

Catellus would develop a Risk Management Plan or Plans that would apply to its property and city-owned property in the Project Area. Prior to completion of the Catellus RMP, as discussed under "Public Review and Comment on RMPs," on pp. XII.210-XII.213, it is expected that the RWQCB staff will solicit input from interested parties on the draft RMP that Catellus is developing. Members of the public and interested property owners in or near the Project Area, including 1900 Third Street interests, may wish to notify the RWQCB staff of their interest in the Catellus Mission Bay RMP.

Metals in Groundwater

Comments

The environmental review underestimates the impacts of contaminated groundwater that is discharging into Mission Creek and San Francisco Bay. . .

The SEIR Does Not Adequately Analyze The Ecological Impacts Of Groundwater Contaminated With Heavy Metals.

There is no basis for the conclusion that heightened "attenuation" of metals in ground water occurs within 50 feet of the Bay but no where else at the site. Vol. II at V.J.45-46. The analysis claims to be conservative by not factoring in dilution of the ground water as it enters the Bay. Nevertheless, that is exactly what the analysis does by diluting the measured high concentrations of metals in the groundwater by a factor of 10 based on dilution by Bay water within the saturated 50 foot shoreline area. Polluted groundwater should be a significant concern.

As the SEIR asserts time and time again, metals are contributed to groundwater from sources scattered heterogeneously throughout the fill material in Mission Bay. Vol. II at V.J.36. Thus, it is little surprise that "a statistical analysis of upgradient versus downgradient concentrations of metals indicated that arsenic, barium, chromium, copper, lead, mercury, and nickel are not substantially higher downgradient than upgradient." Vol. II at V.J.37. Were the polluted groundwater to enter an area of clean fill, one would almost certainly observe a decrease in the quality of the groundwater as it moved through that clean fill. The fact that the groundwater stays contaminated as it moves across (indeed, the average increases slightly over that distance) the Mission Bay site means that there are constant sources of contamination to the groundwater maintaining the levels of metals measured in it. Id ("the source of metals detections in groundwater appears to be related to the fill materials placed in Mission Bay South"). That contaminated fill extends all the way into Mission Creek and the Bay. Vol. II at V.J.36; V.J.6-8; Figure V.J.1.

The groundwater is very polluted with heavy metals. Despite the fact that the SEIR's discussion of metals contamination of the groundwater at the site used an average of the data collected, the resulting numbers still show considerable cause for concern. Vol. II at V.J.45. If applied the maximum number available or the worst 90th percentile, likely would see exceedances of water quality standards even if the so-called attenuation were allowed to be factored in. In Mission Bay South, lead was measured as high as 370 ug/l with detections in 56 out of 105 samples (the water quality standard for lead is 5.6 ug/l). Copper was in 80 out of 105 samples with a high of 120 ug/l (standard for copper is 4.9 ug/l). Chromium had a high of 83 ug/l with detections in 80 out of 105 samples (the chromium standard is 11 ug/l). Nickel had the only perfect record with detections in 105 out of 105 samples with a high of 250 ug/l (water quality standard equals 7.1 ug/l). Zinc had a high of 700 ug/l with hits in 23 out of 105 samples (zinc standard is 58 ug/l). Lastly, mercury had a high of 1.5 ug/l with detections in 7 of 105 samples (standard for mercury is 0.25 ug/l). Although it is unclear what the SEIR is referring to when it says "chronic water quality criteria," the SEIR states that, for Mission Bay North, mercury and nickel concentrations are above "chronic water quality criteria" by factors of 5.6 and 3.1 respectively. Vol II at V.J.45. For Mission Bay South, copper, lead, mercury and nickel are above "water quality criteria" by factors of 2.9, 9.2, 5.4 and 1.8 respectively. Id.

Consistent with its treatment of other concerns raised by accumulated data at this site, the SEIR then goes about attempting to explain away those high concentrations. In this instance, the SEIR turns to Catellus' consultant's computer model which purports to calculate an attenuation effect which is believed to occur in the last 50 foot of groundwater and soil before it discharges into the open Bay. As Regional Board staff admitted at a meeting with the Regional Board discussing the attenuation issue, attenuation at the Mission Bay site is another word for dilution by tidal action within the last 50 foot of soil. No dilution should be factored into the analysis. Once the contaminated groundwater hits that tidal area, albeit within the last 50 feet of fill, it is in the hydrologic system of the Bay. The damage is done.

In addition, other efforts to write off the groundwater contamination, including the binding capacity of Bay muds (the sediments in Mission Bay are extremely polluted), the claimed partial damming of groundwater flows by the transport structures adjacent to Mission Creek (where then does the water go?) and the oftly repeated fact that there is no one spot causing the metals contamination, do not address the significance of the described problem.

In any event, BayKeeper would not propose some kind of pump and treat program for the type of groundwater contamination being discussed. BayKeeper does believe that if in fact the groundwater is

building up to some extent behind the transports, that it could feasibly be pumped to a treatment wetlands constructed to mitigate storm water pollution and provide a perennial source of fresh water to help support that system. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

San Francisco Baykeeper is very concerned that the toxics in the soil, particularly metals, leached in through the groundwater into Mission Creek and San Francisco Bay.

Mission Creek is already considered the second highest -- the second hottest -- toxic hot spot in the Bay by the Regional Water Quality Control Board.

This site investigation and EIR dismisses the problem of metals in various ways, but in reality that has been almost all of the 105 groundwater samples. The maximum concentration that they found is 370 micrograms per liter. The effluent limits set by the Regional Board, 5.6. So it's less, 6,600 times the number. Copper is found in 80 of 105 samples, again at high levels. Nickel at 105, 105 of zinc and other -- 105

These metals are leaching through the groundwater into Mission Creek where people are fishing and into the Bay where fish live and people are fishing. (*Leslie Caplan, San Francisco Baykeeper*)

Response

The comments express concerns that the SEIR underestimates the ecological impacts of metals in groundwater presently discharging into China Basin Channel and San Francisco Bay from the Project Area. The comments assert that evidence indicates the presence of constant sources of groundwater contamination at Mission Bay, and that testing indicates the groundwater is very polluted with heavy metals. Comments also raise questions about the effects on groundwater flow of the large box sewers that are located parallel to the north and south sides of the Channel.

Metals found in groundwater in the Project Area are appropriately considered background concentrations for the fill soils that comprise much of the Mission Bay Project Area; concentrations of metals in the groundwater remain essentially the same throughout the Project Area. Based on the tidal influence study performed by ENVIRON, concentrations of metals in groundwater near the Channel and Bay are expected to be attenuated by tidal fluctuations. As explained in the SEIR, the evaluation of existing ecological conditions shows that no unacceptable ecological risks result from the concentrations of metals in groundwater that is leaching into the Channel and the Bay. The transport/storage sewers that are located parallel to the edges of the Channel slow but do not stop groundwater flows, and so do not cause concentrations of metals in groundwater to increase or build up near the Channel edge. The ecological risk assessments used average concentrations of metals in groundwater based on samples from throughout the Project Area. The assessment approach is conservative, because the RWQCB's Water Quality Control Plan Water Quality Objectives, which were used as the basis for comparison, are designed to be compared to average concentrations at the point of exposure, that is, in the Bay and Channel, and not in the groundwater in Project Area soils.

Specific discussion is presented in the SEIR relating to site groundwater conditions and the effect of those conditions on China Basin Channel and the San Francisco Bay. General hydrogeologic conditions are discussed on pp. V.J.3-V.J.5, including discussion of groundwater and Channel/Bay water interaction. Discussion of groundwater conditions in Mission Bay North is presented on pp. V.J.20-V.J.22, and V.J.28-V.J.34. Discussion of groundwater conditions in Mission Bay South is presented on pp. V.J.34-V.J.41. The subsurface investigations completed by ENVIRON throughout the Mission Bay Project Area are summarized in the SEIR on the pages noted above, are cited in endnotes to Section V.J, Contaminated Soils and Groundwater, and are available for public review at Planning Department offices.

The adequacy and validity of ENVIRON's studies, including study of groundwater impacts on marine ecosystems, were confirmed by an independent credentialed environmental scientist, Dr. Martha Kohler, retained by the Mission Bay Citizens Advisory Committee (CAC). Dr. Kohler's concurrence with the study of chemicals in soil and groundwater in the Project Area was presented at the public hearing on the Draft SEIR held on May 12, 1998, before the San Francisco Redevelopment Agency and the City Planning Commission, as stated by Corinne Woods, Chair of the Toxic Subcommittee of the Mission Bay CAC. Additionally, the Regional Water Quality Control Board (RWQCB) in its Resolution No. 98-044 found that the Project Area's investigation of soil and groundwater was satisfactory and complete. Support for the adequacy of the review effort was provided by the California Department of Toxic Substance Control (DTSC) and the San Francisco Department of Public Health, both of which acted with the RWQCB in consultative work groups concurring that the studies were adequate and complete. In conclusion, the environmental evaluation presented in the SEIR thoroughly and adequately describes the existing setting, including the potential impacts that may be occurring, and that may occur with the project, from the flow of groundwater from the Project Area into China Basin Channel and San Francisco Bay.

The occurrence and significance of metals in both soil and groundwater in the Project Area were presented and discussed in the SEIR on pp. V.J.20-V.J.41 and V.J.45-V.J.46. Discussion of attenuation (reduction) of metals concentrations in groundwater as the groundwater approaches China Basin Channel and San Francisco Bay was presented on pp. V.J.3 and V.J.4 of the SEIR. The lack of ecological impact was discussed on pp. V.J.45-V.J.46. It is important to understand the approach to analysis of attenuation in order to understand what concentrations of metals in groundwater actually enter the marine ecosystem and whether they could potentially create an adverse impact. The attenuation process was further explained in a May 12, 1998 letter submitted to the RWQCB by ENVIRON prior to the Board's adoption of Resolution No. 98-044 on May 20. In the RWQCB staff report in support of the proposed resolution, the RWQCB staff concurred with the ENVIRON evaluation and findings regarding metals occurrence, migration, attenuation, and lack of ecological

impact. The Board, in its Resolution No. 98-044, formally concurred with its staff and with the public agencies that make up the Consultative Work Group (mainly the California Department of Toxic Substances Control and the San Francisco Department of Public Health). Dr. Martha Kohler, technical consultant for the Mission Bay CAC, also concurred that the evaluation of ecological impacts was adequate and supported the conclusion that there were no unacceptable ecological risks posed by the migration of dissolved metals in groundwater as it flows into China Basin Channel or San Francisco Bay, as noted above.

The following text is from ENVIRON's May 12, 1998 letter to the RWQCB regarding the same issues raised by comments on the Draft SEIR. It elaborates on the information and conclusions presented in the Draft SEIR.

> BayKeeper's position appears to stem from a misunderstanding about the attenuation of metals in ground water at Mission Bay. The reduction (or attenuation) of metals concentration as the ground water moves across the Site must be distinguished from the reduction (or attenuation) of metals concentration in ground water adjacent to the Bay. First, contrary to BayKeeper's assertion, the metals detected in the fill soils at the Mission Bay Project Area represent background concentrations for fill soils at the Mission Bay Project Area. Background concentrations for metals in fill soils at the Project Area are elevated for nine of the metals analyzed when compared to background metals concentrations reported for native California soils as presented by Dragun and Chiasson (1991). [Citation is to Dragun, James and Andrew Chiasson, *Elements in North American Soils*, Hazardous Materials Central Resources Institute, 1991.] However, native California soils do not represent background conditions for fill soils at the Project Area. Background metal concentrations for the Mission Bay Project Area reflect the origins of Mission Bay fill soils. The fill soils at the Mission Bay Project Area come from debris from the 1906 San Francisco earthquake, dumping operations conducted by the City of San Francisco at the turn of the century, and transfer of soils from various other parts of San Francisco during its early stages of development. Metals within fill materials of the Mission Bay Project Area illustrate no particular geographic pattern of occurrence and are widely detected, both which support the conclusion that metals within the fill soils are likely associated with the composition of the fill resulting from the history of the Site's development and use. The observation that nine of the metals being detected within Mission Bay Project Area fill soils are elevated relative to native soils is worth noting but the observation does not change the central conclusion that metal occurrences within fill soils at the Project Area are a background phenomenon.[2]
>
> Second, contrary to BayKeeper's assumptions, metal concentrations in ground water that flows through the fill materials of the Project Area stay essentially the same across the Project Area. The constant metal concentrations in ground water that flows across the Project

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2. BayKeeper's comparison of certain detected metals concentrations to hazardous waste regulatory limits (e.g., the "WET Test") is relevant only for Maher Ordinance [San Francisco Public Works Code, Article 20] compliance and potential offsite movement of soil. The relevant standards to determine ecological impact are the RWQCB's Water Quality Objectives.

Area suggest that there is no significant contribution of metals to ground water from a major source area within the Project Area and no net gain of dissolved metals as ground water flows across the Project Area. As presented in ENVIRON's investigation reports (ENVIRON 1997, 1998a, 1998c), metal concentrations in ground water do not become lower as water flows across the Project Area. [Citations are to the ENVIRON 1997 Mission Bay North Report cited in SEIR end note 4 on p. V.J.100, the 1998 Mission Bay South Report cited in SEIR endnote 2, on p. V.J.100; and Technical Memorandum No. 3 cited in SEIR endnote 5, on p. V.J.100.] This is because the ground water is in constant contact with the fill materials, which are the source of the metals being detected in the ground water. The pattern of metals detected in ground water at the Project Area indicates that the origin of the metals in ground water is the ubiquitous fill materials through which the ground water must flow at the Site. Conversely, if the source of metals in ground water were an isolated source area (or several isolated source areas), metal concentrations would decrease as water flowed away from that isolated source area(s). This pattern is not observed within the Project Area, indicating that the origin of metals in ground water is the desorption of metals from fill materials that cover the Project Area.

Third, the critical issue is whether the metals concentrations in ground water are attenuated (reduced) sufficiently as the ground water approaches China Basin Channel and the San Francisco Bay. The answer to that question is yes. This attenuation is caused by tidal fluctuations within each of these surface water bodies and occurs solely within the ground water system before the ground water enters the Channel or the Bay. The tidal influenced attenuation process has been described in detail in the Site Investigation and Risk Report, Mission Bay South of Channel (ENVIRON 1998a) and in Technical Memorandum #3, North of Channel Screening-Level Ecological Risk Evaluation, Mission Bay Project Area (ENVIRON 1998c). [Citations are to 1998 Mission Bay South Report cited in endnote 2 on p. V.J.100 in the SEIR, and to Technical Memorandum No. 3 cited in endnote 5 on p. V.J.100.]

Quantification of the attenuation of metals in the ground water as ground water approaches the China Basin Channel and the Bay was completed using a published and peer-reviewed predictive model. The peer-reviewed, predictive model simulates how the tidal fluctuations in a surface water body, like the Bay or China Basin Channel, cause water elevations within the adjacent ground water systems to rise and fall resulting in the attenuation and reduction of ground water chemical concentrations through processes of dilution, dispersion and sorption. Depending on the permeability of the adjacent ground water system, the tidal effect will extend from a few tens of feet to over a hundred feet inland from the shoreline. As the surface water levels rise, water flows into the channel bank causing ground water levels to also rise. When surface water levels then decline, water stored in the channel bank drains back to the surface water body.

This process substantially reduces the concentration of chemical constituents in the ground water before the ground water enters the Bay or Channel. The interaction of surface water with the ground water system occurs in the area where the tidal influence is pronounced. For the type of soils present at the Mission Bay Project Area, this includes areas within 50 feet of the shoreline.[3] The quantification of the attenuation as ground water approaches the San Francisco Bay and the China Basin Channel was estimated on a one-dimensional basis and is conservative because it does not allow for lateral dispersion, dilution

or sorption that occur in a three-dimensional system. If full three-dimensional mixing and attenuation were taken into account, the attenuation factor and the associated reductions in ground water chemical concentrations would be greater than the ten-fold reduction obtained.

In short, none of the discharge concentrations of metals in ground water at the Mission Bay Project Area evaluated by ENVIRON exceed any Water Quality Objective (CRWQCB 1995) at either the China Basin Channel or the Bay and the metals concentrations in ground water do not pose a threat to the aquatic ecosystem. [Citation is to the RWQCB 1995 Water Quality Control Plan, San Francisco Bay Plan (Region 2).] The comparison of discharge concentrations to Water Quality Objectives was done without taking any dilution within the receiving water body into account.

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3. In the North of Channel Area, soils are less permeable adjacent to China Basin Channel which results in tidal fluctuations occurring less far inland, thereby causing the attenuation process to occur closer to the shoreline than in areas with higher permeable soils.

As stated on p. V.J.3, groundwater flows from the Project Area into China Basin Channel. This occurs both north and south of the Channel. The transport/storage sewers are described on pp. V.J.4-V.J.5, where the SEIR states that these large sewers appear to impede the flow of groundwater to China Basin Channel. The presence of the sewers on the north and south sides of China Basin Channel appear to impede the flow of groundwater because of their large size and their close proximity to the sides of the Channel. Although the groundwater flow is impeded by these structures, the flow is not stopped. Rather, the groundwater flows around the structures, which merely increases the time that it takes for groundwater to reach China Basin Channel from the Project Area. As stated in the SEIR, since the box sewers impede, or slow, the movement of the groundwater to the China Basin Channel but do not stop the flow, they do not appear to play a role in reducing the concentration of chemicals in the groundwater (pp. V.J.4-V.J.5).

The SEIR does not state that there is a "build up of groundwater" behind the large sewers. Groundwater elevations in wells in the Mission Bay North area are no more than 1 foot different in wells adjacent to and on either side of the sewer. The lack of a marked difference in water levels on either side of the sewer indicates that a "build up" is not occurring. These data were presented in ENVIRON's 1997 study of the North of Channel Area./8/ In the Mission Bay South area, wells exist only on the upgradient side of the box sewer. Water level elevations in the wells directly upgradient of the box sewer south of the Channel had measured water levels that were no more than 1 foot above mean sea level as shown in Figure 4-1 of ENVIRON's 1998 study of the South of Channel area./9/ Groundwater elevations on the upgradient side of the sewer are so close to mean sea level that there is no support for a conclusion that a "build up" of groundwater is occurring behind the box sewer south of the Channel.

Although the structures appear to slow the general flow of groundwater, this does not result in any type of hydraulic "build up" behind them, because the groundwater finds other ways around and under the sewers. Consequently, no pumping of this water is necessary or appropriate.

The text on p. V.J.4, in the next-to-last sentence in the last paragraph, has been revised to clarify this issue, as follows:

> **These box sewers appear to impede or slow the general flow of groundwater toward the Channel by reducing the amount of groundwater that enters the area between the box sewers and the Channel edge; they do not stop the flow, rather, groundwater flows around the sewers to the Channel.**

The comment seems to be concerned that the ecological risk assessment evaluated risks to aquatic organisms based on a comparison of the average concentration of metals in the groundwater to the water quality standards instead of using the maximum values, or the worst 90th percentile of the data. In situations when there is very little monitoring data, the use of either the maximum or 90th percentile of the distribution might be a reasonable approach. This would build an added level of conservatism into the assessment that would be appropriate under those situations, because a limited data set would be insufficient to provide an understanding of the levels of chemicals that may actually be present and to which the aquatic organisms might be exposed.

In designing the sampling approach for the Project Area, however, enough samples were collected to provide reasonable understanding of the source of the metals, and the levels to which organisms could be exposed. Because of the large data set for the Project Area, and the indications from the data that the source of the metals in the groundwater is the fill material, the average concentration was deemed to be a more accurate estimate of the concentrations to which the organisms in the China Basin Channel and San Francisco Bay may be exposed. This analysis is sufficiently conservative even when based on the average concentration because: 1) the large data set for the Project Area provides a solid foundation for understanding the levels of chemicals that may actually be entering the China Basin Channel and the San Francisco Bay; 2) the RWQCB Water Quality Control Plan Water Quality Objectives (WQOs) to which the comparisons are made are designed for comparison against average chemical concentrations; and 3) the WQOs are designed for comparison to chemical concentrations at the points of exposure, in the Bay or Channel, not in the ground water. Had an evaluation of these potential impacts been necessary with a limited understanding of the levels of metals in the groundwater, there would have been few options other than relying on more conservative estimates of the potential exposure concentrations.

The "chronic water quality criteria" referred to in the comment that are used in the ecological risk evaluation are the chronic water quality objectives published in the RWQCB's Water Quality Control Plan for the San Francisco Bay (known as the "Basin Plan"). A discussion of the WQOs used in the ecological risk evaluation is provided in Appendix I on p. I.57.

A discussion of the Channel's potential designation by the RWQCB as a toxic hot spot is provided in responses in Hydrology and Water Quality, under "Designation of China Basin Channel and Islais Creek as Toxic Hot Spots," on pp. XII.327-XII.333.

Permeable Surfaces Post Development

Comments

Section II, Page II.25, Long-Term Occupancy (Post-Development), paragraph 1, sentence 3. This sentence is unclear in that landscaping is generally not considered a "partially impermeable surface." (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

To the extent some environmental concerns relating to storm water and CSOs would include mitigations involving permeable surfaces throughout the Mission Bay project, a potential conflict exists between the asserted health risk benefits of "permeable and partially impermeable surfaces" and potential benefits of permeable areas in order to mitigate overflows and storm water pollution discharges. Because the mitigation measures are not specified, no way to seriously discuss the extent of permeable surfaces. Vol. I at II.25. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

Comments request clarification of the term "impermeable or partially impermeable surface" in Chapter II, Summary, because landscaping is generally not considered a "partially impermeable surface."

After development is complete, the Project Area would be covered by buildings, structures, parking areas, roadways and parks and landscaping. This description of the post-development conditions is provided on p. V.J.86. The areas that would be landscaped would not consist of either "impermeable or partially impermeable surfaces," as was stated in the Draft SEIR's Summary on p. II.25. Survival of the plants/grass in the landscaped areas requires some permeable surface so that the plants can receive water. The landscaped areas, however, would be covered with imported fill before landscape plants are installed; the minimum depth of the fill that would be required in the landscaped areas, and the specific standards for the fill would be determined at a later date, and will be delineated in the RMP. The post-development conditions, therefore, would consist of both impermeable and permeable surfaces. The third sentence in the first paragraph on p. II.25 has been revised to read as follows:

After development, currently exposed soils would be covered by buildings or other surfaces such as parking lots or roadways ~~or other impermeable or partially impermeable surfaces (e.g., landscaping)~~, or would be open space or landscaped areas, and any exposed soils would consist of imported fill meeting RWQCB approved specifications.

The critical conceptual issue is that after development of the Project Area is complete, all currently exposed native soils would be covered so that people would not come into direct contact with the native soils. The health benefit of the post-development conditions results from the fact that future conditions would preclude direct contact with currently exposed native soils, not from any distinctions between whether the cover would be permeable or impermeable. For all practical purposes, a cover that is permeable, as would exist in the landscaped areas, would provide the same benefit to people and to birds and wildlife as a cover that is impermeable, because both would be effective in eliminating the potential for direct human contact with native soil.

Page II.25 does not discuss the use of permeable areas for stormwater overflows. The SEIR notes in the discussion of alternative wastewater treatment technologies on p.V.K.28 that stormwater infiltration would have limited utility because groundwater levels are relatively high in the Project Area, leaving limited ability to accept stormwater.

Soil and Groundwater Mitigation Measures

Comments

As a result of Dr. Kohler's review, and information provided by Steve Morse, Chief of the Toxics Cleanup Division of the RWQCB, the Mission Bay CAC:

1. Strongly urges that Mitigation Measures outlined in the DEIR for Contaminated Soils and Groundwater (J.1 - J.2) be accepted and implemented as soon as Risk Management Plan(s) (RMP) are approved by RWQCB. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

As a result of Dr. Kohler's review and information provided by Steve Morse, chief of the toxics cleanup division of the Regional Board, the toxic subcommittee and CAC recommend that mitigation measures outlined in the EIR for contaminated soils and groundwater in Section J, items J-1 through J-2, be accepted and implemented as soon as risk management plans are approved by the Regional Board. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

As stated on p. VI.41 in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, the project analysis assumes that a Risk Management Plan or Plans would be prepared for the Project Area. The project features listed under Measures J.1 and J.2 are included in the project. As noted

on pp. XII.210-XII.213, under "Public Review and Comment on RMPs," no schedule has been established for RWQCB staff approval of the RMP or RWQCB consideration of a Certificate of Completion. Timing of implementation of the features in the RMP would depend on the kinds of activities being undertaken in the Project Area. The pre-development features listed in Measures J.1b and J.1c would take place after the RMP is approved by RWQCB staff and prior to development. The RWQCB has indicated that to obtain a Certificate of Completion, the RMP or RMPs must be approved by staff and deed restrictions recorded. Once recorded, the owner would be obligated to comply with the deed restrictions, including any applicable RMP measures. Features of the project included in Measures J.1i - J.1o would be applicable following build-out of the entire Project Area.

Mitigation for Avian and Aquatic Environment

Comments

As a result of Dr. Kohler's review, and information provided by Steve Morse, Chief of the Toxics Cleanup Division of the RWQCB, the Mission Bay CAC:. . .

4. In conjunction with China Basin Channel Vegetation and Wildlife Mitigation Measures L.1 - L.6, would like mitigation measures to ensure that RMPs protect the avian and aquatic environment and assist with successful establishment of native wetland salt marsh vegetation. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

And in conjunction with the China Basin Channel vegetation and wildlife mitigation measures, L-1 through L-6, we want to ensure the risk management plans protect the avian and aquatic environment and assist with successful establishment of native wetland salt marsh vegetation. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

The comments request that there be mitigation measures to ensure that the Risk Management Plan or Plans (RMP) protect wetland salt marsh vegetation, and avian and aquatic species in water bodies near the Project Area.

Vegetation and Wildlife Mitigation Measures L.1 and L.2 address wetland salt marsh habitat mitigation. Restoration of salt marsh habitat is not the primary intent of the Risk Management Plan or Plans (RMP); however, several of the RMP features to be implemented as part of pre-development, development (construction), and post-development actions, and listed in J.1a through J.1o in "Project Features That Avoid Significant Impacts" included in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, would provide controls that would help achieve and maintain the successful establishment of native wetland salt marsh vegetation. For example, as indicated in J.1g and J.1h, controls would be in place during construction and occupancy to manage surface runoff and groundwater to minimize the potential, if any, to be discharged to the ground or to

surface water within the Project Area. These controls would protect any salt marsh habitat. During construction, dust controls would be implemented (J.1f) to limit the levels of fugitive dust so that human and ecological populations would not be adversely affected by contaminants in dust. After development, areas where uncovered soils previously existed would be covered by buildings or other surfaces such as parking areas and roadways, or by open space and landscaping (Measure J.1i). In addition, prohibitions on the use of shallow groundwater, limitations on residential access to soil, and establishment of protocols for subsurface maintenance work, construction, or repair (J.1m-J.1o) would effectively preclude actions that could result in the inadvertent release of contaminated soil or discharge of groundwater or surface water to locations where it could adversely affect wetland salt marsh habitat mitigation efforts. Thus, the RMPs would provide the necessary controls that would work in conjunction with Mitigation Measures L.1 and L.2 to ensure that the salt marsh mitigation efforts would be successful. No modification of the "Project Features That Avoid Significant Impacts" J.1a through J.1o or additional mitigation would be necessary.

Vegetation and Wildlife Mitigation Measures L.3 through L.6 were developed to reduce potential impacts on certain aquatic species in China Basin Channel (or, with respect to Pacific herring, in San Francisco Bay) as a result of increased turbidity due to construction activities within the water body (as opposed to construction on land). The need for mitigation during construction was not identified for avian species because there would be no significant impacts, as discussed in Section V.L, Vegetation and Wildlife, and as further noted on p. V.J.72. (See also the response under "Construction Dust Effects," on pp. XII.209-XII.210.)

The analysis of potential construction-related soil and groundwater contamination impacts on avian and aquatic species assumes that the RMP would be implemented during and after development (p. V.J.59). As further stated on p. V.J.64, the RMP would reduce exposure of people, terrestrial, *avian, and aquatic* [emphasis added] organisms to potential construction-related effects. Additional mitigation beyond that assumed as part of the project is not determined necessary because the project features described in the SEIR adequately address significant impacts. To ensure that contaminants from the project site would not enter China Basin Channel or San Francisco Bay (where they could adversely affect the aquatic community) or otherwise affect onshore or offshore avian species, the RMP includes a number of measures (described above) that would reduce the potential for dust and runoff that could contain contaminants from entering these water bodies or from being carried to other locations where aquatic or avian species could be exposed to the contaminants. Therefore, the RMP would protect avian and aquatic species during construction, as suggested in the comments.

Dust Control

Comments

Page VI.44, Item J.lf.v. Please specify the applicable Bay Area Air Quality Management District criteria and/or standards which must be met.

Page VI.44, Item J.lf.v. Please specify the source of the 250 ug/m^3 value above which additional dust control measures would need to be implemented. Please also specify where this value would be applied (e.g., in the construction zone, at the downgradient boundary of the specific construction project, at the property line of the nearest occupant). (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

In addition to the wildlife, we are concerned about the health of the human species living on Mission Creek, and feel that substantial dust control measures are appropriate and should be incorporated in the mitigation measures for Mission Bay. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

The comments request additional information and clarification of information pertaining to the dust control measures.

The SEIR discusses the effects of construction-generated dust on pp. V.J.68-V.J.73. Information in the SEIR is based on various background reports and health risk assessments prepared for the project. Health risks were discussed for humans and for the ecological environment, including terrestrial wildlife and aquatic environments.

A detailed description of human health risk assessment procedures and assumptions is presented in Appendix I, Contaminated Soils and Groundwater. As described on p. I.63, the assumption that nearby populations would be exposed to off-site dust concentrations of 250 micrograms per cubic meter ($\mu g/m^3$) was based on several conservative assumptions. First, each receptor was assumed to be exposed for a 20-year construction period, longer than the approximately 17-year buildout period through 2015. Second, the on-site dust concentration directly within the construction zone during dust-creating activities was assumed to be 1000 $\mu g/m^3$ based on a review of scientific literature and on recommendations from the Department of Toxic Substances Control. Dust-generating construction activities were assumed to occur for 25 percent of the total construction period; that is, during construction of a building, it was assumed that for 25 percent of the time equipment would be grading, excavating, or otherwise disturbing the soil on the site. Thus, the average level of PM_{10} in ambient air to which nearby residents (defined as populations directly adjacent to the construction zone) would be exposed each year, for a 20-year period was assumed to be 250 $\mu g/m^3$. As explained

on pp. I.63-I.64, this value is considered to be extremely conservative; the actual concentrations to which an individual could be exposed would likely be much lower. The dust monitoring plan, therefore, would be devised to verify that dust levels to which nearby receptors could be exposed remain below 250 $\mu g/m^3$.

As described on p. V.J.51, the applicable BAAQMD standard which would apply to construction dust is Regulation 6-305 which prohibits visible particles from annoying off-site individuals. In addition to this regulation, the BAAQMD CEQA guidelines recommend dust control measures which should be implemented to prevent significant air quality impacts./10/ These dust control measures are included as project features in Measure F.2, on p. VI.33. The dust control measures listed in Measure F.2 would protect human and ecological health and minimize construction dust impacts on the surrounding environment.

In addition to the mitigation measure for construction generated dust, the SEIR includes Measure J.1c which would minimize dust impacts prior to development of the site (see p. VI.42), if necessary. This project feature establishes interim risk management measures to reduce potential contamination-related risks to Project Area occupants and visitors from undeveloped sites during build-out. In particular, J.1c.ii, calling for use of hydroseeding or other vegetative cover to be applied to uncovered areas, is intended to reduce windblown dusts from these sites if it is determined that chemicals present in dust blowing from uncovered areas represent an unacceptable risk to human populations.

The analysis in the SEIR determined that any potentially significant dust impacts from chemicals present at undeveloped sites would be effectively mitigated through the risk management measures identified in Section VI.J, Mitigation Measures: Contaminated Soils and Groundwater, on pp. VI.42-VI.43. These measures include periodic inspection to verify that risk management measures such as fencing and vegetative cover remain in place.

CalOSHA Requirements

Comment

Page VI.43, Development, J.1d. The RMP should require compliance with Cal/OSHA regulations rather than including them in the RMP as objectives. (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

Response

Regardless of whether the RMP calls for including Cal/OSHA compliance as an objective or a requirement, OSHA regulations would be applicable to development activities in the Project Area. The intent of Measure J.1d was to include health protection for construction workers who may come into contact with chemicals in soil or groundwater, particularly as-yet unidentified chemicals in soils under existing buildings or near sites of unidentified old or abandoned underground storage tanks, as discussed on p. V.J.80. The mention of Cal/OSHA worker safety regulations in Measure J.1d is merely to acknowledge the applicability of these requirements.

UCSF and Article 20 of San Francisco Public Works Code

Comment

Page II.25, section II, Paragraph 2 [p. II.24, last paragraph, in the Final SEIR] and Page V.I.3, Paragraph 2. Please clarify whether UCSF is subject to the Maher Ordinance as the first sentence states that UCSF is subject to state and federal regulations, but not local regulations, except where state and federal agencies have specifically delegated oversight authority to local agencies. Compliance with the Maher Ordinance requirements is being used to ensure that the areas impacted by a proposed development project within the Mission Bay project area have been sufficiently investigated, evaluated and addressed. The investigation conducted to date is sufficient to provide general information about the project area. (*Barbara J. Cook, P.E., Chief, Northern California - Coastal Cleanup Operations Branch, Department of Toxic Substances Control, California Environmental Protection Agency*)

Response

Article 20 of the San Francisco Public Works Code is discussed on p. V.J.51, under "Regulatory Framework." As noted there, in designated areas, applicants for San Francisco building permits for which construction activities would involve disturbance of 50 cubic yards of soil must carry out assessments of the soil for the presence of hazardous waste, and where hazardous wastes are found, must prepare and implement a site mitigation plan. The Regional Water Quality Control Board, in adopting Resolution No. 98-044, called for the RMP(s) to include a framework for coordinating Article 20 compliance with other parts of the RMP.

Although UCSF, as a state agency, would not obtain building permits from the San Francisco Department of Building Inspection and thus is not subject to Article 20, the land transfer agreements between Catellus and UCSF indicate that UCSF would abide by city procedures that are applicable to Catellus related to chemicals in the soil and any necessary remediation./11/ The agreement includes provisions that call for Catellus to carry out the requirements of the Risk Management Plan related to pre-development or remediation activities and the requirements of Article 20. Article 20 requirements could include preparation of site history reports, soil and groundwater sampling and chemical analyses, review with the San Francisco Department of Public Health of any proposed remediation

plan, and execution of any remediation actions called for in a remediation plan based on the results of the tests, prior to transferring parcels to UCSF.

Except for tasks reserved to Catellus, provisions in a remediation plan prepared pursuant to a provision of the RMP related to construction activities would be carried out by UCSF or its construction contractors, and UCSF would be responsible for implementing the Health and Safety Plan and all post-construction measures specified in the RMP. Catellus would be responsible for implementing measures required by the approved RMP that are to be implemented before or during construction at initial permanent buildings, any ongoing or continued soil or groundwater treatment and groundwater monitoring required to obtain RWQCB final site clearance to comply with the RMP extending into the post-construction period, and related ongoing government oversight. In addition, UCSF has adopted measures such as the dust control measures recommended by the BAAQMD in its Long Range Development Plan FEIR which are the same as or similar to those listed in Measure F.2 on p. VI.33.

If UCSF were to request early transfers of land from Catellus, UCSF has agreed that it would be primarily responsible for complying with the provisions of the RMP and therefore with the requirements of Article 20 incorporated into the RMP, with certain exceptions that will remain the responsibility of Catellus.

As noted in earlier responses, under "Public Review and Comment on RMPs," on pp. XII.210-XII.213 the Regional Water Quality Control Board adopted Resolution 98-044, endorsing staff recommendations that include a requirement to provide a framework for Article 20 compliance in the RMP. Although UCSF would generally be exempt from the provisions of local ordinances like Article 20, as a property owner UCSF would be subject to recorded deed restrictions incorporating provisions of the RMP, enforced by the RWQCB, that would include implementation of Article 20. This mechanism, along with the contractual agreements between Catellus and UCSF, would ensure compliance with the Maher Ordinance on the UCSF site in Mission Bay.

NOTES: Contaminated Soils and Groundwater

1. ENVIRON International Corporation, *Technical Memorandum #1, Approach to a Plan for Risk Management, Mission Bay Project Area*, April 1998, Section 6.2.1.1, page 6-4.

2. ENVIRON International Corporation, *Site Investigation and Risk Evaluation Report, Mission Bay South of Channel, San Francisco, California*, April 1998.

3. ENVIRON International Corporation, *Site Investigation and Risk Evaluation Report, Mission Bay South of Channel, San Francisco, California*, April 1998, Appendix F, p. F-23.

4. Department of Toxic Substances Control, *Supplemental Guidance for Human Health Multimedia Risk Assessments for Hazardous Waste Sites and Permitted Facilities*, Sacramento, California. July 1992.

5. U.S. Environmental Protection Agency, *Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part A). Interim Final,* Office of Emergency and Remedial Response, EPA/540/1-89/002, Washington, D.C. December 1989.

6. Vic Pal, RWQCB staff, telephone conversation with ENVIRON Corporation, July 14 1998.

7. Regional Water Quality Control Board, Resolution 98-044, paragraph 5, adopted May 20, 1998.

8. ENVIRON International Corporation, *Results of Investigation, Mission Bay North of Channel*, April 1997, pp. 3-2 to 3-3, Section 3.1.2.

9. ENVIRON International Corporation, *Site Investigation and Risk Evaluation Report, Mission Bay South of Channel*, February 1998, Figure 4-1 and Section 4.1.2, pp. 4-2 to 4-3.

10. Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines*, 1996, p. 27.

11. Michelle Schaefer, Environmental Coordinator, University of California San Francisco, telephone conversation with EIP Associates, July 14, 1998.

HYDROLOGY AND WATER QUALITY

Background Regarding Existing Combined Sewer System

Comments

Comment #1: Require Further Investigation on Environmental Impact Prior to Making a Decision on the Sewer System and Its Impact on Water Pollution in the Bay.

BAOC has concerns that the proposed wastewater plan for Mission Bay will overload the City's sewer system and pollute Bay waters. The Southeast Treatment Plant is already strained. To add more wastewater and sewage to this plant would result in overflow into the Bay. This could cause great environmental damage. (*Joe Beresford, Chair, Homeownership Committee, Bay Area Organizing Committee; St. Theresa Church*)

We are also concerned about the cumulative effects from the cumulative, massive development on the City's bayside, on generating a renewed call for the Crosstown Tunnel as a way of mitigating the problems generated by the "Bayside Discharges." We are therefore very interested in seeing a full-fledged cumulative study of the impacts of these projects.

We see the cumulative development as a critical opportunity for the City to reduce wastewater impacts to Bayview/Hunters Point and the Bay, improve the Bayside waterfront, advance the City's use of reclaimed water, move towards the City's goals for sustainability, and by doing so obviate a later call for the Crosstown Tunnel, and make good on its 25 year promise to alleviate the negative impacts of the wastewater system on Bayview/Hunters Point. We are very concerned that this unprecedented opportunity for both the city & developers will be built over. . .

We believe, as stated above, that this SEIR has taken a seriously shortsighted and inadequate view of the longer-term impacts of this project, vis-a-vis cumulative impacts, the environmental justice issue, impending regulations, the longer term costs of having to react to these pressures, by building more expensive "centralized infrastructure later to take care of problems that the City is planning to add to now. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

Pages V.K.18 and 19 of the Draft EIR explain the NPDES permits regulating the Southeast and North Point plants. As noted in the text, the RWQCB has found that it would be acceptable to allow for specific numbers of CSOs over a ten year period along three separate areas of the Bay shore [and] the City has just completed a series of improvements intended to meet these criteria. The Draft EIR concludes that because the improvements have been completed, the City is now in compliance with the permit requirements. This is a specious argument, in that there is insufficient data to determine whether the improvements will function as intended. Given that the permits allow a certain number of CSOs averaged over a ten year period, it will be impossible to know if the City is in compliance with the permits until ten years have gone by. In the meantime, it should be assumed that CSOs are still a critical issue in the Bayside treatment system, and the City should implement all available measures to avoid them. (*Kate White, Program Director, Urban Ecology, Inc.*)

Response

Issues raised in the comments above, and other comments regarding "Wet-Weather NPDES Permit" (pp. XII.371-XII.376), "Reductions in Combined Sewer Overflow Volumes" (pp. XII.295-XII.298), "Sewer Flooding" (pp. XII.392-XII.394), and "Odors" (pp. XII.394-XII.396) include the completeness and adequacy of the overall combined sewer system, the adequacy of sewer capacity, the legitimacy of the long-term annual average overflow numbers, the number of allowed combined sewer overflows (CSOs) and their impacts on beneficial uses, and alleged exemptions from various water quality standards. These issues were thoroughly discussed and addressed during the approximately 25-year design and construction process for the City's wastewater system.

The SEIR provides information about the City's existing combined sewer system and its National Pollutant Discharge Elimination System (NPDES) permits to the extent that they apply to water quality changes caused by the project. The project would increase dry-weather sanitary flow and stormwater through the existing combined sewer system by a relatively small amount, but would not physically change the system other than replacing and upgrading existing sewer lines or constructing new lines, as described in the SEIR. The project also does not propose any physical changes to the Southeast Water Pollution Control Plant. For these reasons, only the incremental changes caused by the project with respect to receiving water quality are considered in the SEIR. While not required for analysis of the project's impacts, it is useful as background for responses to these and other comments on the SEIR to have an understanding of the existing City system and of the steps taken by the City to improve sewage treatment over the past 25 years.

Until the City began implementing its Wastewater Master Plan, adopted in 1974 and amended numerous times since, the sewage conveyance and treatment system consisted of a system of "combined" sewers that conveyed combined sanitary flows and rainwater runoff to three sewage treatment plants providing primary treatment for all dry-weather (sanitary sewage) flows and discharging primary-treated effluent to the Bay or Ocean. During rainy weather, the volumes of combined flows were too great for the treatment plants to handle; therefore untreated ("raw"), but diluted, sewage overflowed from about 43 points around the City into the Bay and Ocean. These overflows occurred an average of about 40 to 80 times per year.

The Wastewater Master Plan was developed during 1968-1974 in response to Regional Water Quality Control Board (RWQCB) resolutions and orders requiring the City to improve its wastewater collection and treatment system (Resolutions No. 67-64, 69-43 and 69-44; Orders No. 72-90 and 72-91). Studies for the Wastewater Master Plan began in 1968 and encompassed a range of options for conveying and treating the City's combined sanitary sewage and stormwater runoff. As described in the 1974 EIR/EIS analyzing the impacts of the then-selected program, the main alternatives considered

included: constructing fully separated sanitary and stormwater collection systems; improving treatment processes at, and expanding, the three existing water pollution control plants; constructing additional treatment plants at each of the then-existing overflow points or at locations combining flows from several overflow points; constructing a single, regional treatment plant to serve the entire combined citywide flows; and providing additional treatment with use of the reclaimed water for landscape irrigation./1/ These alternatives were evaluated in the EIR/EIS; all except the single regional treatment plant were found to have significant construction and operational impacts and were rated less environmentally acceptable than the Wastewater Master Plan alternative./2/ For example, the multiple individual treatment plants would be difficult to staff and operate on an intermittent basis, which could cause odor and noise problems at each location. Constructing separated sanitary and stormwater collection systems would disrupt every street in the City and would not provide any treatment for stormwater flows./3/

San Francisco adopted a Wastewater Master Plan in 1974 to improve its combined sewer system and the quality of its discharges. This plan proposed a series of improvements and additions to San Francisco's sewage treatment, transport, and disposal capacity to bring the City into regulatory compliance by greatly reducing the number of CSOs and increasing the water quality of CSOs compared to pre-1974 conditions. The resulting Wastewater Master Plan included about 45 retention basins located throughout the City to store wastewater and regulate flows to two treatment plants, upgrading the existing Southeast Treatment Plant to provide secondary treatment for dry-weather flows and portions of the wet-weather combined flows, and a new 1,000-million-gallon-per-day (mgd) capacity plant on the Ocean side of the City, to treat all remaining citywide flows. All treated effluent from the Southeast Plant and all untreated combined flows from the east side of the City were to be transported to the west side through a crosstown tunnel, with disposal of all treated flows to the Ocean, two to four miles from shore. The original Wastewater Master Plan proposed a system to limit the number of overflows to an average of about eight per year.

Because the Wastewater Master Plan was intended to be implemented over a period of at least 20 years, it was a general concept that provided for modification in response to changing circumstances. This Master Plan has been refined over time, as individual components were studied. The main changes that occurred between 1974 and about 1984 in the overall planning were to reject the retention basin storage reservoirs and replace them with transport/storage sewers with baffles and weirs providing flow-through treatment for CSOs, and to reduce substantially the planned 1,000-mgd-capacity of the westside treatment plant while retaining sufficient capacity to treat all dry-weather flows and to store and treat large enough volumes of wet-weather combined flows to limit CSOs on the west side of the City to a long-term average of 8 or fewer per year. Also during this time, funding cutbacks, new information about treatment of wet-weather flows in the transport/storage facilities, and review by

regulatory agencies caused the City to delay construction of the Crosstown Tunnel and focus on completing east side and west side storage and treatment facilities that would provide secondary treatment to dry-weather flows and provide storage to operate a system intended to reduce CSOs. Other changes included a decision to retain the North Point Water Pollution Control Plant to provide primary treatment for some wet-weather flows, and further changes to the size and operations of the proposed Oceanside Water Pollution Control Plant. The number of overflow points was reduced from 43 to 36 by consolidation as part of designing transport/storage facilities. Each component of the Wastewater Master Plan has been evaluated in a separate environmental review document that describes the potential impacts of the component and describes the evolution of the Master Plan as regulatory requirements changed and as new engineering solutions were developed. Fifteen EIRs and Supplemental EIRs and eight negative declarations have been prepared on various aspects of the Master Plan. The U.S. Environmental Protection Agency (U.S. EPA) and the RWQCB considered the information in these environmental documents in issuing the various permits and orders for the City's Clean Water Program.

Permits issued by the RWQCB (discussed on pp. V.K.17-V.K.19 and also discussed below in this response) established requirements to construct and operate a system intended to allow for an average of no more than 1, 4, 8 or 10 treated CSOs per year, depending on the location of the outfall. Unlike many small, growing communities in the region and in California with large amounts of undeveloped land, San Francisco's treatment plants are not a limiting factor in continued development or redevelopment in the City, because capacities were developed assuming some growth/4/ and because San Francisco has limited areas of undeveloped land. The comments have not provided new information or evidence that suggest that the City should entirely re-think its overall approach to sewage conveyance, treatment, and disposal.

While changes in water quality regulations and federal funding greatly challenged the design and construction of the system, the system was completed on March 4, 1997, bringing the City into compliance with all RWQCB Cease and Desist Orders for the first time in 25 years. (See pp. V.K.1-V.K.2 and pp. J.1-J.4 for discussions of the existing combined sewer system.) As discussed further in the response regarding "Crosstown Tunnel" on pp. XII.277-XII.278, although it has not been formally deleted from the Plan, a crosstown tunnel to carry treated wastewater from the east side of the City to the west side for Ocean disposal is no longer being considered because all water quality requirements are currently being met. Thus, the existing City system is not causing impacts to water quality or to any beneficial uses of the Bay or Ocean. Existing problems not related to water quality are discussed in the responses regarding "Sewer Flooding" on pp. XII.392-XII.394, and "Odors" on pp. XII.394-XII.396.

Existing Bayside discharges of effluent and treated CSOs are regulated by two NPDES permits (see pp. V.K.17-V.K.19) issued by the RWQCB that contain effluent limitations to specifically safeguard water quality, aquatic life, and all other beneficial uses. The effluent limitations are based on the plans, policies, and water quality objectives and criteria contained in the Basin Plan, Quality Criteria for Water (EPA 440/5-86-001, 1986 [Gold Book]), applicable federal regulations (40 CFR Parts 122 and 131), the National Toxics Rule (57 FR 60848, December 22, 1992), the U.S. EPA Federal Combined Sewer Overflow Control Policy (59 IR 18688), and the application of Best Professional Judgment (40 CFR 125.3 (d)). The RWQCB reviewed numerous water quality and beneficial use studies performed by the City and accepted them as complete. In addition, extensive public participation took place when the RWQCB was considering the City's permits in 1995 and 1996. During that process, assertions were made before the RWQCB that the existing combined sewer system is overloaded, overburdened, and improperly discharging. The permit record contains data such as monitoring results that the RWQCB used in making its determination. The RWQCB considered and rejected assertions of inadequacy and issued permits to the City, determining that the system would continue to protect water quality and beneficial uses. Bayside discharges currently meet all requirements of the NPDES permits, and there are no outstanding RWQCB Cease and Desist Orders.

San Francisco is one of the first communities in the country to fully comply with the requirements of the Federal Combined Sewer Overflow Control Policy, adopted in 1994. This compliance has been achieved because of the implementation of the City's Wastewater Master Plan over the past 25 years. See the response regarding "Wet-Weather NPDES Permit," pp. XII.371-XII.376, for further discussion. This federal policy establishes a consistent approach to controlling the nation's CSO discharges and consists of a two-phase implementation process. The RWQCB has made findings in the NPDES permit that the Bayside facilities fully comply with both phases:/5/

> Based on the Board's preliminary evaluation, the CSO control requirements in this permit and the NPDES Permit for the Wet-weather Diversion Structures (CA0038610) are in compliance with this [Combined Sewer Overflow Control] policy. . .
>
> The discharger has demonstrated implementation of the nine minimum control technologies as specified in the Policy. . .
>
> The discharger has substantially completed its CSO control program and has otherwise demonstrated compliance with section I.C.1 of the CSO Control Policy which allows grandparenting for the purposes of not preparing a (new) CSO long-term plan. . .
>
> The discharger has demonstrated compliance with the "presumption" approach for compliance during wet weather with water quality standards. . .

> The discharger's implementation of its wastewater master plan appropriately considered sensitive areas as required in the CSO Control Policy. . .
>
> During wet weather, San Francisco operates its treatment facilities at the maximum capacity compatible with safe operation and thus is in compliance with the Policy provisions which allow for the discharge during wet weather of combined sewer flows which have received primary-only treatment. . .

As discussed on p. V.K.18, the City's wastewater system is designed to achieve treatment of all wastewater and stormwater flows. The North Point Water Pollution Control Plant provides full primary treatment and disinfection to wastewater flows from the northeast part of the City. CSOs undergo flow-through treatment, which is equivalent to primary treatment. The RWQCB found that the City's system meets the "presumption" approach to wet-weather compliance with water quality standards. A program that meets any one of the following three criteria established by the U.S. EPA in its Combined Sewer Overflow Control Policy is presumed to provide an adequate level of control to meet the requirements of the Federal Clean Water Act if such a presumption is determined by the permitting authority to be reasonable: 1) discharge of no more than an average of four untreated overflows per year from a combined sewer system; 2) treatment of 85% of the system-wide combined flows to a primary-equivalent level; or 3) reduction in pollutants equivalent to implementation of criterion 2. San Francisco's CSOs receive flow-through treatment; therefore San Francisco has no untreated overflows, meeting and exceeding criterion 1. San Francisco also meets and exceeds criterion 2 by providing flow-through treatment to its CSOs, and by providing secondary treatment to a substantial proportion of the combined flows, at the Southeast and Oceanside Treatment Plants.

CSOs are composed primarily of stormwater (about 94%), with the rest being sanitary wastewater. Thus, CSOs are not raw sewage, as is contended by many comments. The frequency of CSOs and their quality are monitored by the City and reported to the RWQCB on a monthly basis. Many of the comments suggest that overflows indicate an overload to the Bayside combined sewer system. On the contrary, the RWQCB and the U.S. EPA regulations anticipated CSOs as inherent features of a combined system, and permit requirements relating to overflows frequencies and system operations were set specifically to ensure that the overflows do not violate water quality standards. CSOs do not reflect overloading or capacity problems in the City's wastewater management system.

As concluded in the SEIR, the incremental increases in effluent and CSO flows from the Mission Bay project would be well within NPDES permit limitations and would not cause significant impacts. Increases in effluent discharges would not change concentrations, and increased volumes are within the planned capacity of the Southeast Plant. Based on the above, the existing Bayside combined sewer

system fully complies with all applicable rules and regulations, and adequately protects water quality and beneficial uses.

Alternative Wastewater Management Strategies

Comments

The DEIR fails to take an adequate look at sewer and stormwater treatment alternatives for the Mission Bay Project to protect Mission Creek and Bay water quality and to provide sufficient mitigation measures to improve Mission Creek toxics problems. (*Trent W. Orr, Attorney at Law, representing Mission Creek Conservancy*)

The resolution is a wake-up call, alerting city officials and residents of a brief "window of opportunity" to chart a new course for sewage treatment for the next century, by taking action within the next three months, before permitting on new development projects is completed and the old, dysfunctional sewer system is locked in place. The new course would take the best elements of the old system, and supplement them with techniques and methods more closely fashioned on the way nature itself processes wastewater.

The latest of four official recommendations made in as many years, it urges the PUC (with oversight responsibility for operating the city's three wastewater treatment plants) to work with "developers and appropriate city agencies," assisted by an independent consultant, to prepare a timely, "comprehensive evaluation of feasible and sustainable alternatives for wastewater treatment and reuse."

It's a call for the city to draw up a comprehensive plan for treating additional sewage that new development will generate, prior to signing off on the individual projects—a process already begun, with key approvals sought by the summer. . .

These activists. . .are guided by a practical 21st century vision: to make strategic, low-cost system changes that would reduce or eliminate untreated overflows, by permitting wastewater to be collected and treated closer to where it's generated; and to stop expansion of current centralized, capital- and energy-intensive treatment methods, with their disproportionate impact on minority communities. (*Diana Scott*)

I would hope the EIR is as complete as it can be and in the forefront of its discussion of alternative technologies that could be utilized to the maximum useful benefit, so based on the forefront of coming up with alternatives to water pollution problems that affect various sectors of this building. (*Commissioner Richard H. Hills, Planning Commission*)

Response

Regarding the comment that the existing wastewater system is "old" and "dysfunctional," the existing wastewater system is a new system that was constructed over a period of more than 20 years, and was completed in March 1997. The system was designed with capacity to treat existing Bayside dry- and wet-weather flows, as well as flows generated by future development in the Bayside. The existing system was constructed under order of, and with design specifications approved by, the RWQCB. It

fully complies with water quality regulations, and the RWQCB has found that the system, as constructed, adequately protects beneficial uses. No evidence has been presented in the comments to refute these conclusions. See the response regarding "Background Regarding Existing Combined Sewer System" for further discussion. Current issues that are not related to water quality are discussed in the responses regarding "Sewer Flooding" on pp. XII.392-XII.394 and "Odors" on pp. XII.394-XII.396.

Regarding the alleged failure of the SEIR to adequately examine sewer and stormwater treatment alternatives, no project-specific impacts were found. The SEIR does conservatively find a project contribution to a potentially significant cumulative near-shore impact and suggests mitigation measures in the form of specific performance criteria (see also the response in Mitigation Measures under "Delay in Specification of Mitigation Measures," pp. XII.458-XII.460). The SEIR (see pp. V.K.27-V.K.30 and J.5-J.6) and the comments and responses in this "Alternative Wastewater Management Strategies" section discuss various wastewater management options. There is no requirement or need for the SEIR to present a more detailed analysis of the full range of options for the project or for the City's system. The San Francisco Public Utilities Commission (SFPUC) contracted with an independent consultant, Brown and Caldwell, to examine project options that could satisfy suggested Mitigation Measures K.3 and K.4. Results of that study are outlined below in the response regarding "Brown and Caldwell (Crites) Report" on pp. XII.278-XII.289.

As discussed in the response regarding "Adequacy of Information about Project Wastewater Options" on pp. XII.280-XII.289, the Brown and Caldwell (Crites) independent consultant report does not recommend a specific technology or management plan but narrows the list of appropriate technologies for wastewater recycling and reuse and for stormwater management. The report was prepared independently of the SEIR, and is part of the SFPUC's effort to respond to the Board of Supervisor's resolution that alternative technologies be studied in greater depth. Please see the response under "Adequacy of Information about Project Wastewater Options" for additional discussion of the scope of the Crites report and its applicability to the Mission Bay project.

The Brown and Caldwell report concludes that the membrane bioreactor, the "Living Machine," and constructed wetlands are potentially appropriate technologies warranting further study for the Mission Bay project./6/ The membrane bioreactor is a type of reclamation plant that uses membranes to extract treated water from the activated sludge system in place of a clarifier. A living machine is a series of aerated tanks with plant roots extending into the liquid to provide sites for bacteria that remove pollutants and pathogens. Constructed wetland systems include both natural wetlands and wetlands constructed in upland areas, where plants and microbes take up and transform pollutants. However,

the Brown and Caldwell report does not suggest these technologies as alternatives to treatment of municipal wastewater at the Southeast Plant. Of the three technologies suggested in the report, two, the living machine and constructed wetlands, are capable of treating raw municipal wastewater and producing effluent equivalent to that produced by a conventional secondary treatment plant. According to the report, a living machine at Mission Bay would occupy 3.5 acres of land and would be considerably larger than any system installed by Living Technologies to date./7/ Constructed wetlands have never been used as a complete wastewater treatment system in an urban environment. The advantages and disadvantages of using constructed wetlands with this project are discussed under "Constructed Wetlands" on pp. XII.250-XII.252.

Catellus has considered the use of alternative technologies for municipal and stormwater management at Mission Bay. See also the response regarding "Adequacy of Catellus (Lee & Ro) Report" on pp. XII.289-XII.291. While Catellus found the use of many alternative technologies for municipal wastewater treatment to be inappropriate for densely-populated urban areas, the proposed project does include an unconventional stormwater management feature (in which the initial flows of stormwater in Mission Bay South would be diverted to the City's combined sewer system for treatment). Mitigation Measure K.4 on p. VI.47 could add other alternative technologies to treat Project Area stormwater. (See discussion of Mitigation Scenarios A and B, below.)

There are sound reasons to be conservative in choosing wastewater management systems. Users and environmental regulators expect wastewater systems to operate flawlessly and are often unforgiving when difficulties occur. Given a choice between a system that has been used successfully for decades and one that may be promising, but is relatively untried, considerations of public health and safety will often dictate that most wastewater treatment agencies opt for the former. This is especially true when the benefits of using different technologies are unclear and existing systems are functioning within permit requirements.

Decentralized Management of Sanitary Wastewater

Comments

A prudent approach would be to spend additional funds on alternatives to separate sewers and decentralized treatment in the Mission Bay development rather than continue to burden the existing system. . .It is time to re-evaluate the need for large collection sewer systems. . .In order to better handle the Mission Bay project and other Bayside developments, a comprehensive City-wide wastewater plan is critical to assess the impacts to the natural environment and communities. In addition, the TRC has called on the PUC to evaluate the need for a long-term program to separate

stormwater from sewage, so that the alternative decentralized options can work and reduce volume. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

In addition, because the Mission Bay area is not tied into the San Francisco combined sewer system at the present time, there should be consideration of building a separate sewer system for the two combined developments. Economies of scale in size of plant may not exist for our present system. The cost of the collector mains would be much smaller if they feed into a local plant rather than [tying] into the present collector system. [Tying] into the present system would tend to overload it and create more uncontrolled spills without more storage. A separate plant may be cheaper than the cost of larger collector mains and new storage to handle the added runoff from the two developments. (*David R. Dawdy*)

Why wasn't there "an evaluation for their capability to ability to reduce peak flows and loads on the Southeast Water Pollution Plant (Southeast Plant) and the potential to reduce or eliminate CSO's." If were getting CSO's because the Southeast Plant is overloaded, then why weren't options even allowed to be looked at, presented, much less recommended. And why not allow a discussion of the use of satellite treatment to reduce solids at the Southeast Treatment Plant? Why only allow reuse options to be recommended "solely for their ability to produce recycled water"? What's so holy about reuse that it gets elective consideration, but clear cut and repeated demands to look at strategies that can reduce the burden on the Southeast Plant are not even allowed discussion?

We must state for the record that we do not believe that this constricted view is coming from the consultant, but rather from the City staff bent on keeping any discussion of alternatives to the Cities proposed plan and religious dedication to the centralized system from reaching the public, the Board, the legal record of this inadequate draft SEIR. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

We don't think this dumping has to happen on Bayview. We know that the alternatives can basically take Mission Bay off line. No sewage has to go to that central plant to decentralize it.

The storm water, they are going to build separate pipes. The beginning of smart thinking here. And then they're going to turn around and put 80% of it back into the combined sewer system and fill the thing up.

We're saying separate these pipes and don't send any more sewage to Bayview, it can be done. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

Surfrider Foundation is also worried about the huge amount of combined sewer overflows, the increase in overflows and storm water runoff discharges to the Bay.

The report states that only marginal increases of CSOs and direct storm water to neutral overflows will occur. But we haven't been considering seriously alternatives to decentralized treatments which would separate storm water and sewage in order to reduce the CSOs and pollution in the Bay Area and really eliminate all storm water discharges. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Surfrider has been asking the city to further consider and adopt alternative decentralized treatments for stormwater so that the waste treatment plants will be able to reduce the number of CSO's that occur each year, not to mention that they can also improve the quality of the stormwater runoff. . .This could be a model urban restoration project that shows the commitment. Some or all of the flow could be diverted to a treatment marsh system that, in addition, could accept secondary treated effluent to improve water quality discharges during the dry weather. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Three additional mitigation measures should also be added to the EIR. First, the entire Mission Bay project should include its own "package" wastewater treatment plant or some other form of secondary wastewater treatment. This would eliminate the need for wastewater flows from Mission Bay to enter the City's sanitary sewer system, which is already overloaded during heavy or long rains, thus avoiding the project's potential significant impacts on existing and future cumulative treatment problems. (*Kate White, Program Director, Urban Ecology, Inc.*)

A great opportunity is being missed in the wholesale redevelopment of the entire area as planned in the various developments, including the Giants' Pac Bell Park, the new Waterfront District, Hunters Point, the 49ers' stadium complex, the interim uses of all scales, and Mission Bay. Instead of such hidebound adherence to the DPW/PUC long term sewer plan, with its feet in the early 70's and its covert commitment to the Crosstown Tunnel, a coordinated integration of the built and natural environment should be embraced. (*Bill Wilson, Environmental Planning & Design*)

Response

Several comments assert that the Southeast Water Pollution Control Plant is already overloaded and call for a new comprehensive citywide wastewater plan, including a "decentralized" system or on-site system for Mission Bay. This would require that municipal wastewater from Mission Bay be collected, treated, and disposed by a new, separate municipal wastewater system, rather than routing all municipal wastewater to the City's combined sewer system and ultimately the Southeast Plant. A major reason for interest in a decentralized system is that it would reduce the amount of sewage routed to the Southeast Plant and the volume of combined sewer overflows (CSOs).

The San Francisco Wastewater Master Plan calls for all dry-weather municipal wastewater from the City to be treated at two wastewater treatment plants, the Southeast Plant and the Oceanside Water Pollution Control Plant. The plan does not call for separate plants at new developments. Environmental analysis performed on the Wastewater Master Plan, however, considered a number of alternatives, including the option of many individual, smaller, "package" treatment plants./8/ That option was rejected by the City, the Regional Water Quality Control Board (RWQCB), and the U.S. Environmental Protection Agency (U.S. EPA) as inferior to centralized storage and treatment on functional (regulatory compliance, implementation, reliability, flexibility, reclamation potential), economic (nearly five times higher capital costs), and environmental grounds. The centralized plant

concept has been reaffirmed many times since the original analysis, and has led to completion of the system in March 1997.

In implementing its plan, the City has improved and expanded the Southeast Plant so that it has the capacity to provide secondary treatment to all existing and expected dry-weather flows from the eastern part of San Francisco. The plant has 150 mgd of secondary-treatment capacity; 67 mgd, less than half the capacity, is used during dry weather. Thus, the plant is not overloaded and has sufficient capacity to accommodate dry-weather municipal sewage flows from Mission Bay and all other reasonably foreseeable projects. Therefore, the existing system is not overburdened, and would not be overburdened by the project or cumulative new development. Therefore, preparation of a new citywide wastewater plan is unnecessary, and water reuse is not necessary to reduce any significant environmental impacts. However, the project proposes dual piping to allow use of reclaimed water in accordance with the City's Recycled Water Master Plan. See pp. V.M.40-V.M.42 in V.M, Community Services and Utilities for a discussion of the project's proposed reclaimed water system. See also the responses in Community Services and Utilities regarding "Wastewater," pp. XII.445-XII.447, and "Reclaimed Water, UCSF," pp. XII.447-XII.450.

The occurrences of existing and projected CSOs due to the project would not violate the Bayside wet-weather National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit specifies that the system be designed to limit the long-term average number of overflows and that these limits adequately protect water quality and beneficial uses. See the responses regarding "Background Regarding Existing Combined Sewer System" on pp. XII.232-XII.238 and "Wet-Weather NPDES Permit" on pp. XII.371-XII.376 for additional discussion. Mitigation Measure K.3 would eliminate any project contribution to increased overflows.

In addition to being unnecessary to addressing identified significant impacts, construction of a municipal wastewater treatment system serving only Mission Bay would have several disadvantages. Construction of new sewage treatment capacity would be economically inefficient because it would duplicate capacity that already exists at the Southeast Plant, and it would require more wastewater treatment operators to staff the new plant. Given that the Southeast Plant already exists, a new treatment plant would unnecessarily require additional land and funds. Wastewater treated at a new Mission Bay plant and the sludge generated would have to be recycled or disposed of. Even if some of the treated effluent could be recycled for reuse, it is unlikely that there would be a continuous demand for all the treated wastewater produced. Construction of a new disposal system would be needed to convey excess treated wastewater to deep Bay waters where it could receive the level of dilution required under the Basin Plan. Construction of a new Bay outfall would be expensive and would have short-term adverse effects on aquatic life. Furthermore, the City and Catellus have no assurance that

permitting agencies would agree to the siting of a new wastewater outfall in the Bay when adequate capacity already exists in the Southeast Plant's outfall. (Possible discharge of effluent to a wetlands, rather than to the Bay, is discussed below in the response regarding "Constructed Wetlands" on pp. XII.250-XII.252.)

A number of comments suggest that centralized wastewater treatment is an obsolete technology. Some are critical of the City's Wastewater Master Plan and offer suggestions for improvements. The Wastewater Master Plan was reviewed under CEQA, including public participation, and was approved by the RWQCB and the U.S. EPA. It is not appropriate for this SEIR to evaluate the advantages and disadvantages of the Wastewater Master Plan; rather, the purpose of this SEIR is to evaluate the environmental impacts of the Mission Bay project.

Floating Containment

Comment

. . .[I]nclude an evaluation of a technique in use on the East Coast and in Europe, the floating containment or Flow Balancing Method (FBM), which has the capability of completely containing sewage overflows and creating instead a waterfront amenity, but which has also been dropped from the ever-narrowing list of alternatives for reasons unknown. This should provide the SEIR reviewer and the public with at least a glimpse of the possibilities that exist. (*Bill Wilson, Environmental Planning & Design*)

Response

While the floating containment method for eliminating overflows might be a candidate if the City decided to try to eliminate combined sewer overflows (CSOs) to the Bayside, there are much simpler and well-proven methods for eliminating the small increment in CSOs attributable to Mission Bay, such as the temporary storage or other system design measures contemplated by Mitigation Measure K.3.

Catellus is considering another mitigation option that would not only avoid an increase in CSOs but would reduce them compared to existing conditions. This would be accomplished by routing most of the stormwater runoff from the Mission Bay directly to the Bay. (See the discussion of separated storm sewers and Mitigation Scenario B in "Illustrative Mitigation Scenarios," below.)

Alternative Stormwater Management Technologies

Comments

These comments are directed at the DEIR regarding how the existing project alternatives and the impact of combined sewage overflows (CSOs). . .fail to fully consider alternative wastewater management options . . . .The goal should be to effectively reduce pollutant load into the Bay, and source reduction before entering the combined system. . . .With a combined sewer system, San Francisco treats stormwater because it is mixed with sewage. In order to better handle metals entering the system, the DEIR needs to include source reduction. Graywater and downspout infiltration were discussed and considered to reduce wastewater, but both were rejected by the developer. The Public Utilities Commission Technical Review Committee (TRC) has expressed serious concerns about need for source reduction, for example vacuum street cleaners would eliminate a significant level of metals from stormwater "first flush." (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

The Bayside Cumulative Impacts Analysis Draft Report does not evaluate. . .beneficial reuses of this water in other parts of the state. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

Source control is the best way to control runoff quantity and quality, and stormwater rooftop and subsurface catchment and other upstream controls should be studied in Mission Bay, as one of the major disadvantages, that of retrofitting existing buildings for the roof load associated with storage of rainwater, would not be a factor, and new buildings could be designed specifically to incorporate these controls. . .

High performance vacuum street sweeping, particularly near the end of the dry season, is technically feasible and realistic, and that erosion control measures for new construction should be reviewed to ensure that fine clays and silts are captured. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

In discussing rainfall runoff capture, the Vortechnics vortex stormwater vault is described as "designed to handle the initial flow from storm frequencies less than one year." The actual design cycle is the 2-month period storm, but the beauty of the Vortechnics chamber is that it treats the entire storm event, not just 'first flush', and performance actually increases as higher flow rates maintain a consistent cyclonic-type velocity that separates pollutants. Reliance on 'first flush' strategies is a faulty assumption, since major pollutant loading may take several hours into a storm event to mobilize. (*Bill Wilson, Environmental Planning & Design*)

As for CSO mitigations, the SEIR should consider the same measures to reduce, capture and slow down surface water runoff which ends up flowing into the CSO system in addition to the contemplated improvements to the sewer system. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

[A] panel of appropriate technology engineers convened last spring to review a laundry list of environmentally sound treatment options. They concluded that untreated sewer overflows, combining

rain and wastewater, could be eliminated entirely by coordinated planning and implementation of a number of the methods reviewed.

Not all techniques are similarly suited to all terrains; a comprehensive study would help match a range of already identified appropriate techniques and methods to the diverse site and rainfall characteristics of different locations throughout the city, say "appropriate technology" proponents.

Ways of decelerating storm water flow, and filtering out debris near the site of where it's created—and even recycling some cleaned water for non-drinking uses—would be matched to specific site conditions and needs. Tools with mechanical-sounding names like "flow-slipping," "hydro-braking," "de-synchronized pumping," (more like surfer slang than household words) can be applied.

But for these methods to succeed, they must be tied—all of them together—into a diversified system much like nature's. Hence the importance of a comprehensive plan.

"You can't do it piecemeal [but must] let the whole fabric function. Piecemeal it will fail," says [Bill] Wilson, who helped compile the document that the technical experts reviewed. (*Diana Scott*)

Response

These comments call for consideration of alternative methods for treating or otherwise managing stormwater, including infiltration of roof drainage into the ground, storage of rainwater on roofs, vacuum street sweeping, vortex separators, and constructed wetlands. Increased paved surfaces associated with urban development increase the volume and rate of stormwater runoff. If the increased runoff is routed to a combined sewer system it may contribute to combined sewer overflows (CSO), as would be the case at Mission Bay. The effect of the project on CSOs is acknowledged in the SEIR.

Mitigation Measures K.3 and K.4 would require the project sponsors and the City to consider sewer improvements and alternative technologies to avoid increases in CSO volumes and to reduce settleable solids and floatable materials in stormwater discharges in China Basin Channel. If these mitigation measures are adopted, a wide variety of methods could be used, including those suggested by the comments, those discussed in this SEIR, those considered by the project sponsors, and any others that would achieve the performance criteria set forth in the mitigation measures. Two specific options for mitigation are discussed under "Illustrative Mitigation Scenarios" on pp. XII.253-XII.277. Other techniques are discussed below for informational purposes.

The effectiveness of various processes or devices for treatment of stormwater depends on the characteristics of stormwater. Some processes remove certain pollutants more effectively than others. Compared to municipal wastewater, urban stormwater contains less of many types of pollutants. Table XII.5 shows the concentrations of various contaminants in stormwater and treated and untreated municipal wastewater. The nature and significance of the contaminants are discussed on pp. V.K.4-V.K.7. The concentration of oxygen-demanding substances in urban runoff (measured by the

TABLE XII.5
CHARACTERISTICS OF URBAN RUNOFF AND MUNICIPAL WASTEWATER

Constituent	Urban Runoff	Municipal Wastewater	
		Untreated	After Secondary Treatment
Total suspended solids (mg/l)	100/a/	220/c/	15/c/
Biochemical oxygen demand (mg/l)	9/a/	220/c/	25/c/
Total phosphorus (mg/l)	0.33/a/	8/c/	5/c/
Total nitrogen (mg/l)	1.5/a/	40/c/	30/c/
Total copper (μg/l)	33/b/	—	8.3/d/
Total lead (μg/l)	79/b/	—	3.6/d/
Total zinc (μg/l)	210/b/	—	53/d/

Notes:
a. Typical urban runoff from residential and commercial areas from National Urban Runoff Program (U.S. EPA, 1983).
b. Estimates for Mission Bay based on Bay Area data (BASMAA, 1996).
c. Wastewater Engineering: Treatment Disposal & Reuse, Metcalf and Eddy, 1979.
d. City and County of San Francisco Effluent Monitoring.

Source: Woodward Clyde International.

biochemical oxygen demand test) is about one-third of that of municipal wastewater that has received secondary treatment. The nutrient content of urban runoff, measured as total nitrogen and total phosphorus, is less than one-tenth of that of municipal secondary effluent. The total suspended solids content of urban runoff is several times greater than that of municipal secondary effluent but the nature of the solids are different. Suspended solids in municipal effluent are almost entirely organic, while suspended solids in runoff are primarily mineral particles. Organic particles can be broken down by microbes and thus contribute to oxygen demand when discharged to receiving waters. Mineral particles do not affect oxygen concentrations in the receiving waters. The toxicity of secondary effluent to aquatic life is typically greater than that of stormwater because the former contains ammonia at concentrations 10 to 100 times greater than the latter.

Although they are only found in trace concentrations, some toxic metals and pesticides appear to pose the potential for environmental harm. Some of these toxic substances are associated with particulates,

and so treatment processes or devices that remove suspended solids also remove some of the toxic materials.

Various devices have been used to treat stormwater. Vortex separators and similar devices, originally developed to treat CSOs, provide a means of removing some suspended solids from stormwater. Catellus is considering their use at Mission Bay as mitigation options, as discussed under "Illustrative Mitigation Scenarios." Various other stormwater treatment devices or systems, including leaf compost, cartridge and sand filters could be used, but they were judged to be less suitable for Mission Bay conditions because they would be expected to be less effective than vortex separators or too difficult and expensive to maintain. As a point of fact, however, vortex separators can be designed to accommodate storms of greater magnitude than "2-month" storms. Also, for any particular vortex separator, the treatment effectiveness does not increase with increased flow. Performance decreases as storms tend to exceed the design specifications of the equipment./9/

Conventional street sweeping has been used to reduce stormwater pollution. A number of studies have been made of the effectiveness of street sweeping in controlling pollution from urban runoff. Studies conducted in the 1970s as part of the U.S. Environmental Protection Agency's National Urban Runoff Program (NURP) were unable to demonstrate any significant change in urban runoff quality as a result of street sweeping. In part, this results from analytical difficulties in sampling stormwater runoff. Later studies have confirmed the NURP conclusion./10/ Street sweeping certainly removes materials from street surfaces that would otherwise be washed into storm drains. However, street sweepers cannot cover many of the surfaces where pollutants accumulate (roofs, sidewalks, etc.), and they typically fail to pick up many of the smaller particles of street dirt that harbor a disproportionate fraction of toxic substances. High-efficiency street sweepers, specifically designed to remove a higher proportion of small particles from street surfaces, may have more effect on urban runoff quality, but this has not yet been shown in field tests./11/

Drainage from the roofs of buildings in San Francisco are routed to the City's combined sewer system, as required by current City subdivision regulations. The volume of stormwater flow entering the combined sewer system could be reduced by disconnecting downspouts from buildings and routing roof drainage into the soil. Infiltration of roof drainage is most practical in areas where soils are permeable and the density of development is low enough to avoid the risks of flooding. Mission Bay soils are generally not conducive to infiltration of water because of their high clay content, and there is a high groundwater table throughout much of the Project Area. In addition, it would be difficult to allocate sufficient land area for adequate infiltration due to the extent of paved (impermeable) development proposed at Mission Bay. Temporary storage of stormwater on building roofs is possible, but it could increase the risk of roof leaks. Temporary stormwater storage is provided in other parts of the City

underground. This underground storage option is explored further under "Illustrative Mitigation Scenarios."

Other management options for stormwater could include flow-slipping, hydro-braking, and de-synchronized pumping. The goal of these techniques is to slow the stormwater sufficiently to allow some settling to occur. They could be implemented at Mission Bay if determined to comply with the performance criteria of Mitigation Measure K.4 on p. VI.47, if adopted. Multiple treatment technologies could be implemented, as well, if a combination of technologies proved to be an acceptable means of achieving the Mitigation Measure K.4 performance criteria. Source reduction measures could also be implemented, particularly as part of Mitigation Measure K.5 on p. VI.47. As indicated on p. V.K.21, source reduction is already a citywide goal of the San Francisco Water Pollution Prevention Program.

The "initial flows" capture proposed for the Central/Bay Basin is another example of an alternative approach to stormwater management. With the project as proposed, about 80% of the stormwater from the Central/Bay Basin would be treated by the combined sewer system. The resulting increase in CSO volume is relatively small at 0.22%. (As shown in Table V.K.1, a 100% combined sewer system in Mission Bay, such as exists in virtually all other areas of San Francisco, would increase CSOs by about 14 times as much as would the proposed initial-flow diversion system.) Mitigation Measure K.3 on p. VI.47, if adopted, would provide a performance criterion that would eliminate even the small increase associated with the proposed initial-flow diversion system. Regarding the comment about the SEIR's reliance on the capture of "initial flows" to reduce pollutant discharges, the analysis is conservative in assuming that the 80% of the stormwater captured by the system would contain about 80% of the pollutants. Conventional wisdom suggests that initial flows contain a higher concentration of pollutants, although the SEIR does not rely on such an assumption to account for the possibility that pollutant loads may peak later in certain storms, as discussed on p. V.K.40.

Regarding the reuse of wastewater from the Project Area, refer to the discussion under "Reclaimed Water System" on pp. V.M.40-V.M.42 and the responses regarding "Wastewater" and "Reclaimed Water, UCSF." The use of Project Area reclaimed stormwater in other parts of the state would be impractical because of the expense involved in transporting the water over long distances compared to the environmental benefit and possible environmental impacts of such transport.

As for the need to control erosion associated with new construction, Mitigation Measure K.1 on pp. VI.45-VI.46 includes several measures (K.1a through K.1i) to minimize the release of pollutants by construction activities.

Constructed Wetlands

Comments

Consideration should be given to a major Wetland in or near Mission Bay. As testified by others, there is a need for new wetlands to purify the water from toxics and sewage overflows. These treatment wetlands could also serve as habitat. (*Robert B. Isaacson, President, Mission Creek Conservancy*)

Although the proposed wetlands would not have been used for stormwater or CSO treatment, there would have been other benefits such as increased wildlife habitat and increased awareness and public education. We support the preliminary comments made by Mission Creek Conservancy to preserve and enhance habitat and to consider developing a major wetland. Surfrider would also like to see treatment options that include the use of wetland or pond type systems and would have a variety of environmental and social benefits. Envision a nature walk along the intertidal zone, across meandering channels and around marshy areas that were once used by the natural inhabitants long ago. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Mission Creek-The Technical Report on environmental issues states that constructed wetlands can help mitigate surface runoff and other water pollution problems. Catellus' current plan destroys the existing wetlands habitat rather than enhancing it as was a stated goal throughout the CAC process. The enhanced wetlands can be part of the pollution solution! (*Janet Carpinelli, President, Lower Potrero Hill Neighborhood Association*)

The City of San Francisco should identify land for wetlands to reduce the volume from stormwater, handle toxins and pathogens from CSOs and protect the natural habitat. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

Moreover, consideration should be given to the creation of a major wetland in or near Mission Bay. Such a wetland could help to purify the water in Mission Creek from existing toxics and those added by sewage overflows and stormwater discharges. A treatment wetland could also serve as habitat. (*Trent W. Orr, Attorney at Law, representing Mission Creek Conservancy*)

A combined treatment approach (which would take less land and/or less capital investment than any one single treatment approach) which incorporates screening, small treatment wetlands and use of the proposed landscaping along the Channel and on the east-west Commons would be possible and should be further investigated. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

The Bayside Cumulative Impacts Analysis Draft Report does not evaluate alternatives that... beneficially reuse this water to improve the community or the environmental habitat surrounding that community. Subsurface Transpiration disposal to intercept the flow followed by extensive wetlands should be included. . . (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

The ideas for drainage plans discussed for the proposed Giants and UCSF parking areas do have some merit. However, they should be adjusted to reflect consideration of storm water treatment and the possibility of a treatment wetland area which could potentially be located in the vicinity of the Giants' proposed parking area. . .

In particular, the SEIR should propose mitigation measures for the effects from proposed storm water discharges which include specific measures to reduce, capture and slow down surface water runoff, the application of storm water treatment technologies and a discharge point which would be to a significant treatment wetlands (covering 12 acres in size) which would further improve the quality of the discharge. Such a treatment wetland conceptually could also receive contaminated groundwater from the site. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

And lastly in terms of the storm water, albeit 20% coming from the site, is still going to be discharged without any treatment and another missed opportunity.

And instead of just discharging storm water untreated into the Bay, it should be going -- putting that storm water through a beneficial use, i.e., wetlands treatment process. (*Michael Lozeau, Executive Director, San Francisco Baykeeper*)

But that development doesn't seem to be using all of the new things that people are talking about these days, like restoring wetlands, preserving open space in a way that people can really learn about natural protection of the environment.

And so what I would like to see here is that for these large amounts of wastewater that are being generated, that we use things that are known in terms of wetlands to treat some of these large overflows in place.

I'd like to see that the habitat is not ruined, and that it is actually enhanced so we can bring some of the inner city kids that we're currently training to sites such as these and be proud of them within the City instead of taking them to another development where we didn't take the opportunity to restore where we could have. (*Doug Kern, Member, Urban Watershed Project*)

Baykeeper believes that strategically placed and strategically planted wetlands will absorb the metals, keeping them from going into the Bay and also providing habitat, solving two problems or three problems all at once.

So that's a mitigation that we'd like to develop further in the final EIR and clarified in the final EIR. (*Leslie Caplan, San Francisco Baykeeper*)

Response

These comments express interest in the use of constructed wetlands for stormwater treatment. Mitigation Measure K.4 would require that alternative technologies or other means be used to treat stormwater prior to discharge to China Basin Channel, and sets performance criteria for the level of treatment that must be provided for stormwater. In addition, Mitigation Measure K.5 would develop and implement a Stormwater Management Program for any other direct stormwater discharge from

Mission Bay using Best Management Practices that would meet the Maximum Extent Practicable performance standard. See also the responses regarding "Stormwater Treatment" on pp. XII.291-XII.294 and "Illustrative Mitigation Scenarios" on pp. XII.253-XII.277.

Various alternative technologies including vortex technology have been examined as a way to implement Mitigation Measure K.4. (See the response regarding "Illustrative Mitigation Scenarios" on pp. XII.253-XII.277 for further discussion of the effectiveness of vortex technology.) Constructed wetlands is another alternative treatment technology that could be used to achieve the performance criteria set by Mitigation Measure K.4. Unlike vortex technology, wetlands also provide benefits of wildlife habitat, recreation, and visual quality.

Both vortex separators and constructed wetlands remove suspended solids and associated toxic materials from stormwater. In a vortex separator, the suspended and toxic materials removed from stormwater collect in the device, and are periodically removed and disposed of to a suitable waste repository, typically a landfill. Constructed wetlands are effective as a method of stormwater treatment primarily because they provide an opportunity for suspended materials in urban runoff, and the toxic substances associated with them, to settle to the bottom of the wetland, thus removing them from stormwater before it is discharged to the environment. This also means that pollutants removed from stormwater tend to collect in the bottom sediments of the wetland rather than being removed periodically. This poses some risk that toxic materials that accumulate in the wetland may enter the biological food web, as bottom-dwelling organisms feed and are consumed by predators. Also, large storms may flush accumulated materials from the wetland and impose a sudden "shock" pollutant load on receiving waters. These risks can be lessened by installing a sediment basin that can be periodically cleaned out immediately upstream of the wetland.

Compared to other technologies available to meet the performance criteria of Mitigation Measure K.4, a constructed wetlands would occupy much more space. For example, a single vortex separator would occupy about 1,000 square feet. A constructed wetland treating the same amount of stormwater would occupy at least an acre. Thus, despite certain benefits associated with wetlands as noted above, the feasibility of wetlands in the Project Area is limited due to the value of land for other competing purposes.

Illustrative Mitigation Scenarios

Comments

With over 80% of all discharges entering the Southeast plant in Bayview there is strong sentiment from the Board of Supervisors, civic leaders, and community members that alternatives are necessary in Mission Bay to reduce the amount of stormwater entering the plant. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

We want an such an analysis to look at the possibility of taking this project off line from the central system: separate stormwater and give it higher treatment than CSO's. Decentralize all sewage treatment. Look for expanded opportunities to supply other bayside users, just as in the Crites proposal. Dispose of what's left separately without sending it to S.E. Treatment Plant. How much could you reduce the number, volume, and severity of overflows in the Bayview. Expand the proposed separation of stormwater to the North of Channel and Mariposa sections, especially for new development. In short, we want an environmentally superior proposal to be proposed, and one that takes into account the issue of environmental justice. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

The *Bayside Cumulative Impacts Analysis Draft Report* does not evaluate alternatives that divert *all* stormwater away from the existing combined-sewer system. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D, Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

The Bayside Cumulative Impacts Analysis Draft Report does not evaluate alternatives that divert all stormwater away from the existing combined-sewer system... (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

We applaud the SEIR's requirement of a double sewer system for most of the project area. We believe that further investigation is required before making the decision to forego the double system for the remainder of the project. (*Joe Beresford, Chair, Homeownership Committee, Bay Area Organizing Committee; and St. Theresa Church*)

Response

The comments request consideration of completely separating the municipal sewage and stormwater sewers in the Project Area to reduce the number, volume, and severity of combined sewer overflows (CSO) in the Bayside. The comments also suggest expanding the proposed separation of stormwater to the North and Mariposa Basins, and treating the stormwater discharges to a higher level than the current level of flow-through treatment for CSOs.

As discussed in "Background Regarding Combined Sewer System" on pp. XII.232-XII.238, concerns that the City's wastewater treatment system is inadequate due to occurrences of CSOs or reliance upon

centralized wastewater treatment plants are ill-founded. Similarly, comments alleging that the project would "overload the City's sewer system and pollute Bay waters" or cause "great environmental damage" are incorrect, and are discussed under "Alternative Wastewater Management Strategies" on pp. XII.238-XII.252 and "Wet-Weather NPDES Permit" on pp. XII.371-XII.376.

Regarding separating the municipal wastewater and stormwater sewers, as part of the proposed project, Catellus proposes to construct a separate storm drainage collection system in the Central/Bay Basin, south of China Basin Channel. However, the separated systems would be connected so that approximately 80% of the stormwater collected in the system would be diverted to the combined sewer system for treatment. The remaining 20% would be discharged untreated directly to the Bay. The purpose of this "initial flow" system is to capture a high proportion of the stormwater and treat it. Catellus chose this design for its stormwater collection system because it offers the advantage that most of the stormwater runoff generated within the Mission Bay Project Area would be treated at the Southeast Plant before discharge to deep waters of the Bay, while the stormwater discharged directly to the Bay would reduce the project's potential contribution to CSOs compared with a conventional combined system. However, the design would increase the volume of CSOs by about 0.22%.

The SEIR includes two mitigation measures to address alternative technologies and the project's contributions to CSOs: Mitigation Measures K.3 and K.4 on p. VI.47 of the SEIR. Mitigation Measure K.3 applies to the entire Project Area, and Mitigation Measure K.4 applies only to Project Area stormwater discharged to China Basin Channel. As described on pp. V.K.24-V.K.27, the project would discharge some stormwater from the Central/Bay Basin to China Basin Channel and adjacent areas as a result of separating the sewer system in this watershed (i.e., one set of pipes for sanitary sewage and one set for stormwater).

In response to public comments and interest regarding alternative technologies and separated systems, two mitigation scenarios have been analyzed to illustrate two of the many possible ways to implement Mitigation Measures K.3 and K.4; other scenarios could be developed and implemented in lieu of one of the mitigation scenarios discussed below.

Mitigation Scenario A would eliminate the project's contribution to increased CSOs by constructing additional storage and would use vortex separators (defined below) to treat stormwater. Mitigation Scenario B would also use vortex separators and would not only eliminate the project's contribution to CSOs, but would also decrease CSOs below baseline conditions by directly discharging all stormwater from Mission Bay South (instead of 20% of the stormwater from the Central/Bay Basin, as proposed).

Mitigation Scenario B would separate the sewers in the Central/Bay Basin and the Mariposa Basin, but not in the North Basin. The North Basin of the Project Area is part of a larger collection basin, and is situated in a downstream area within that larger basin. The existing combined sewers in the North Basin convey the combined flows from the larger basin to the Channel Outfalls Consolidation facility. In contrast, the Central/Bay Basin and Mariposa Basin are upstream (i.e., in the "headwaters") of the City's existing combined sewer system and can be isolated. Furthermore, the combined sewer system infrastructure serving the North Basin is, for the most part, complete; it requires only lateral sewers to accommodate the project. Therefore, construction of a completely new, separate system would not be cost-effective. The combined sewer infrastructure in the Central/Bay Basin is not well-developed, and is fairly developed in the Central/Bay Basin and the Mariposa Basin. Therefore, Mitigation Scenario B includes separated sewers in the Mariposa Basin to effectively bracket the maximum reasonable extent to which the Project Area sewers could be separated. The SEIR does not identify the need to separate the sewers of the Mariposa Basin to address any significant impacts, and constructing a new separated system in Mission Bay North is not needed to satisfy Mitigation Measure K.3 or K.4.

Both Mitigation Scenarios A and B would involve the use of vortex separator technology to treat direct stormwater discharges to China Basin Channel, and both would install this technology at all Project Area stormwater outfalls, not just at the Channel as required by Mitigation Measure K.4. With this exception, Mitigation Scenario A addresses Mitigation Measures K.3 and K.4, but goes no farther than necessary to do so. Mitigation Scenario B explores an approach that would implement Mitigation Measures K.3 and K.4 and would also respond to various comments by decreasing stormwater flows to the Southeast Water Pollution Control Plant.

Neither Mitigation Scenario A nor B would eliminate wastewater flow to the Southeast Plant because dry-weather flow cannot be eliminated without building a separate treatment plant, which is not warranted to avoid any significant effects (see "Decentralized Management of Sanitary Wastewater"on pp. XII.240-XII.244).

The following subsections describe the mitigation scenarios, describe the alternative technologies assumed, and discuss the potential environmental effects of the Mitigation Scenarios compared to the Base Case and the proposed project.

Description of Mitigation Scenarios

Mitigation Scenario A

Mitigation Scenario A would construct additional storage and use vortex technology to treat stormwater discharges in Mission Bay South. To ensure that the project contributes a zero net increase to the City's average annual overflow volume, Mitigation Scenario A would construct approximately 350,000 gallons/12/ of additional on-site storage, for total storage of approximately 1.1 million gallons. The stored wastewater would be released later for treatment in the City's existing combined system as capacity becomes available./13/

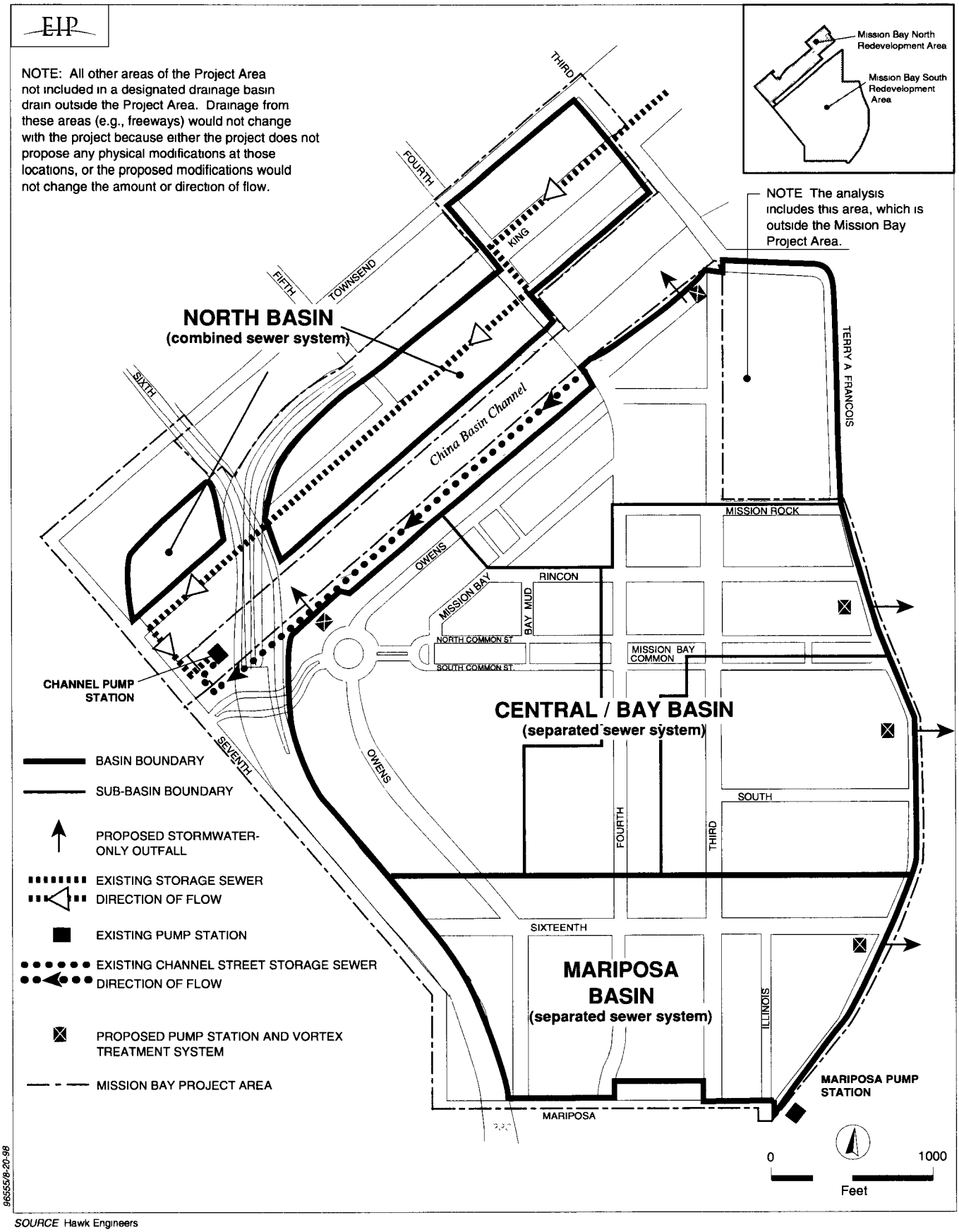
To reduce settleable solids and floatable materials in stormwater discharges to China Basin Channel, Mitigation Scenario A would implement a vortex or a similar technology, going beyond the Mitigation Measure K.4 requirement (which would be limited to China Basin Channel) by equipping each of the four storm outfalls (including those outfalls along the Bay shore) with a vortex (or similar) unit. This scenario does not assume the use of any other alternative technologies, although other technologies, including vacuum street sweeping, could somewhat enhance overall pollutant removal effectiveness.

Mitigation Scenario B

Mitigation Scenario B would construct fully separated sewers, without any diversion to the City's combined sewer system, in Mission Bay South. The separated sewers in Mission Bay South would carry stormwater to five outfalls, the four outfalls planned under the project and Mitigation Scenario A, and another stormwater outfall at Terry A. François Boulevard and Sixteenth Street to serve the Mariposa Basin, as shown in Figure XII.1.

Thus, instead of storing a portion of the stormwater runoff from the Central/Bay Basin for later release to the combined sewer system, Mission Bay South (both Central/Bay Basin and Mariposa Basin) would not contribute any stormwater runoff to the City's combined sewer system. All runoff would be discharged directly to near-shore Bay and Channel waters after vortex treatment. In this way, Scenario B would not only eliminate the Project's contributions to CSOs, but, as analyzed by the Bayside Planning Model, would further reduce CSO volumes and durations below the Base Case level.

As with Mitigation Scenario A, for the purposes of this analysis, Mitigation Scenario B is assumed to implement Mitigation Measure K.4 by using vortex technology (or a similar technology) to treat stormwater discharges from Mission Bay South. This scenario does not assume the use of other alternative technologies.



SOURCE Hawk Engineers

MISSION BAY SUBSEQUENT EIR

FIGURE XII.1 STORMWATER DRAINAGE BASINS IN THE PROJECT AREA UNDER MITIGATION SCENARIO B

To ensure that Mitigation Measure K.3 on p. VI.47 clearly accommodates this approach to reducing CSOs, it has been revised as follows:

> **Design and construct sewer improvements such that potential flows to the City's combined sewer system from the project do not contribute to an increased in the annual overflow volume as projected by the Bayside Planning Model. by providing increased storage could be provided in oversized pipes, centralized storage facilities, smaller dispersed storage facilities, or detention basins, or through other means to reduce or delay stormwater discharges to the City system. Applies to Mission Bay North and Mission Bay South.**

Similar changes have been made to the first two sentences of the last paragraph on p. II.29 of Chapter II, Summary:

> **Mitigation measures to address cumulative issues include designing and building sewer improvements so that potential flows from the project do not contribute to an increased in the annual overflow volume as projected by the City's Bayside Planning Model. by providing increased storage could be provided in oversized pipes, centralized storage facilities, smaller dispersed storage facilities, or detention basins, or through other means to reduce or delay stormwater discharges to the City system.**

To ensure that Mitigation Measure K.5 on p. VI.47 would apply throughout Mission Bay South (and not just to the Central/Bay Basin) if Mitigation Scenario B were selected, the first sentence of Mitigation Measure K.5 has been revised as follows:

> **Develop and implement a Stormwater Management Program for the Central/Bay Basin applicable to new and interim development under the Redevelopment Plan in any area contributing to direct discharges of stormwater to near-shore waters.**

A change similar to the one above has been made to the fifth sentence of the same Mitigation Measure K.5:

> **Implement the Stormwater Management Program until a city-wide stormwater management program is developed that includes any area contributing to direct discharges of stormwater to near-shore waters the Central/Bay Basin.**

Language on p. II.30 in Chapter II, Summary, first partial paragraph, third sentence, has also been similarly revised:

> **Another mitigation to address stormwater quality is developing and implementing a Stormwater Management Program for any area contributing to direct discharges of**

stormwater to near-shore waters. The program would include ~~the Central/Bay Basin, including~~ Best Management Practices, applicable during phased development of the Project Area.

In addition, Mitigation Measure M.5 on p. VI.53 has been revised as follows so that the mitigation could apply to a separated sewer system, if Mitigation Scenario B where chosen:

M.5 Drain stormwater runoff (up to a 5-year storm event) from newly constructed buildings and permanently covered surfaces in the Bay Basin into the City's combined sewer system until installation of a ~~separated~~ permanent sewer system ~~with a function "initial flow" diversion system~~. Applies to Mission Bay South.

Table XII.6 compares the characteristics of Mitigation Scenario A and Mitigation Scenario B to the proposed project.

Vortex Technology

Upon study of potential alternative technologies and after review of the Brown and Caldwell (Crites) report, Catellus proposed for further examination the vortex technology as a possible end-of-pipe stormwater treatment. At the City's request, Woodward Clyde International independently evaluated the potential effectiveness of the vortex technology, similar technologies, and vacuum street sweeping./14/ Based on the literature and professional judgment, a reasonable range of efficiency for the vortex technology is 40% (tests by the United Sewerage Agency of Portland, Oregon) to 70% (manufacturer data) for removal of Total Suspended Solids./15/ Based on the literature and professional judgment, a reasonable range of efficiency for vacuum street sweeping is 10% to 20% removal of particulates./16/

The vortex technology works in the following way. A vortex separator has a cylindrical chamber. The wastewater is funneled into the chamber so that a rotational flow is created.
This rotational flow encourages particulates to move to the outer portion of the unit (somewhat analogous to a centrifuge), where the downward component of the flow concentrates solids near the bottom. Particulates are collected on the side of the vortex, then into a storage unit that can be emptied during dry weather. The treated water exits the chamber for eventual discharge.

To be conservative, the SEIR uses the lower end of the particulate removal efficiency range, i.e., 40%, to estimate the removal of particulates by the vortex units.

TABLE XII.6
COMPARISON OF MITIGATION SCENARIOS WITH PROPOSED PROJECT

	North Basin		
	Sewer System	End of Pipe Treatment for Stormwater (Vortex)	Stormwater Outfalls
Project	Combined	Not Applicable	0
Mitigation Scenario A	Combined	Not Applicable	0
Mitigation Scenario B	Combined	Not Applicable	0
	Central/Bay Basin		
	Sewer System	End of Pipe Treatment for Stormwater (Vortex)	Stormwater Outfalls
Project	Separated with initial flow diversion	No	4
Mitigation Scenario A	Separated with initial flow diversion and extra storage to eliminate the project's contribution to CSOs	Yes	4
Mitigation Scenario B	Separated without initial flow diversion	Yes	4
	Mariposa Basin		
	Sewer System	End of Pipe Treatment for Stormwater (Vortex)	Stormwater Outfalls
Project	Combined	Not Applicable	0
Mitigation Scenario A	Combined	Not Applicable	0
Mitigation Scenario B	Separated without initial flow diversion	Yes	1

Source: EIP Associates; Catellus Development Corporation.

Comparison of Environmental Effects of Proposed Project and Mitigation Scenarios

Changes in Wastewater Volumes

Table XII.7 summarizes the changes in the flows of Southeast Plant effluent,CSOs, and stormwater discharges, for the Mitigation Scenarios compared to the Bayside Base Case and to the project/17/. Assuming a built-out condition for the Project Area, under both scenarios the Project Area would generate the same amount of municipal wastewater (dry-weather sanitary flow) and stormwater as the proposed project, but what happens to the stormwater would differ from the project.

Under Mitigation Scenario A, additional stormwater storage within the Project Area would reduce the project's contribution to CSOs to zero. (In other words, the volume of CSO discharges along the Bayside under Mitigation Scenario A would be the same as the volume discharged under the Bayside Base Case, or 910 MG/yr.) After a storm, the stored stormwater would be sent to the Southeast Plant for treatment. Therefore, compared to the project, the effluent from the Southeast Plant would increase by about 2 million gallons per year (MG/yr) (remaining at about 31,000 MG/yr), and the CSOs would decrease by the same amount (from about 912 MG/yr for the project to about 910 MG/yr for Mitigation Scenario A).

The amount of stormwater generated by the Project Area, about 124 MG/yr, would remain the same under Mitigation Scenarios A and B as under the project. Under Mitigation Scenario A, the amount discharged to the near-shore waters, about 15.9 MG/yr, would also remain approximately the same, although this flow would be treated by the vortex units. Under Mitigation Scenario B, however, stormwater from all of Mission Bay South (Central/Bay Basin plus Mariposa Basin) would be directly discharged to near-shore waters whenever it rains, regardless of the size of the storm. (Under the project, 80% of the stormwater from the Central/Bay Basin and 100% of the stormwater from the Mariposa Basin would be diverted into the combined sewer system.) The stormwater discharge volume would be 107.2 MG/yr, almost seven times greater than under either the Bayside Base Case, the proposed project, or Mitigation Scenario A.

As a result of direct stormwater discharge, Mission Bay South would contribute no stormwater flow to the City's combined sewer system. The effect of discharging the Mission Bay South stormwater directly to near-shore waters would be to decrease the project's contribution to CSOs to a negative value (not just to zero, as would be required by Mitigation Measure K.3). The volume of CSO discharges would be 877 MG/yr, or about 33 MG/yr (3.6%) less than the Bayside Base Case, and about 35 MG/yr (3.8%) less than under the proposed project.

TABLE XII.7
EFFLUENT, OVERFLOW, AND STORMWATER VOLUMES

		Change from Base Case (%)				Change from Base + Project (%)	
	Bayside Base Case	Base Case + Project	Base Case + Mitigation A	Base Case + Mitigation B	Bayside Base Case + Project	Base Case + Mitigation A	Base Case + Mitigation B
Total Deepwater Discharge (Effluent)(MG/yr)	30,203	842 (2.8%)	844 (2.8%)	789 (2.6%)	31,045	2 (0.006%)	-53 (-0.17%)
Total Near-shore Discharge (CSO + Stormwater) (MG/yr)	>926	+2.4 (+0.22%)	0 (0%)	+58 (+6.3%)	>928	-2 (-0.22%)	+56 (+6.0%)
Total Bayside CSO Discharges (MG/yr)	910	+2 (+0.22%)	0 (0%)	-33 (-3.6%)	912	-2 (-0.22%)	-35 (-3.8%)
Project Area Stormwater Discharges (MG/yr)	15.6	+0.4 (+2.6%)	+0.4 (+2.6%)	+91.6 (+590%)	15.9	0 (0%)	+91.3 (+570%)
Other Bayside Stormwater Discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

MG/yr = million gallons per year
N/A = not available

Data are not available from which to derive volumes and quality of direct stormwater discharges from outside the Project Area. The sum of Bayside CSOs plus direct discharges of stormwater along the Bayside understates the actual total near-shore discharge volume. Therefore, the percentage changes shown for the project and Mitigation Scenarios A and B overstate the volume changes from Base Case and Base-Case-plus-Project conditions.

Source: City and County of San Francisco, Public Utilities Commission, Clean Water Program, Draft Bayside Cumulative Impact Analysis, July 1998; EIP Associates.

Because no diversion of Mission Bay South stormwater to the City's combined sewer system would occur under Mitigation Scenario B, the volume of Southeast Plant effluent would be slightly less than under the proposed project. The effluent volume would be about 789 MG/yr (2.6%) more than the Bayside Base Case, but it would be 53 MG/yr (0.17%) less than under the proposed project.

Pollutant Load Changes

The SEIR discusses changes in wastewater discharge volumes and pollutant loads for the proposed project on pp. V.K.30-V.K.40. Tables V.K.2, V.K.3, and V.K.4, on pp. V.K.35, V.K.37, and V.K.39, respectively, summarize changes in pollutant loads for the project. These tables have been revised to reflect certain corrections that do not affect any of the analyses or conclusions (see "Hydrology and Water Quality" in Section D, Staff-Initiated Text Changes, on p. XII.511). The following paragraphs compare the Mitigation Scenarios to the project in terms of pollutant loads.

Changes in Effluent and CSO Loads

Because Bayside effluent and CSO discharges would receive the same level of treatment with or without the project, pollutant concentrations in these discharges are assumed to remain the same. Under this assumption, load changes would occur in rough proportion to volume changes. Therefore, under Mitigation Scenario A, the pollutant load discharged through effluent from the Southeast Plant would increase by 2.8% from Base Case conditions, and by 0.0064% from project conditions. Mitigation Scenario A would not contribute to CSO discharges; therefore, compared to the proposed project, the CSO load would represent a 0.22% decrease. Under Mitigation Scenario B, the mass of pollutants discharged in effluent from the Southeast Plant would increase by 2.6%, due to increase in dry-weather flows, over the Bayside Base Case, and the mass of pollutants discharged through treated CSOs would decrease by 3.6% compared to the Base Case. Compared to the proposed project, the load discharged in Southeast Plant effluent would decrease by 0.17%, and the load discharged in CSOs would decrease by 3.8%.

Changes in copper and zinc loads can be used to illustrate these differences, which would often be too small to substantially change pollutant loads. Whereas the average copper loads in effluent and CSOs are about 2,100 lb/yr and 300 lb/yr, respectively, under the Base Case, these loads would be about 2,200 lb/yr and 300 lb/yr with the project. The copper load in effluent would remain about 2,200 lb/yr with either Mitigation Scenario A or B, and the load in CSOs would be about 300 lb/yr with Mitigation Scenario A and about 290 lb/yr with Mitigation Scenario B. The decrease in copper discharges for Mitigation Scenario B would be offset by increased copper loads from stormwater, as discussed below. As for zinc, the effluent load is and would continue to be about 13,000 lb/yr with either the

unmitigated project, Mitigation Scenario A, or Mitigation Scenario B. The zinc load in CSOs is and would continue to be about 2,400 lb/yr with the unmitigated project or Mitigation Scenario A. Mitigation Scenario B would reduce CSO flows sufficiently to reduce the zinc load to about 2,300 lb/yr. As with copper, this decrease is offset by increased stormwater discharge, as discussed below.

For further elaboration, Tables J.1 through J.6 have been added to Appendix J, Hydrology and Water Quality, after p. J.7. The tables present detailed data on changes in wastewater volumes and loading for both mitigation scenarios. Tables J.1 through J.4 mirror Tables V.K.1 through V.K.4 of Section V.K, Hydrology and Water Quality. In addition, Tables J.5 and J.6 present the estimated mass pollutant loading of copper and zinc. These tables are reproduced in an appendix to this Summary of Comments and Responses document.

Changes in Stormwater Loads

The total stormwater pollutant load ultimately discharged to China Basin Channel and San Francisco Bay under Mitigation Scenario A would be less than the proposed project because vortex units installed at each stormwater outfall would remove approximately 40% of the particulates, including certain proportions of particulate-associated metals. The removal efficiency for a particular metal depends upon the proportion dissolved versus in particulate form, the size of the particles, and other factors./18/ Field results obtained by the Unified Sewerage Agency in Portland, Oregon, indicate removal efficiencies for six metals ranging from a low of 14% for lead to a high of 36% for zinc, while a manufacturer's laboratory data show 60% removal for lead and 39% for zinc./19/ To be conservative, this analysis uses the Unified Sewerage Agency field data. Tables XII.8 and XII.9 present results for two metals of interest, copper and zinc./20/,/21/ The vortex removal efficiencies assumed for copper and zinc are 20% and 36%, respectively. Mitigation Scenario A would thus discharge 20% less copper and 36% less zinc in its stormwater discharge than the proposed project, as explained below.

The copper load in Project Area stormwater for the Base Case is about 2.8 lb/yr. With the project, this copper load could increase to about 4.3 lb/yr. Mitigation Scenario A would reduce this copper load to 3.5 lb/yr (about a 0.63 lb/yr increase over the Base Case), and Mitigation Scenario B would increase the copper load to 24 lb/yr (an increase of about 21 lb/yr over the Base Case). Under Mitigation Scenario B, some of this copper load would instead have been discharged in CSOs, but Mitigation Scenario B would reduce CSO copper loading, as discussed above.

The zinc load in Project Area stormwater is about 24 lb/yr for the Base Case. With the project, the zinc load could increase to about 27 lb/yr. Mitigation Scenario A would reduce this zinc load to 17 lb/yr (about 6.6 lb/yr less than the Base Case). Mitigation Scenario B would increase the zinc load to

TABLE XII.8
ESTIMATED ANNUAL MASS COPPER LOADING TO NEAR-SHORE WATERS FROM OVERFLOWS AND STORMWATER DISCHARGES

		Change from Base Case (%)			Change from Base + Project (%)		
	Bayside Base Case	Base Case + Project	Base Case + Mitigation A	Base Case + Mitigation B	Bayside Base Case + Project	Base Case + Mitigation A	Base Case + Mitigation B
Total Near-shore Discharge (lb/yr)	>300	+2.1 (+0.72%)	+0.63 (+0.21%)	+10 (+3.4%)	>300	-1.5 (-0.51%)	+8.1 (+2.7%)
Total Bayside CSO Discharges (lb/yr)	300	+0.65 (+0.22%)	0 (0%)	-11 (-3.6%)	300	-0.65 (-0.22%)	-11 (-3.8%)
Project Area Stormwater Discharges (lb/yr)	2.8	+1.5 (+53%)	+0.63 (+22%)	+21 (+740%)	3.5	-0.87 (-20%)	+20 (+450%)
Other Bayside Stormwater Discharges	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

lb/yr = pounds per year
N/A = not available

Data are not available from which to derive volumes and quality of direct stormwater discharges from outside the Project Area. The total load contributed by Bayside CSOs plus direct discharges of stormwater along the Bayside understates the actual total load discharged to near-shore waters. Therefore, the percentage changes shown for the project and Mitigation Scenarios A and B overstate the load changes from Base Case and Base-Case-plus-Project conditions.

The copper load discharged under the Base Case, Project, and Mitigation Scenario A is less than under Scenario B because, under the first three, most of the Project Area stormwater would go to the combined sewer system for treatment at the Southeast Water Pollution Control Plant, and a larger proportion of total copper would be removed by the Southeast Plant than would be removed by the vortex technology.

Source: EIP Associates; City and County of San Francisco, Public Utilities Commission, Clean Water Program, Draft Bayside Cumulative Impact Analysis, July 1998.

TABLE XII.9
ESTIMATED ANNUAL MASS ZINC LOADING TO NEAR-SHORE WATERS FROM OVERFLOWS AND STORMWATER DISCHARGES

		Change from Base Case (%)				Change from Base + Project (%)	
	Bayside Base Case	Base Case + Project	Base Case + Mitigation A	Base Case + Mitigation B	Bayside Base Case + Project	Base Case + Mitigation A	Base Case + Mitigation B
Total Near-shore Discharge (lb/yr)	>2,400	+8.6 (+0.35%)	-6.6 (-0.27%)	+10 (+0.40%)	>2,500	-15 (-0.62%)	+1.2 (+0.049%)
Total Bayside CSO Discharges (lb/yr)	2,400	+5.3 (+0.22%)	0 (0%)	-88 (-3.6%)	2,400	-5.3 (-0.22%)	-93 (-3.8%)
Project Area Stormwater Discharges (lb/yr)	24	+3.2 (+13%)	-6.6 (-27%)	+98 (+410%)	27	-9.8 (-36%)	+94 (+350%)
Other Bayside Stormwater Discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

lb/yr = pounds per year
N/A = not available

Data are not available from which to derive volumes and quality of direct stormwater discharges from outside the Project Area. The total load contributed by Bayside CSOs plus direct discharges of stormwater along the Bayside understates the actual total load discharged to near-shore waters. Therefore, the percentage changes shown for the project and Mitigation Scenarios A and B overstate the load changes from Base Case and Base-Case-plus-Project conditions.

The zinc load discharged under the Base Case, Project, and Mitigation Scenario A is less than under Scenario B because under the first three, most of the Project Area stormwater would go to the combined sewer system for treatment at the Southeast Water Pollution Control Plant, and a larger proportion of total copper would be removed by the Southeast Plant than would be removed by the vortex technology.

Source: EIP Associates; City and County of San Francisco, Public Utilities Commission, Clean Water Program, Draft Bayside Cumulative Impact Analysis, July 1998.

120 lb/yr (an increase of about 98 lb/yr over the Base Case). Some of this zinc load would instead have been discharged in CSOs, but Mitigation Scenario B would reduce CSO zinc loading, as discussed above.

Compared with the Base Case, Mitigation Scenario A would discharge about 22% more copper in stormwater, and about 27% less zinc. These comparisons to the Base Case may seem counterintuitive, but the changes in stormwater concentrations are complex, being driven by changes in type of land use and intensity of land use, and the corresponding loads of different pollutants to stormwater runoff. Mitigation Scenario A would increase copper loadings more than zinc loadings, relatively speaking, compared to the Base Case, because the vortex units would be less efficient at removing copper than zinc. The net result is that copper loads in stormwater would go up, while zinc loads would go down.

The amounts of copper and zinc discharged in stormwater under Mitigation Scenario B are several times more than under the Bayside Base Case or proposed project. This is primarily because relatively little stormwater is or would be discharged under the Base Case or proposed project, and Mitigation Scenario B would not include any capture of initial flows, resulting in about seven times more stormwater discharge than under either the Base Case or proposed project (see Table XII.7). With the same removal efficiencies assumed for the vortex units as for Mitigation Scenario A, Mitigation Scenario B would discharge about 8.4 times more copper than under the Bayside Base Case, and about 5.5 times more than under the proposed project. The amount of zinc discharged would be 5.1 times more than under the Bayside Base Case, and about 4.5 times more than under the proposed project.

Under the project and Mitigation Scenario A, about 80% of the stormwater from the Central/Bay Basin and 100% of the stormwater (up to a five-year storm) from the other drainage basins in the Project Area would be captured and sent to the Southeast Plant. The metals would either be removed at the Southeast Plant or discharged as part of the effluent in the deep waters of the Bay or, to a much lesser extent, as CSOs to the near-shore waters of the Bay. Under Mitigation Scenario B, all stormwater from the Central/Bay Basin and Mariposa Basin would be discharged directly to the near-shore waters, including China Basin Channel and the Project Area Bayfront, with vortex treatment, but no treatment at the Southeast Plant.

Changes in Near-Shore Loads (CSOs and Stormwater Combined)

Although Mitigation Scenarios A and B would affect effluent, CSO, and stormwater pollutant loads, they would not substantially affect the total load delivered to the Bay. The total load is, and would continue to be, dominated by the effluent load because the effluent flow (on the order of 30,000 MG/yr) is, and would continue to be, orders of magnitude greater than the CSO flow (on the order of

900 MG/yr) and stormwater flow (on the order of 20 to 100 MG/yr for the Project Area). For this reason, Mitigation Scenarios A and B would most greatly affect the loads discharged to the near-shore waters, as discussed below.

Effects to near-shore discharges can be illustrated by adding together the CSO pollutant loads and stormwater loads. Because of the available data, the estimated loads for the CSOs are for the *entire Bayside*, whereas the estimated loads for stormwater are for *only the waters near the Project Area*, i.e., China Basin Channel and the Bay shore adjacent to the Project Area. The volume of stormwater discharged to the Bayside but not from the Project area is unknown, and by not accounting for it, this analysis illustrates conservative (erring on the high side) estimates of possible relative changes in pollutant loads.

Estimated CSO plus stormwater discharges to the near-shore waters are about 926 MG/yr for the Base Case and would be about 928 MG/yr for the Base Case plus Project, about 926 MG/yr for Mitigation Scenario A, and about 984 MG/yr for Mitigation Scenario B. Copper and zinc illustrate differences in pollutant loads among the scenarios. Estimated near-shore copper discharges are about 300 lb/yr for the Base Case and would be about 300 lb/yr for the Base Case plus Project, about 300 lb/yr for Mitigation Scenario A, and about 310 lb/yr for Mitigation Scenario B. Except in the case of Mitigation Scenario B, changes in the amount of copper discharged in stormwater would be too small to distinguish among the near-shore loads, which are dominated by CSO loads. Estimated zinc discharges are about 2,400 lb/yr for the Base Case and would be about 2,500 lb/yr for the Base Case plus Project, about 2,400 lb/yr for Mitigation Scenario A, and about 2,500 lb/yr for Mitigation Scenario B. Again, changes in the amount of zinc discharged in stormwater would be too small to distinguish among the near-shore loads.

Compared to Bayside Base Case conditions, the changes in near-shore copper load discharges (CSOs and stormwater combined) contributed by the project, Mitigation Scenario A, and Mitigation Scenario B would be 0.72%, 0.21%, and 3.4% respectively. Compared to the proposed project, the copper loads discharged by Mitigation Scenario A and Mitigation Scenario B would be -0.51% and 2.7%, respectively. Therefore, all three scenarios would result in an increase in copper, but Mitigation Scenario A would cause the smallest increase. All increases would be relatively small compared to Base Case conditions.

With regard to the zinc load in near-shore discharges, the changes that would be caused relative to Bayside Base Case conditions under the project, Mitigation Scenario A, and Mitigation Scenario B are 0.35%, -0.27%, and 0.40%, respectively. Compared to the project, Mitigation Scenario A would contribute 0.62% less zinc, and Mitigation Scenario B would contribute 0.04% more zinc. Therefore,

Mitigation Scenario A would contribute less zinc than the proposed project, and would actually decrease the amount of zinc discharged to near-shore waters below Bayside Base Case conditions. All the changes in zinc loads would be relatively small compared to existing conditions.

The discussion above addresses total pollutant loads. Because the vortex units would remove only a portion of the metal associated with particulates, the portion dissolved in water would pass through the vortex units unaffected. Therefore, the concentrations of *dissolved* metals in stormwater discharged to near shore waters would be the same as those under the proposed project, regardless of whether Mitigation Scenario A or B were implemented.

Effects on Receiving Waters and Beneficial Uses (Pollutant Concentrations)

As explained under "Effects on Receiving Waters" on p. V.K.41, the critical consideration regarding biological impacts due to pollutant discharge to an aquatic system is not the mass load, but the extent to which discharges to the system serve to increase contaminant concentrations. A toxicological effect is inferred if contaminant concentrations increase to the extent that the survival, growth, and/or reproduction of sensitive species in the habitat are threatened, or if contaminant concentrations increase to the point that the allowable margin of error for estimates of the effects of the contaminants is exceeded.

Deep Water Effects of Treated Effluent

Table V.K.5, p. V.K.43, in the SEIR contains a comparison of the existing pollutant concentrations in the Southeast Plant deepwater outfall effluent with ambient water quality criteria. This comparison is conservative, as explained on p. V.K.41, which states,

> The estimated contaminant concentrations are compared to water quality screening values to determine whether the concentrations in the current waste stream have any toxicological effects on aquatic or benthic organisms, and thus to provide a framework for consideration of whether a 2% to 3% increase in the volume of this waste stream would have any such effects. The water quality screening values are either the Water Quality Objectives (WQOs) adopted by the RWQCB, or where WQOs from the RWQCB are unavailable, U.S. EPA National Ambient Water Quality Criteria for the protection of salt-water aquatic life are used. WQOs are the "target" Bay-wide, open-water concentrations that the RWQCB has determined are suitable for maintaining beneficial uses./22/ WQOs are not used as discharge criteria. Near-shore stormwater discharges relate to WQOs in the sense that existing ambient pollutant concentrations in open-Bay waters are the result of long-term integration by the Bay ecosystem of natural inputs, industrial, domestic and urban discharges, atmospheric deposition, stormwater discharges, and a variety of other inputs.

> Therefore, this direct comparison of municipal wastewater effluent to WQOs is extremely conservative.

Pollutant concentrations are less than the criteria, usually by a wide margin. This would remain true for the two mitigation scenarios. Thus, deep water discharge of treated municipal wastewater from the proposed project or the mitigation scenarios would not be expected to have an adverse effect on estuarine life.

Near-Shore Effects

As explained under "Near-Shore Effects" on p. V.K.42, the potential impacts of shoreline discharges of stormwater and treated CSOs on water quality in San Francisco Bay are estimated by evaluating the potential impacts of near-shore discharges on the biota of the Bay in the immediate vicinity of the discharges. These estimates represent a worst-case scenario because evaluations of potential effects in the immediate vicinity of the discharge (i.e., in the mouth of the discharge pipe) do not take into account the dilution and mixing that occur as flowing stormwater enters Bay waters. The effects of the Mitigation Scenarios are evaluated below in the same context.

The SEIR (on pp. V.K.43-V.K.46) discusses the effects of existing and projected future CSOs on near-shore waters and concludes that with the exception of the estimated concentrations of copper, silver, cyanide, and zinc, total pollutant concentrations in near-shore waters would not be above levels that cause toxicity in aquatic organisms. For more information, refer to the responses regarding "Water Quality Criteria" on pp. XII.334-XII.349. When the fact is considered that only a portion of these pollutants would be dissolved and bioavailable, only copper and cyanide would be above the lower observed threshold of aquatic toxicity. In the Bay, mixing and dilution would occur, so that these criteria are applied in this analysis only as a conservative yardstick. The CSOs are an existing condition; the project's effects would increase the duration of each overflow event by several minutes and increase the overflow volume by about 0.2% annually. Therefore, the project would not be expected to materially affect the concentration of copper or cyanide (or any other pollutant) in treated CSOs. The project effect would not be a significant impact.

Under Mitigation Scenario A there would be no increase in the volume of CSOs, and no increase in pollutant load or concentration in near-shore waters. Therefore, this scenario would produce no CSO-related adverse impacts on near-shore waters.

Under Mitigation Scenario B, the volume of CSOs would be decreased by 33 MG/year or 3.6%, because most of Mission Bay's stormwater runoff would be discharged directly to the Bay. Pollutant

loads discharged in CSOs would also be decreased by 3.6%. Concentrations of pollutants in the reduced CSO discharge volumes would not be affected. Thus, Mitigation Scenario B would have no CSO-related adverse effect on near-shore water quality.

Turning to stormwater discharges, the SEIR (pp. V.K.46-V.K.48) discusses the effects of stormwater discharges on near-shore waters and concludes that, with the exception of copper and zinc, even in the worst case scenario, total pollutant concentrations in near-shore waters would not exceed levels that cause toxicity in aquatic organisms. When the fact is considered that only a portion of the copper and zinc would be dissolved and bioavailable, only copper would be above the lower observed threshold of aquatic toxicity. In the context of the project, initial runoff flows from all storms would be captured and treated; thus stormwater would generally not be discharged during smaller storms. Project-related stormwater would be released only as a result of larger storms as a means of alleviating possible CSOs. Therefore, project-related stormwater runoff would occur only when CSOs are likely (i.e., an average of approximately 10 times per year).

On p. V.K.47, the Draft SEIR incorrectly stated the frequency of project-related stormwater discharges as approximately 4 instead of approximately 10 (the estimated number of CSOs that would continue to occur at China Basin Channel). For this reason, the second to last sentence on p. V.K.47 has been changed as follows:

> **Stormwater runoff from the project would occur only an average of approximately 10 ~~4~~ times per year.**

Under Mitigated Alternative A, vortex separators or similar devices would be used to remove some contaminants from stormwater. They would be expected to remove 20% and 36% of the total copper and zinc, respectively. On the other hand, because the vortex separators or similar devices would only affect pollutants associated with particulates, they would not have a substantial effect on the concentrations of dissolved copper and zinc. Since the immediate discharge of dissolved copper and zinc would not be affected by the vortex separators, the potential acute toxic effects of Mitigation Scenario A would be approximately the same as that predicted for the project; that is to say, the short-term and intermittent release of dissolved copper and zinc from stormwater would not result in significant toxic effects on the near-shore environment of San Francisco Bay. Therefore, the potential acute toxicity effects of Mitigation Scenario A would be the same as the project's, and they would not be significant, as explained on p. V.K.48.

Under Mitigation Scenario B, the volume of stormwater discharged directly to near-shore waters of the Bay would increase to almost 7 times baseline conditions, and loadings of certain pollutants would

increase, despite partial removal by vortex separators or similar devices before discharge. Pollutant loads from stormwater would increase to 3 to 10 times baseline conditions depending on the pollutant, but this increase would be partially offset by a decrease in pollutant loads from CSOs. For example, the copper load in Project Area stormwater would go increase by about 20 lb/yr, but the copper load in Bayside CSOs would decrease by about 11 lb/yr. The zinc load in Project Area stormwater would increase by about 20 lb/yr, but the copper load in Bayside CSOs would go decrease by about 11 lb/yr. See Tables XII.8 and XII.9. The key factor is that the concentrations of dissolved pollutants would not change because the vortex separators or similar devices would not affect the concentrations of dissolved metals.

Stormwater discharge under Mitigation Scenario B would occur with every storm that produces runoff. (Most cities bordering San Francisco Bay likewise discharge stormwater during every storm of sufficient volume to produce runoff.) Thus, stormwater discharge frequency and volume would be greater under Mitigation Scenario B than for the project or for Mitigation Scenario A. However, rains in San Francisco are typically short-term and episodic; runoff from storms is occasional and typically lasts for a short period of time (e.g., two to three days and periods of peak flows would be much shorter). Under such conditions, aquatic organisms would not be exposed to undiluted or relatively undiluted stormwater discharges for sufficient time to cause substantial adverse effects. (A study of *continuous dye releases upstream of CSO points in China Basin Channel during storms showed that a* 10:1 dilution was achieved by the time a sample dye reached the Third Street bridge, and that within 11 hours after dye release, dilutions within the Channel were 100:1./23/) During storms there is additional mixing and dilution due to wind and turbulent waters. Thus, despite the increased frequency of stormwater discharges, Mitigation Scenario B would not cause chronic toxicological effects.

Effects of Pollutant Loads on Sediment Quality

Under "Effects of Mass Pollutant Emissions on Sediment Quality" on pp. V.K.48 and V.K.49, the SEIR evaluates the effects of pollutant loads on sediment quality in China Basin Channel and Islais Creek. As explained on p. V.K.49, the important factor to benthic organisms, which live in the top layer of sediment, is the concentration and bioavailability of pollutants in the freshly deposited materials. Under the project, settleable particulate matter derived from CSOs and stormwater discharges and deposited in China Basin Channel and Islais Creek, for example, would be expected to be similar in pollutant load and chemical characteristics to sediments deposited in recent years from CSOs. Sediment quality in such areas would be expected to remain similar to, if not the same as, that in sediment layers deposited in recent years. Organisms that live in such areas of sediment accumulation are well-adapted to a changeable sedimentary environment, burrowing upward, abandoning previously deposited sediments, and carrying out their vital functions in the top few

millimeters or centimeters of newly deposited sediment; therefore, the project would not have a significant impact on sediment quality in either channel.

Under Mitigation Scenario A, there would be a decrease in CSO volumes to China Basin Channel. (Under the project, the volume of CSOs would decrease in China Basin Channel, albeit less than with Mitigation Scenario A, but increase in Islais Creek.) Under Mitigation Scenario A, the stormwater discharges to China Basin Channel would receive vortex (or similar) treatment. Therefore, less particulates would be deposited in China Basin Channel than under the project, and under the same analysis that the project would not have significant effects in either channel, Mitigation Scenario A would have no significant impacts on sediment quality in either channel.

Mitigation Scenario B would decrease CSOs compared to the project. The volume of stormwater discharges to China Basin Channel would be higher than under the Base Case or the project, but these discharges would receive vortex (or similar) treatment, which would remove a portion of the pollutants associated with the particulate fraction. As explained on p. V.K.49, the important factor is the *concentration* of pollutants in the deposited materials. Under Mitigation Scenario B, the freshly laden sediment quality would be no worse than sediment under the project. Therefore, Mitigation Scenario B would have no significant impacts on sediment quality.

The amount of settleable material discharged under both Mitigation Scenarios would be roughly equivalent. Compared to the project, Mitigation Scenario A would not substantially change the amount of total suspended solids discharged in CSOs, but Mitigation Scenario B would reduce them by about 20,000 lb/yr. As for stormwater discharges, Mitigation Scenario A would reduce discharges of total suspended solids by less than 3,000 lb/yr, but Mitigation Scenario B would increase them by about 20,000 lb/yr. Therefore, when considering all near-shore discharges together, the difference would be inconsequential.

Effects on Water-Contact Recreation

The SEIR evaluates the potential effects of the project on water-contact recreation on pp. V.K.49 and V.K.50. The Bayside Planning Model shows that the project would cause the average duration of treated CSOs at the Channel CSO facilities to decrease by about 0.4 hour per year, or about 2.4 minutes per overflow (24 minutes divided by 10 overflows), and to increase at the Mariposa and Islais Creek facilities by 1.5 and 1.8 hours, respectively (or about 9 minutes and 11 minutes per CSO event). As explained in the SEIR, the project would cause no significant impacts on water-contact recreation.

Under Mitigation Scenario A, there would be a decrease in CSO discharges compared with the project, and therefore, no additional times when CSOs would occur compared with the project. Similarly, there would be no increase in stormwater discharges compared with the project. Therefore, this scenario would have no impact on water-contact recreation.

Mitigation Scenario B would reduce CSO discharges compared with the project and, therefore, cause no additional CSO-related effects on water-contact recreation. On the other hand, the volume of stormwater discharges to China Basin Channel would be higher than under the Base Case or the project, although these discharges would receive vortex (or similar) treatment. In removing some of the settleable solids from the stormwater, the vortex would also remove some of the bacteria. Some bacteria would also pass through the vortex and be discharged along with the stormwater.

As discussed in the response regarding "Water-Contact Recreation" on pp. XII.354-XII.357, relatively little water-contact recreation presently occurs in the vicinity of the Project Area, including China Basin Channel, although some individuals have been known to swim in the area. The Project Area is not monitored for coliform levels, and there are no public beaches in the area; therefore, the Project Area is not subject to beach postings. Stormwater is currently discharged from the Project Area, as discussed on pp. V.K.2-V.K.4. Current stormwater regulations under the Clean Water Act do not require coliform monitoring.

As discussed in the response regarding "Pathogenic Bacterial Contamination" on pp. XII.350-XII.354, total coliform counts are used as a general indicator of bacterial quality. The Basin Plan defines objectives for total and fecal coliform bacteria for water-contact recreation./24/ Fecal coliform tests count organisms present in the enteric systems of warm-blooded animals. Total coliform tests count some organisms naturally occurring in soil and water in addition to those from warm-blooded animals. Coliform bacteria are generally harmless, but fecal coliform are used as an indicator of sewage contamination, signaling the potential presence of harmful pathogenic organisms.

Because stormwater often is in contact with fecal matter from dogs, cats, pigeons, and other urban animals (as well as some humans) as it flows to sewer drains and surface waters, fecal coliform is routinely encountered in stormwater runoff from urban areas. Coliform levels in Santa Clara Valley streams have been found to be about 8 times greater during wet weather than during dry weather, indicating an increase in coliform levels as a result of stormwater runoff./25/ However, coliform levels are generally higher in sewage than in stormwater due to the much higher fraction of feces in sewage. For this reason, coliform levels in treated CSOs (which contain about 94% stormwater and 6% sanitary sewage) are believed to contain higher levels of coliform bacteria than stormwater.

The coliform bacteria found in sewage also tends to contain higher levels of human pathogens than those in stormwater because the sewage coliforms are primarily associated with human waste, whereas stormwater coliforms are primarily not associated with human waste. Although human diseases can be transmitted through non-human species, the tendency for human disease-causing organisms to be present in human waste is greater than the tendency for human pathogens to be present in non-human waste. Because CSOs are about 6% sanitary sewage, they may contain higher levels of human pathogens than stormwater. Nevertheless, human disease has been observed in areas contaminated by stormwater runoff./26/

As shown in Table XII.7, Mitigation Scenario B would result in 91 MG/yr more direct stormwater discharges and 35 MG/yr less treated CSO discharges when compared to the project. Because only about 6% of the treated CSO volumes would originate from sanitary sewage and about 94% would originate from stormwater, the 35 MG/yr reduction in CSO discharges would be made up of roughly 33 MG/yr stormwater and 2 MG/yr sanitary sewage. The net effect would be that Mitigation Scenario B would increase stormwater discharges by about 58 MG/yr and decrease treated sanitary sewage discharges by about 2 MG/yr.

As mentioned above, the Project Area hosts little water-contact recreation, and water-contact recreation is especially uncommon during and after rainfall; therefore, Mitigation Scenario B would not adversely affect water-contact recreation near the Project Area. Water-contact recreation that may occur despite rainfall or stormy weather, such as surfing and windsurfing, does not generally take place near the Project Area due to a lack of favorable conditions. When compared to the Base Case, the project, and Mitigation Scenario A, the greater reduction in the treated sanitary sewage portion of CSOs from Mitigation Scenario B could somewhat improve conditions for water-contact recreation in the vicinity of CSO discharges. Near the Project Area, these potential benefits may be off-set by the increased stormwater flows.

Cumulative Issues

The SEIR evaluates the cumulative issues associated with the project and water quality on pp. V.K.50-V.K.55. The SEIR concludes that although the analysis does not demonstrate any significant cumulative impacts, due to concerns about CSOs and to acknowledge the lack of conclusive evidence refuting a causal relationship between treated CSOs, stormwater discharges, and sediment quality, the SEIR conservatively finds that the project would contribute to a potentially significant cumulative impact on near-shore waters of San Francisco Bay from treated CSOs, and direct stormwater discharges to China Basin Channel. However, with the imposition of Mitigation Measures K.3 and K.4 on p. VI.47, this impact would be reduced to a level of insignificance. Since Mitigation Scenarios

A and B incorporate Mitigation Measures K.3 and K.4, and are analyzed above and determined to not cause significant new impacts, they would also not have significant new cumulative impacts.

Conclusions Regarding Mitigation Scenarios

The analysis above demonstrates that Mitigation Scenarios A and B would both meet or exceed the performance criterion provided by Mitigation Measures K.3 and K.4 using different strategies. No new or substantially increased significant environmental impacts have been identified in either case. Each approach results in relatively minor water quality differences. These differences would relate to total pollutant loads, not soluble pollutant concentrations that relate most directly to acute aquatic toxicity. Both would eliminate increases in overflows and would treat stormwater discharges. The differences would, depending on the pollutant considered, involve relatively small increases or decreases in total pollutant loads from the project to the deep waters of the Bay and the near-shore environment. Even with mitigation, the project could result in changes in total pollutant loads that could affect the overall levels of pollutants in the Channel and Bay, although the changes would probably be immeasurably small compared to existing pollutant levels. Project decision-makers may consider Mitigation Scenarios A and B as specific mitigation options for implementing Mitigation Measures K.3 and K.4. Other mitigation options could also be considered. In any case, by evaluating two different approaches to project mitigation, the analysis above illustrates a range of effects that could be anticipated, depending on how Mitigation Measures K.3 and K.4 would be implemented.

In comparing Mitigation Scenarios A and B to the proposed project, Mitigation Scenario A would increase treated effluent, reduce CSOs, and treat stormwater. It does not increase the volume of stormwater discharges. Mitigation Scenario A would reduce to a less than significant level the project's contribution to cumulative impacts and would lessen the non-significant effects of the project. Mitigation Scenario B would decrease treated effluent, decrease CSOs, and increase stormwater discharges, compared to the project. Under Mitigation Scenario B, stormwater would be treated, but would increase annual average pollutant loads to the nearshore waters and increase the frequency of stormwater discharges from an average of about 10 per year to every rainfall. As discussed above, the increased stormwater discharges would have no significant effects on water quality, aquatic biota, sediment quality, water-contact recreation, or other beneficial uses. By decreasing CSOs and treating stormwater discharges, Mitigation Scenario B would reduce to a less than significant level the project's contribution to cumulative impacts.

In summary, although Mitigation Scenario A would increase effluent flows to deep waters by about 2 MG/yr compared to the project and Mitigation Scenario B would decrease them by 53 MG/yr, these differences represent changes of less than 0.2% from unmitigated project flows. Regarding near-shore

discharges, Mitigation Scenario B would reduce CSO volumes compared to the project about 33 MG/yr more than would Mitigation Scenario A. Because treated CSOs originally contain roughly 6% sanitary sewage, Mitigation Scenario B would reduce discharges of this sanitary sewage about 2 MG/yr more than would Mitigation Scenario A. Mitigation Scenario B would increase direct stormwater discharges to near-shore waters about 91 MG/yr as compared to both the project and Mitigation Scenario A. When the near-shore discharges of CSOs and stormwater are considered together, Mitigation Scenario B would increase direct near-shore discharges by about 56 MG/yr compared to the project, whereas Mitigation Scenario A would reduce them by about 2 MG/yr.

Neither Mitigation Scenarios A nor B would have a significant impact on water-contact recreation. Neither Mitigation Scenario would affect the concentrations of dissolved pollutants in the wastewater streams, but Mitigation Scenario A would decrease total copper loads to near-shore waters by about 1.5 lb/yr, whereas Mitigation Scenario B would increase total copper loads to these waters by about 8.1 lb/yr. Similarly, Mitigation Scenario A would decrease total zinc loads to near-shore waters by about 15 lb/yr, whereas Mitigation Scenario B would increase total copper loads by about 1.2 lb/yr. Both scenarios would include vortex technology to reduce settleable solids, and neither would substantially affect sediment quality. The amount of settleable material discharged under both scenarios would be roughly equivalent.

Crosstown Tunnel

Comments

[T]here seems to be an oversight in Figure J.1, of Volume III. The map of San Francisco, which illustrates the Cities' waste treatment system shows a "Cross Town Tunnel (not yet scheduled for construction)." The Board of Supervisors has stated in a resolution last year that this is no longer a feasible solution to expanding the system and that the city will not be considering this option in the future. Therefore, it should be removed from the figure and any reference to it omitted. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

We have been working for four years to stop the cross-town tunnel because we think there are better ways to solve the problem of the Bay side.

So imagine our surprise when we saw in the smallest way possible, not yet scheduled for construction. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

And first I'd like to also state the oversight of the cross-town tunnel being in the report in Figure J-1, very back end of the third volume.

This needs to be taken out of the project, of course, since the board has already stated in the resolution that this is no longer a viable option as a treatment solution in San Francisco. (*Mike Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Response

These comments recommend revising Figure J.1 on p. J.2 of Appendix J, Hydrology and Water Quality, to eliminate the reference to a cross-town tunnel. The *San Francisco Wastewater Master Plan* includes a cross-town tunnel to transport wastewater from the Bayside to the oceanside. In 1974, when the Wastewater Master Plan was adopted, wastewater discharge standards were changing rapidly, and the City believed future restrictions on wastewater discharges to the Bay could necessitate this major capital project. However, the Regional Water Quality Control Board never required the construction of the tunnel as a National Pollutant Discharge Elimination System (NPDES) permit requirement, and San Francisco now complies with its NPDES permit requirements. See also the responses regarding "Background Regarding the Existing Combined Sewer System" on pp. XII.232-XII.238 and "Wet-Weather NPDES Permit" on pp. XII.371-XII.376. The San Francisco Board of Supervisors has not adopted formal legislation to remove the cross-town tunnel from the Wastewater Master Plan, but the tunnel is no longer considered a foreseeable option for future wastewater management./27/ As discussed in the response regarding "New Water Quality Standards" on p. XII.371, future changes to discharge standards cannot be anticipated; however, if new standards are ever promulgated that substantially affect the City's ability to discharge wastewater to the Bay, the City would likely study reasonable options and alternatives to achieve the new discharge requirements at that time. Because the cross-town tunnel is no longer reasonably foreseeable, Figure J.1 has been revised as shown on the next page to remove the reference to it.

Brown and Caldwell (Crites) Report

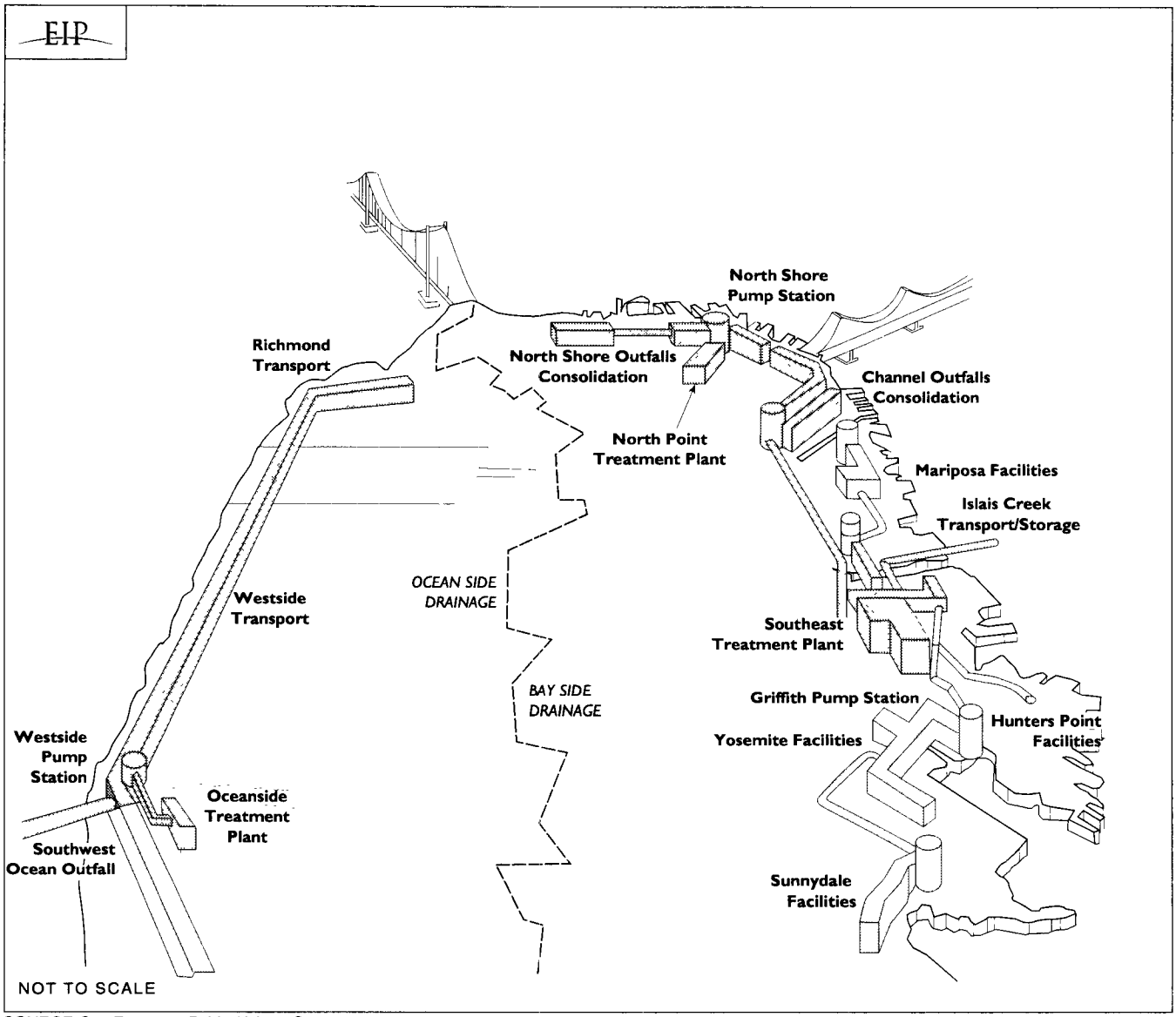
Alternative Technologies that Prevent Pathogens and Contamination of Fish

Comments

Ron Crites's "Preliminary Screening of Alternative Wastewater and Stormwater Management Technologies," is unfortunately short sighted in alternatives, especially dealing with pathogens and toxic contamination. Alternatives need to include technologies that prevent pathogens from entering the bay and creeks to protect human health and the aquatic environment. Only this will ensure that Bay fish are not contaminated with mercury, dioxin, PCBs, and silver. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

Response

The SEIR analysis finds no significant adverse effect from the project with respect to pathogens, human health, or Bay fish contamination. No substantial evidence has been received during the SEIR's review period that a significant impact would occur. Therefore, alternatives that would prevent pathogens from entering the Bay are not warranted for the project.



SOURCE: San Francisco Public Utilities Commission, 1997

MISSION BAY SUBSEQUENT EIR

FIGURE J.1 (REVISED) SAN FRANCISCO CLEAN WATER PROGRAM COMBINED SEWER SYSTEM CONCEPTUAL DIAGRAM

The Brown and Caldwell Report was prepared for the San Francisco Public Utilities Commission (SFPUC) independently of the environmental review process for the Mission Bay project. Comments and other concerns on the Brown and Caldwell Report should be addressed to the SFPUC. See the response regarding "Adequacy of Information about Project Wastewater Options," pp. XII.280 - XII.289 for further discussion of the purpose of the Brown and Caldwell report. Pathogens are a source of concern because they are associated with human disease. Pathogens are found in sanitary sewage that has not undergone disinfection. Because CSOs contain some portion of non-disinfected sanitary sewage and stormwater generally does not, CSOs are one source of pathogens in receiving waters. The implementation of alternative technologies for stormwater management would not be effective at controlling pathogens. See the response regarding "Alternative Technologies for Stormwater and Combined Sewer Overflows" on p. XII.299. The SEIR discusses changes in Bay pathogen levels as they relate to combined sewer overflows and how such changes could affect water-contact recreation (see "Volume and Quality of Treated Combined Sewer Overflows," p. V.K.36, and "Effects on Water-Contact Recreation," p. V.K.54). Also see the responses regarding "Pathogenic Bacterial Contamination" on pp. XII.350-XII.354 and "Consumption of Bay Fish" on pp. XII.389-XII.392.

To the extent that CSOs contribute to pathogen levels in the Bay, Mitigation Measure K.3 would reduce the project's future CSO discharge contribution to zero, which could be achieved through storage, detention, or other means. To the extent that stormwater discharges could contribute to near-shore pollutant loading, Mitigation Measure K.4 would implement alternative technologies to reduce settleable solids and floatables in stormwater discharges to China Basin Channel. See also the responses regarding "Illustrative Mitigation Scenarios" on pp. XII.253-XII.277, and "Stormwater Treatment" on pp. XII.291-XII.294.

Adequacy of Information about Project Wastewater Options

Comments

The CH2M Hill study referenced on p. V.K.28 as identifying ". . .the full range of alternative technologies available" has been criticized as inadequate by the San Francisco PUC's Technical Review Committee (made up of internationally respected environmental engineers and scientists)[1]. They have recommended a much expanded study lead by an engineer with proven expertise in alternatives. Reliance on the CH2M HILL study ignores a large number of feasible wastewater alternatives.

[1] July 12, 1997 memo from Prof. David Jenkins to Steve Ritchie

(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])

The CH2M HILL study referenced on p. V.K.28 as identifying ". . .the full range of alternative technologies available" has been criticized as inadequate by the San Francisco PUC's Technical Review Committee (made up of internationally respected environmental engineers and scientists). (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

Having been given an extra two weeks on the deadline for written comments, for which we thank the Planning Commission and the Redevelopment Agency Commission, the Toxics subcommittee has reviewed the "Technical Report - Preliminary Screening of Alternative Wastewater and Stormwater Management Technologies - Mission Bay Project" (the Technical Report) of the PUC's technical consultant, Ron Crites of Brown & Caldwell. We also attended a Wastewater CAC meeting on June 2, 1998 at which the report was presented by Mr. Crites and discussed by the Chair of the PUC's Technical Review Committee. The subcommittee has determined that:

The Technical Report represents the beginning of a comprehensive study of alternative wastewater solutions for bayside discharges. When that study is completed, the PUC will be in a position to evaluate the best alternatives to reduce discharges of pollutants to San Francisco Bay. In the meantime, it provides a tremendous opportunity to incorporate alternative technologies into the Mission Bay planning process. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

We believe this SEIR is seriously deficient in providing critical information needed to accurately assess its impact, or needed mitigations. Critical information is still not available to the public. The process and timeline by the City PUC has been not only inadequate, but seems designed to hamper proper public input and review of important information. . . .

There has been a bad faith refusal by the City PUC to address these issues by looking a full fledged alternative wastewater options for this project, not just token, "alternative" window dressing on the proposed plan. They have ignored or improperly constrained the clear-cut will of a large collection of citizen groups concerns, from Bayview, to Bernal Heights to the Sunset, from various environmental groups like Baykeeper, civic groups like S.F. Tomorrow, and Bay and Ocean users like Surfriders and S.A.F.E.R., representing those who fish for food in the Bay, to look fully at the City's possible options. They have ignored or improperly constrained the clear-cut instructions of the Board of Supervisors to look fully at these issues and possible options.

It is our view that it should be withdrawn, and recirculated with the additional necessary information and adequate time, for public review in order to best ascertain this project's potential impacts and ways of mitigating them. Further there should be a full-fledged good effort by City staff to address the above issues and have the decency to allow these options to be put before the public and City decision-makers. . .

The SEIR process so far has been inadequate in that it has not allowed proper time [for] the consultant on alternative wastewater options to issue a final report. The consultant has been improperly constricted from delivering a full report. The process has denied the public adequate input and access to information.

The SEIR process so far has been inadequate in that it has not allowed proper time [for] the consultant on alternative wastewater options to issue a final report:

Mr. Crites, the PUC's consultant on alternative wastewater was hired very late in the process. I believe he did not get a final o.k. to begin until late March. The Draft SEIR was published 2 or 3 weeks later. The public requested that the PUC hire him in Early October of 1997. Regardless of the reasons why this took so long, the public requested that the Planning Department delay the publication of the EIR until Mr. Crites was on board, had the minimum of 8 weeks he requested to deliver a draft report, so that it could be included in the widely circulated draft. This request was communicated [to] the PUC by a letter from the Alliance for a Clean Waterfront on January 15th. (Attachment #1, enclosed) This request was repeated and put before representatives of the Planning Department, the PUC, and the Mayor's office at a meeting of the Mission Bay CAC Subcommittee on Toxics and Wastewater at a meeting in March, prior to the publication of the Draft SEIR. At a subsequent meeting in April of this committee, just after publication of the SEIR, in early April (I believe it was April 13, or 20) we again requested a delay, this time of the Public Hearing and written deadline so that the Public could review the report before the hearing and written comment deadline. Again, our request was turned down.

In addition both the Commission on the Environment and the Board of Supervisors passed resolutions urging the PUC to conduct a "timely" and comprehensive look at the use of alternatives for the big new bayside development in light of the fact that Bayview community had received a disproportionate [share] of the burden of the City's wastewater system. The Commission passed its recommendations in February, 1998; the Board passed its resolution on March 20, 1998. (attachment #2)

Neither the publication of the SEIR, nor the Public hearing was delayed to fit in Mr. Crites' draft report.

In fact the consultant was given another job by the PUC that slowed him down even further during this critical time period. No effort was made to give him additional resources in order to proceed on both projects simultaneously. Further, his draft report was requested by the PUC to be completed by May 22, 1998 - the Friday before Memorial Weekend, with the original close of Written comment on Tuesday May 26. A first meeting of the Technical Review Panel was scheduled for June 2 - after the original written deadline.

The final deadline for written comment was delayed for. . .two weeks until today June 9, 1998 only because of the urgent request by the various members of the public to the Planning and Redevelopment Commissions at the May 12 Public Hearing. We requested the delay until such time as the consultant could complete his draft, the Technical Review Committee, chosen by mutual negotiation by the Public and City staff (see enclosed attachment #3), had adequate time to meet and review relevant materials, and include time for the previous precedent of a public meeting for input on both the draft and the TRC review. The mere two week fixed extension has proven inadequate to provide even the minimum amount of time needed for a TRC review, public input and final report. The public was only given access to the draft one day before the meeting of the TRC thus hampering the public ability to provide meaningful input to the process. The TRC was unable to perform under this ridiculously short timeline. There will still be no final report until after the written deadline.

The "alternative" consultant's report should have significant and relevant material - important to the full decision-making process of the SEIR process. The "alternative" consultant's report was improperly proscribed. He sand the TRC should reissue a new draft that allows him to address the full range of issues necessary, with adequate time and full public input.

At a minimum Mr. Crites' report, with TRC review, should bear significantly on the possible mitigations that may be recommended for wastewater issues. As pointed out in comment letter by Trent Orr for Mission Creek Conservancy, the Comment letter from Mike Thomas, et. al. from the S.A.F.E.R. project, and the letter from Urban Ecology, the Mitigation section is vague, unspecific, and with the "or" word, subject to a wide and unknown range of possible scenarios.

Mr. Crites draft report, was issued in the last week before written deadline, and only one day before the public had any access to an improperly noticed meeting on the subject. (see attachment 4: no mention of the presence of the TRC or the possibility to discuss the report with them). . . .

The public found that the report itself was severely and improperly constricted. Once again, a large contingent of citizen groups requested the alternative consultant be hired to look at Mission Bay, in conjunction with the TRC and the TRC outline for a serious study of alternative issues. Recognizing that this was not the full bayside watershed study that the public and the Board and the Commission on the Environment had repeatedly requested, there was the clear desire to see if a full-fledged use of alternative wastewater options could be deployed to take care of wastewater that would be generated by this project. Again, the Commission and the Board passed resolutions urging a full study of alternative options for the big new bayside development, with full consideration of the implications of cumulative development and the issue of disproportionate burden on the Bayview/Hunters Point community. (see again attachment 2 Board Resolution 249-980)

On May 18 we requested of Michael Carlin of the PUC to see the PUC's instruction to the TRC and Mr. Crites. We were faxed a memo to the TRC and Mr. Crites proposal to the PUC in response. I put in several calls to Mr. Carlin, pointing out that he had sent me Mr. Crites' proposal. At the June 2 meeting Mr. Crites informed me that they had accepted his proposal with the amended task orders (see attachment 5). While we find this document to be short of what we the public, and the Commission, and the Supervisors requested, we find that his report falls short of even his scope of services as listed in his proposal, and was sent to us by the PUC in response to our request to them on their instructions to Mr. Crites.

The Draft Report Falls Short of the Scope of Work
The report was to include review by the TRC (Technical Review Committee) and the outline they generated in July, 1998 attached to Mr. Crites draft report. (our attachment 6, note 1 at page of the TRC outline published last year vs. the 1st page of the outline submitted with the Crites draft report)

From Attachment 5: Crites Scope of Work:

"Our. . .scope includes an array of options for watershed stormwater management, decentralized wastewater management, wastewater treatment, water reuse, and recycling. . .

"Technologies will be evaluated for their capability to reduce pollutant mass loading to the bay, minimize or eliminate combined sewer overflows[,] optimize water reuse for environmental enhancement/sustainability, and be complementary to existing PUC planning efforts and priorities. . .

"The Mission Bay redevelopment affords the opportunity to evaluate different water reuse, stormwater treatment, and management options. . .

"Stormwater and combined sewer technologies will be evaluated for appropriateness to the situation, ability to reduce peak flows and loads on the Southeast Water Pollution Control Plant (Southeast Plant) and the potential to reduce or eliminate CSO's. . .

". . .will focus on both reducing wastewater and solids on the Southeast Plant and creating nonpotable water supply for the eastern bayside portion of the City. . .

". . .review the project proponents approach to wastewater management including collection, treatment, and reuse. . .

". . .review the TRC list. . .and evaluate potential methods. . .

". . .estimate costs and effectiveness of the proposed and alternative stormwater management techniques. . .

"Attend TRC Meetings. . .compare the TRC list with the proponents approach to wastewater and stormwater management. . .present analysis of alternatives for wastewater and stormwater. . .

". . .respond to issues which may arise in TRC meetings, scope additional evaluations and analysis. . .

". . .after considering the TRC's comments, the draft report will be revised with input from the staff and interested citizen's group, and a final report will be prepared. . ."

Instead what we got was "Ron Crites in a box." When the draft report was issued one day before the public meeting, we read that the report:

From Crites Draft Report:

". . .The scope of the report is to review the Mission Bay project and to evaluate potential mitigation measures for the project

". . .The purpose of the report is to provide an array of alternatives for wastewater and stormwater to comply with mitigation measures

". . .the report is not to recommend a specific technology or management plan but to narrow a list. . .

". . .the report does not assess feasibility based on the entire range of issues that the City must ultimately consider, such as social, political, economic, and legal factors. . .

". . .alternatives are evaluated solely for their ability to produce recycled water and not as an alternative to treatment at the southeast Treatment Plant. . .

". . .no attempt has been made to make recommendations for the use of a specific technology. . .

Many of the factors recommended in the TRC outline of July 1998 that was used for a reference were ignored by this improperly limited scope. Of major importance was listed on page 1 item 1.C.2. "Minimize adverse environmental impacts to San Francisco **neighborhoods** and San Francisco Bay Region." Inexplicably, the line about neighborhoods was dropped out so that the TRC outline submitted with Ron Crites' report read "1.C.2. "Minimize adverse environmental impacts to San Francisco"-end of sentence. Indeed this omission whether by design or mistake is the crux of one of the key issues. . . .

We insist that the alternative consultant be allowed to fully discuss options in line with the Board's most recent unanimous resolution (enclosed) 249-98, the clear message from the limited, rushed, inadequate public meeting that was held on June 2, and the full set of factors outline by the TRC. That, combined with an adequate and reasonable timeline and process for both TRC and public input AND a recirculation of an amended factual basis with which to judge impacts, determine levels of

significance, and proscribe adequate mitigation would provide the City with a process that meets the public good, and CEQA. . . .

The process has denied the public adequate input and access to information, and the process was subject to several improper maneuvers by the PUC to reduce public and alternative expert involvement.

The draft "alternative" report was not available in a timely fashion to us or the TRC.

The PUC improperly disinvited one of the key "alternative experts who had been on the TRC for 2 ½ years and was one of the choices negotiated by the public over 2 ½ years ago. The TRC was clearly a mutually agreed upon committee (see enclosed attachment, PUC EPA Grant Application.) To disinvite Dr. Middlebrooks, President of the American Academy of Environmental Engineers, without calling him, checking with other TRC members, or even notifying the public was a serious abrogation of previous agreements with the public, and the fact that they tried to sneak it by with no notice is the kind of maneuver that continues to anger citizens and destroys good faith, and reduces (see enclosures: Coalition letter to Dr. Middlebrooks, "Did You resign, were you notified. . .", Reply from Dr. Middlebrooks, No I didn't resign, yes I'm willing to serve", memo from Steve Ritchie, "we didn't invite him because he moved and he's retired, and we wanted to save money, attachment #7) Dr. Middlebrooks moved from Nevada to Colorado, he resigned his teaching post. He's still very active. He's been with the TRC since its inception. He was part of a mutually agreed panel. Four Supervisors had just told the PUC staff that they wanted more attention and resources paid to this issue - more, not less. Ammiano, Katz, Brown and Bierman at a May 14 Health, Family, and Environment Committee Hearing on Bayview Sewage Problems.

The public was denied access to the TRC afternoon deliberative session, despite a previous agreement with the TRC (see attached TRC letter and outline of July, 1998). While the responsibility for this goes back and forth, we had an agreement from the previous TRC meeting. We know Dr. Middlebrooks was left out of the decision. We called the other two "alternative experts when we heard that the previous agreement was not going to be honored. One was out of the country, the other disagreed with that decision and was never informed of that position.

The only meeting where the public had any access to the TRC was the June 2 meeting that was noticed only as a report by Mr. Crites to the CAC (Citizen Advisory Committee) on Wastewater. There was NO mention of the TRC being present.

That meeting, which was the only access was set for 5:30 pm on Election day making it hard for people who work 9-5 or 9-6 to make the meeting. People involved in electoral issues could not make it. This was an extremely poor choice for a date for the only, rushed opportunity for the public to have input. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

The SEIR states that "[t]he City and its technical consultant are currently conducting an independent assessment of. . .alternative [treatment] technologies, and their applicability to Mission Bay." Vol. II at V.K.28. As of the date of this comment letter, it is BayKeeper's understanding that not less than four technical reviewers (three retained by the City and one retained on behalf of the Mission Bay Citizens Advisory Committee) currently are analyzing the wastewater portions of the SEIR. The City's CEQA process must accommodate this important new information, both in terms of any responses as well as the length of the comment period. In particular, the public is entitled to a full 45 day period to review the technical consultants reports. Pub. Res. Code § 21092.1; 14 CCR § 15088.5. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

It appears to me that every effort is being made to put the Mission Bay Development (and possibly several other major developments) on a fast track that absolutely short circuits logic, reason and common sense. As a citizen of San Francisco I demand that the proper amount of time, attention is given, and reasonable studies and planning are carried out to insure that these developments do not have unnecessary and/or undue impacts on the environment and people of San Francisco and this region. Mishandling these projects and their attendant wastewater, sewage and all the other impacts could create decades of problems with huge costs to the taxpayers to fix these problems. With thorough and careful planning many could be mitigated to varying degrees.

Why is this plan - Why are ALL of these plans - being rushed so fast? We have a Board of Supervisors mandated Technical Review Committee retained by the City who have been hired to do a comprehensive study of environmentally sound alternatives to the current systems for wastewater and sewage. This group is made up of individuals having top flight national and international reputations. Why are they being put into the backwaters? Why are they not being given enough time to look at the plans, make a report and their recommendations, and allow the public to read their report and comment on it. This very capable group should be allowed to fully report, in an unfettered manner, on this development and its potential cumulative impacts. This would be a wise way to head into the future.

Mr. Ron Crites was hired by the city to look at the new development. He should be allowed the proper time and not be artificially limited as to scope to allow his report to be realistic and meaningful. Mr. Crites should be allowed to report whatever his expertise suggests on this development. The TRC should be allowed the time to absorb his study; Crites should have the time [to] study their final report. The people of San Francisco should have the time to read and study all of this very important information and time to give their input. (*Paul Hessinger, Coalition for Better Wastewater Solutions*)

The public has not had the benefit to review the comments of Ron Crites, technical consultant to the PUC, on the sewer and stormwater issues presented by the Project before commenting on these aspects of the project as presented by the SEIS/SEIR. The PUC and Mr. Crites have begun to study alternative wastewater treatment approaches for Bayside sewer and stormwater discharges, as requested by the Board of Supervisors. Only when that study is completed, will the PUC be able to determine the best means to reduce pollutant discharges from the Project as mandated by CEQA. The report will not be presented until June 2, 1998. (*Alex Lantsberg, Project Coordinator, Southeast Alliance for Environmental Justice*)

If the city is truly considering alternative wastewater treatment technologies for use in this project area as well as throughout the city, then I would like to see more detail of possible options. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

In terms of wastewater and stormwater planning, the SEIR is a document that, unfortunately, is becoming all [too] typical of such efforts when the subject area is the San Francisco Bay waterfront and environs. It is lacking in both substance and imagination, and while it can perhaps be argued that an EIR is not required to demonstrate imagination, this compilation is so thin in data and documentation that it fails to meet the most basic guidelines required by law of an EIR.

When the Wastewater and Stormwater TRC was first impaneled, the Draft Overview of Wastewater Management Alternatives for Reducing Pollutant Mass Discharge to the Bay, prepared for the San Francisco Public Utilities Commission by CH2MHill in March, 1997, and delivered to the TRC,

identified over 40 alternatives that could contribute to the stated goal of improving environmental quality on the Bayfront. It should be noted that this was only a preliminary list, and that the expectation at that time was that it would begin a comprehensive and wide-ranging gathering of as many pieces to the puzzle as could be found. (*Bill Wilson, Environmental Planning & Design*)

Response

These comments raise a number of issues about the adequacy of the Crites (Brown and Caldwell) report and the public input process regarding selecting wastewater treatment options for Mission Bay and for the Bayside. The issues raised include a concern that there may have been insufficient time given to Brown and Caldwell for preparation of the report; insufficient time for public review of and response to the report; a limit on the scope of the report to examining technologies for Mission Bay only, without examining the full range of technologies for the Bayside; and requests to delay the SEIR process because of new significant information about alternative technologies for Mission Bay. One comment alleges the SEIR is deficient due to lack of data and documentation.

As noted in the comments and acknowledged in the SEIR on p. V.K.27, the Board of Supervisors passed a resolution in late 1996 directing the San Francisco Public Utilities Commission (SFPUC) to study the feasibility of alternative wastewater treatment technologies for the Bayside. An April 1997 report prepared by CH2M Hill presented a compendium of various available technologies. As noted by one comment, that report provides the City with a starting point for consideration of the feasibility of those technologies. Because new development in the Bayside affords the most opportunity to implement alternative technologies, the SFPUC has chosen to evaluate the feasibility of these various technologies for applicability to each new major development as it is proposed. Thus, the report prepared by Brown and Caldwell focuses on applicability of the technologies to Mission Bay. Similar reports may be prepared for other major Bayside development projects.

The purpose of the Brown and Caldwell report is "not to recommend a specific technology or management plan but to narrow the list of appropriate technologies for wastewater recycling and reuse and for stormwater management."/28/ This report was prepared independently of the SEIR, and is part of the City's effort to prepare long-term strategic plans for future water pollution control activities, and respond to the Board of Supervisor's resolution that alternative technologies be studied in more depth. The report may be useful to the City and the project sponsors, along with other studies or information illuminating the advantages and disadvantages of various specific wastewater management options for the project. Some options discussed in the report could serve to satisfy the performance criteria of Mitigation Measures K.3 or K.4, if these are adopted. However, the report and similar information in this document responding to requests and comments do not add new information about potential project impacts and do not suggest substantially different mitigation measures or project alternatives. Therefore, the Brown and Caldwell report does not constitute new significant information

that would require public recirculation of the SEIR or a delay so that it can be incorporated into the CEQA process.

The Brown and Caldwell report suggests further study of a number of potential options that the project could utilize to achieve the performance criterion set forth in Mitigation Measure K.4 of the SEIR; it does not recommend that particular, specific technologies be adopted for the Mission Bay project. Further, the report does not preclude other alternative technologies from being considered for application to Mission Bay. During the 20-year build-out of the Project Area, it is anticipated that technical advancement in alternative technologies would occur, and new technologies could be developed. As noted in one comment, the Brown and Caldwell report provides an opportunity to incorporate alternative technologies into the planning process for Mission Bay.

With regard to comments that an insufficient amount of time was given to Brown and Caldwell to write the report, and that the report should be rewritten, such comments should be directed to the SFPUC. The Brown and Caldwell report was finalized July 7, 1998, and includes a summary of comments by the SFPUC's Technical Review Committee (TRC). Again, this report was prepared independently of the SEIR in terms of scope, content, and deadlines.

If Mitigation Measure K.4 is made a condition of approval, the mitigation monitoring program adopted for the project would track the progress of the mitigation measure. The comment calling the mitigation section vague and unspecific because the Brown and Caldwell report has a significant bearing on the mitigations is addressed in Mitigation Measures, "Delay in Specification of Mitigation Measures," pp. XII.458-XII.460.

With regard to public participation as to how technologies would be selected for implementation at Mission Bay, there is no formal public process in place. The performance criterion in Mitigation Measure K.4, which calls for implementation of alternative technologies or other means to treat project-related stormwater discharges into China Basin Channel, is that the treatment effectiveness of those technologies must be equivalent to, or better than, the treatment effectiveness of the large-capacity box sewers from which CSOs are discharged. See the response regarding "Stormwater Treatment," pp. XII.291-XII.294, for additional discussion of the meaning of Mitigation Measure K.4. As discussed in the response in Mitigation Measures, "Approval and Implementation of Mitigation Measures," if Mitigation Measure K.4 is made a condition of approval on the project, Mitigation Measure K.4 would be included in the mitigation monitoring program, and the mitigation would be enforced by a City department or the Redevelopment Agency. In this case, the department most directly responsible for enforcing the mitigation would likely be the SFPUC. CEQA does not require public input when implementing details of mitigation measures.

Comments requesting an extension of the public comment period for the SEIR to accommodate review of the SFPUC/Crites report are referred to the response in General, "Brown & Caldwell Report." Comments regarding concerns about the absence of Dr. Middlebrooks from the TRC do not address the accuracy or completeness of the SEIR, and no response is required under CEQA. Those concerns have been directed to the SFPUC for its consideration.

Adequacy of Catellus (Lee & Ro) Report

Comments

The draft (p. V.K.28) admits that no independent feasibility analysis has been performed for the various alternative wastewater technologies as applied to the Mission Bay project. The Catellus feasibility assessment is obviously *not* independent, and its negative conclusions about a few very narrowly defined alternatives (p. V.K.28-30) reflect limited knowledge of the capabilities of alternatives. Two examples of overlooked alternatives are: (a) evergreen trees are not dormant in winter, and would continue to provide nutrient and metals removal, and (b) package treatment systems could be cost-effective when combined with other alternatives instead of providing reclaim-quality water. Reliance on the Catellus study again ignores a large number of feasible wastewater alternatives. *(Jeff Marmer, Coalition for Better Wastewater Solutions) [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

Catellus' consultants (Lee & Ro, Inc.) prepared a Technical Report on Alternative Water Quality Control Technologies for the Mission Bay Project, which concluded that the proposed plan (combined sanitary sewage and stormwater North of the Channel, and separate sanitary sewage and stormwater collection South of the Channel) would be equivalent to the alternatives studied of at least 80 percent capture of all project storm water and subsequent treatment at the Southeast Water Pollution Control Plant (WPCP). No study was done on the pollutant loadings of CSO's or stormwater (in excess of what can be captured and treated at the WPCP) into Mission Creek or the Bay. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Despite the abundance of alternatives, the SEIR makes only the most cursory reference to them, and apparently the only documentation for any evaluation of alternatives whatsoever is the 1+ page letter from Catellus consultants Lee & Ro to Catellus Project Manager David Knadle. Besides containing little data, the opinions in the letter are factually incorrect in key areas. For instance, in discussing decentralized water recycling, the statement is made that "pollutants removed by recycling process would still require treatment at Southeast WPCP." All industries practicing zero-discharge programs would be surprised to learn this. It really depends on the resource recovery methods and the pollutant being referred to and the fate of that pollutant. For instance, nitrogen forms, phosphorous, and many metals may be removed from the waste stream prior to discharge. VOC's and hydrocarbons, even chlorinated compounds, may be subject to oxidation and bioremediation processes at any site. Pathogen removal rates can also be high and thorough. What pollutants are they referring to? . . .

The Lee & Ro letter is much too general, too limited, and too inaccurate a document to be given the weight it is as a reference in the Hydrology and Water Quality analysis of the SEIR. (*Bill Wilson, Environmental Planning & Design*)

Without the technical evaluations, the SEIR's discussion of Source Control Technologies, Treatment Optimization Technologies and Post-Secondary Treatment Technologies are incomplete and simply emphasize Catellus' categorical rejection of each of those options. Vol. II at V.K.28-30. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

These comments criticize the SEIR's apparent reliance on the February 20, 1998, letter report prepared by Lee & Ro, Inc., for Catellus Development Corporation. The comments state that the report was not prepared independently and does not adequately address alternative treatment technologies. The comments make several specific criticisms related to the adequacy of the Catellus report, and they state that the SEIR does not adequately evaluate alternative technologies.

Catellus evaluated various alternative technologies while defining its project proposal. Catellus then proposed a separated sewer system for the Central/Bay Basin that would be connected to the combined sewer system so that initial stormwater flows could be captured and treated. The proposed system would capture about 80% of stormwater runoff from the Central/Bay Basin. Lee & Ro indicated that alternative technologies could provide similar removal levels for suspended solids./29/

On p. J.5 of Appendix J, Hydrology and Water Quality, the SEIR refers to and summarizes the Catellus report. The SEIR clearly attributes the report to Catellus, referring to the analysis as providing Catellus's conclusions. The SEIR does not assume objectivity on the part of the Catellus report, noting under "Alternative Wastewater Treatment Technologies" on p. V.K.28 that "no independent feasibility analysis has been performed." Furthermore, the SEIR does not rely on the report in its analysis of environmental impacts, presented under "Impacts" on pp. V.K.22-V.K.61. The wastewater treatment system proposed by Catellus is thoroughly analyzed in the SEIR for potential environmental impacts. The SEIR concludes that the project's proposed system would not cause any significant impacts to water quality, sediment quality, and beneficial uses of Bay waters. Thus, no alternative wastewater treatment systems or options, such as those rejected by Catellus in planning the project, are required to be studied and analyzed in the SEIR. The SEIR's discussion of options studied and rejected by Catellus is for informational purposes only. To the extent that the SEIR has identified a contribution to significant cumulative impacts, the recommended approach to mitigation is not to prescribe a specific technology, but instead to establish a performance criteria. For this reason, the SEIR does not evaluate specific options not proposed as part of the project, such as evergreen trees, package treatment systems, and water recycling systems. Therefore, responses to specific criticisms regarding the Catellus report are not provided here.

The SEIR does not constrain the possible implementation of alternative technologies in the Project Area. In fact, Mitigation Measure K.4 on p. VI.47, addressing a potential project contribution to a

potential cumulative impact, would require the implementation of alternative technologies or other means to reduce settleable solids and floatable materials in stormwater runoff discharged to China Basin Channel. Since the Draft SEIR was published in April 1998, the San Francisco Public Utilities Commission has undertaken an independent review of potential alternative technologies for the Mission Bay Project Area. For more information, refer to the response regarding "Brown and Caldwell (Crites) Report" on pp. XII.278-XII.289. To update the text of the SEIR to reflect the study undertaken by the Public Utilities Commission, the text beginning with the first full sentence at the top of p. V.K.28 has been revised as follows:

> **A brief summary of the draft report's findings is provided below. ~~No independent feasibility analysis has been performed for the various technologies as applied to the Mission Bay project.~~ The San Francisco Public Utilities Commission has completed ~~City and its technical consultant are currently conducting~~ an independent assessment of these and other alternative technologies, and their applicability to Mission Bay. The report found that alternative stormwater treatment technologies potentially appropriate for Mission Bay include vortex gravity separators, sediment/oil trapping, and enhanced sedimentation, but does not make a specific recommendation for use of a specific technology. In addition, Catellus has prepared a feasibility assessment which is provided in "Catellus' Feasibility Assessment of Alternative Wastewater Treatment Technologies for the Mission Bay Project," in Appendix K, Hydrology and Water Quality. Also see Mitigation Measure K.4 in Section VI.K, Mitigation Measures: Hydrology and Water Quality.**

Mitigation Measures

Stormwater Treatment

Comments

The Mission Bay Citizens Advisory Committee supports:. . .A requirement that stormwater discharges to Mission Creek and S.F. Bay from the Mission Bay project area in excess of the amounts captured and treated at the Southeast Water Pollution Control Plant be treated to at least the same level as those sent to and treated at the SWPCP. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Support a requirement that storm water discharges to Mission Creek and San Francisco Bay from the Mission Bay project area in excess of the amounts captured and treated at the Southeast Plant be treated to at least the same level as those sent to the Southeast Plant. (*Corinne W. Woods, Mission Creek Harbor Association, and Waterfront Chair, Bay View Boat Club*)

Stormwater discharges in Islais, Mission Creek, and the Bay must receive the same treatment, regardless of whether or not it is captured and sent to the Southeast plant. . . . (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

Mitigation Measure K.4 requires that stormwater discharges from the project into China Basin Channel should have water quality levels "equivalent to, or better than, City-treated combined sewer overflows." This level of water quality is unacceptable, since it represents less-than-primary levels of treatment without disinfection and since CSOs are currently resulting in impaired water quality in San Francisco Bay that is unacceptable to growing numbers of local residents. Mitigation Measure K.4 should be revised to state that discharges from the project to China Basin Channel should have water quality levels that will not exacerbate toxicity levels in the Channel already identified by the RWQCB. (*Kate White, Program Director, Urban Ecology, Inc.*)

Moreover, BayKeeper believes the cited goal of improving proposed new storm water quality to something slightly better than the current CSO discharges is hardly a lofty goal. Indeed, for new storm water flows to approach the quality of existing CSOs would certainly not comply with the maximum extent practicable standard applicable municipal storm water systems throughout the country. Both of these mitigations need to be more carefully thought through and put out for public comment before the SEIR is finalized. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Further, all stormwater discharges from the Mission Bay Project area, whether captured and sent to the SWPCP or not, should be treated to at least the same level as would be received at SWPCP before they are released to Mission Creek and the Bay. (*Trent W. Orr, Attorney at Law, representing Mission Creek Conservancy*)

Response

These comments recommend that project-related stormwater discharges be treated to a level equivalent to that provided by the Southeast Water Pollution Control Plant. Some of the comments interpret Mitigation Measure K.4 on p. VI.47 to require that the quality of stormwater discharged from the Project Area be at least equivalent to the quality of existing combined sewer overflow (CSO) discharges, and suggest that this level of mitigation would be inadequate.

Current regulations require municipalities with separated stormwater sewer systems to develop stormwater management programs that reduce the discharge of pollutants to the maximum extent practicable (MEP) (see pp. V.K.19-V.K.21). The regulations encourage reliance on the use of Best Management Practices to meet the MEP stormwater standard, rather than the use of conventional treatment at a treatment plant, which is subject to stricter and more specific standards. In San Francisco where most stormwater is collected and treated within the City's combined treatment system, discharge of stormwater, whether as combined effluent that has been treated to a primary or secondary level, or as part of CSOs, which is subjected to flow-through treatment, is more strictly regulated than stormwater from other municipalities that is directly discharged without treatment. As discussed on pp.

V.K.56-V.K.57, pollutant loading to the Bay could increase if stormwater were to continue discharging directly to the Bay under interim conditions as phased development occurs in the Project Area. Mitigation Measure K.5 (p. VI.47) would require development and implementation of a stormwater management program with Best Management Practices that would meet the MEP standard.

As described on p. V.K.38, about 15.6 MG/yr of stormwater currently flows untreated to the Bay from the Project Area. With the "Proposed Drainage Plan" (pp. V.K.24-V.K.27), stormwater falling on the North Basin and the Mariposa Basin would flow to the combined sewer system. Most of these flows would be treated at the Southeast Plant. A relatively small portion would be discharged as treated CSOs (refer to the flows summarized in Figure V.K.3 on p. V.K.31), unless Mitigation Measure K.3 is implemented. In the Central/Bay Basin, the "initial flows" of stormwater from each storm (about 80% of the average annual stormwater runoff from the Central/Bay Basin) would be captured and sent to the combined sewer system. The remaining 20% would be discharged directly through outfalls to China Basin Channel and the Bay. Mitigation Measure K.4, if adopted, would require the reduction of settleable solids and floatable materials in this portion of the project-related stormwater discharged to China Basin Channel. Thus, Mitigation Measure K.4 would go beyond the MEP standard for direct stormwater discharges by providing for such flow-through treatment of Project Area stormwater.

In combination with Mitigation Measure K.3, Measure K.4 is intended to address project contributions to cumulative impacts which this SEIR conservatively concludes are potentially significant. Project contributions include projected increases in CSO volumes and stormwater discharges into China Basin Channel. As explained on pp. V.K.50-V.K.54, these increases have not been shown to result in a substantial degradation in the water quality of the Bay or near-shore waters, in a toxic effect on aquatic biota, a substantial change to sediment quality, nor a substantial impact on beneficial uses. The SEIR's conclusion of significance is conservative, and was reached because the cumulative discharges would flow into waters that may be considered degraded.

Mitigation Measure K.4 is intended to ensure that stormwater discharges from the project do not significantly contribute to impacts on sediment quality in China Basin Channel. The measure provides a standard of treatment effectiveness for stormwater discharges to the Channel that could be met in a variety of ways. CSOs receive flow-through treatment designed to remove settleable solids and floatable materials. Since such treatment would address the potential for impacts on sediment quality, the comparison to CSO treatment is appropriate. In addition, the resulting discharge of stormwater would be cleaner because stormwater generally contains less pollutant load than CSOs to begin with. The resource protection provided by Mitigation Measure K.4 would be complemented by other regulatory or performance criteria through the Stormwater Management Program which would be

required under Mitigation Measure K.5 to ensure that stormwater is treated to the maximum extent practicable.

To clarify how the text of Mitigation Measure K.4 relates to the cumulative impacts conclusion, the text under "Conclusion" on p. V.K.54 has been changed beginning with the second sentence as follows:

> **CSOs generate a high degree of public concern, however, and conservative presumptions of significance are warranted when a setting ~~is~~ may be degraded or impaired. For these reasons, and in an effort to provide for continued discussion regarding these concerns and to acknowledge the lack of conclusive evidence refuting a causal relationship between treated combined sewer overflows, stormwater discharges, and sediment quality, this report conservatively finds that the project would contribute to a potentially significant cumulative impact on near-shore waters of San Francisco Bay from treated CSOs, and direct stormwater discharges to China Basin Channel. The project contribution (0.2%) to the potential cumulative increase (11%) in Bayside CSO volumes, and the contribution of ~~the~~ project-related stormwater discharges to possible cumulative impacts, ~~stormwater discharges~~ would be reduced to a level of insignificance with the imposition of Mitigation Measures K.3 and K.4, described in Section VI.K, Mitigation Measures: Hydrology and Water Quality.**

Similar changes have been made to the third paragraph on p. II.29 in Chapter II, Summary:

> **Treated combined sewer overflows generate a high degree of public concern, however, and conservative presumptions of significance are warranted when a setting ~~is~~ may be degraded or impaired. For these reasons, and in an effort to provide for continued discussion regarding these concerns and to acknowledge the lack of conclusive evidence refuting a causal relationship between treated combined sewer overflows, stormwater discharges, and sediment quality, this report conservatively finds that the project would contribute to a potentially significant cumulative impact on near-shore waters of San Francisco Bay from treated combined sewer overflows, and direct stormwater discharges to China Basin Channel. The project contribution (0.2%) to the potential cumulative increase (11%) in Bayside combined sewer overflow volumes, and the contribution of ~~the~~ project-related stormwater discharges to possible cumulative impacts ~~stormwater discharges~~ would be reduced to a level of insignificance with the imposition of mitigation measures regarding combined sewer overflow volumes and alternative treatment technologies, as discussed below.**

Reductions in Combined Sewer Overflow Volumes

Comments

It makes a great deal of sense to try and reduce or eliminate discharges into near shore receiving waters, which are "not subject to the same diffusive mixing as the deepwater Southeast Plant outfall", and where "(c)oncentrations of toxic pollutants near and in the tidal zone. . .may be substantially higher than concentrations occurring in the open Bay" (V.K.42). . .

The Mission Bay Citizens Advisory Committee supports:. . .A change in proposed Mitigation Measure K.3: "such that potential flows to the City's combined sewer system from the project REDUCE (rather than DO NOT CONTRIBUTE TO INCREASED) annual overflow volume. . ."

A requirement that any discharges of combined sewage and stormwater or stormwater, and any alternative treatment plans, be designed to protect and enhance the aquatic environment, and not contribute to degradation of that environment. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

The toxic subcommittee and the CAC therefore recommend that we write a response to the EIR that will support a change in proposed mitigation measure K-3 such that potential flows to the City's combined sewer system from the project reduce rather than do not contribute to increased annual storm overflow volume. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

No increases of CSO's should occur and the city should be working to reduce the number of CSO's at all outfall locations, especially at Islais Creek. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Overall, the water quality mitigations proposed [are] not as strong as they should be. MCC suggests that proposed Mitigation Measure K.3 be amended to require that potential flows to the City's combined sewer system from the Project *reduce* annual overflow volumes, rather than simply not contribute to increased annual overflows, as the proposed measure requires. . .

Finally, any proposed discharges of stormwater or combined sewage and stormwater related to the Project and any treatment methods adopted to address these should be expressly designed to protect and enhance the aquatic environment of Mission Creek and the Bay beyond and should not instead contribute to the further degradation of that environment. (*Trent W. Orr, Attorney at Law, representing Mission Creek Conservancy*)

Water Pollutants. Since the results of the CSOs run past our homes, we feel obliged to note that, notwithstanding the statement in V.K.7., "floating solids and discoloration of the water surface" (while improved) are still very noticeable during and after CSOs, and drain discharges containing oil and solvents still often "create an unsightly sheen on receiving waters", and may have an adverse health effect on swimmers, boaters, fishermen and divers who have contact with Mission Creek on a regular basis. This should be mitigated by improvements in the City's combined sewer system. The presence of "floatables", including plastic, condoms, dead rats, etc. may be particularly offensive to new

residents of Mission Bay North. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Mitigation Measure K.3 requires that the project would "contribute to increased annual overflow volumes as projected in the Bayside Planning Model [emphasis added]." Given the severity of the impacts that will occur from the project, and given the already overloaded conditions of the City's treatment system during wet weather, Mitigation Measure K.3 should be revised to state that the project should not contribute any stormwater to the Bayside treatment system. This could be accomplished through the installation of a more extensive separated stormwater collection system in all three areas of the project. Such a system should include technologies to reduce stormwater pollutant loading such as vortex-type sediment traps, cartridge leaf filters, and constructed wetlands. (*Kate White, Program Director, Urban Ecology, Inc.*)

The environmental review's failure to describe with any particularity a plan to mitigate the adverse impacts of the estimated increases in sewage overflows to the east side of the City's shoreline. . .NEW PROJECTS, ESPECIALLY OF THE MAGNITUDE OF THE PROPOSED MISSION BAY PROJECT, SHOULD BE PLANNED AND DESIGNED SO THAT THEY REDUCE EXISTING SEWAGE OVERFLOWS, NOT INCREASE THEM. . .

Obviously, the City's goal should be to begin to get a handle on the CSO problem by, perhaps for the first time, designing a development project which itself would reduce the quantity of sewage overflowing rather than increasing it and trying to explain how more sewage into shallow dead end creeks will not adversely affect the aquatic environment or the quality of life for San Francisco's residents. . .

The environmental review's failure to describe with any particularity a plan to mitigate the adverse impacts of the estimated increases in cumulative sewage overflows and flows to the Hunters Point sewage plant. The path the proposed Mission Bay project threatens to put the City on would increase the average volume of sewage overflows to Mission and Islais Creeks by 98 million gallons per year! Again, that estimate does not contemplate the heavier rain years, like this past year, which one would expect to perhaps double that estimate. Nor does that number include all of the planned or anticipated growth in the City. Similarly, the increased waste flow to the Hunters Point plant is estimated to total on average an additional 1.3 billion gallons of waste per year! . . .

In order to avoid the application of that [antidegredation] policy, the SEIR must include a specific mitigation plan [to] eliminate any increases, and result in decreases, in overflows. . .

The Mitigation Measures Hinted At Need To Be Specified And Proposed Now. The total sum of mitigation measures described to address the numerous water quality concerns described above are set forth in two paragraphs within the three volumes of the SEIR. Vol. II at VI.47. Although BayKeeper appreciates the goal of employing sewer improvements to prevent the estimated 2 million gallon increase in overflows, we believe that if the specific proposal were set forth in an actual plan, the City would be able to consider not only holding the line on sewage overflows but in fact reducing them in volume. Mitigation K.3. Moreover, a coordinated mitigation proposal would include many more flow reduction opportunities that would help on both the CSO and storm water sides of the equation. . .(*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

These comments suggest that Mitigation Measure K.3 on p. VI.47 does not go far enough in mitigating the cumulative impact of increased combined sewer overflow (CSO) volumes (discussed under "Cumulative Issues" on pp. V.K.50-V.K.55). Whereas Mitigation Measure K.3 would require that project-related flows to the combined sewer system not result in increases in overflow volumes, these comments recommend that Mitigation Measure K.3 require reductions in existing overflow volumes. Other comments refer to the need for a more defined mitigation plan and suggest that more mitigations could offer opportunities to improve the environment.

Although some comments have disagreed with the SEIR's conclusion, no substantial evidence has been presented that the project would substantially impact water quality. As discussed further in "Background Regarding Existing Combined Sewer System" on pp. XII.232-XII.238, CSOs are not raw sewage, and current and future CSO discharges under the proposed project would comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) permit. Comments on the adequacy of the existing combined sewer system should be directed toward the San Francisco Public Utilities Commission and the Regional Water Quality Control Board.

Under "Standards of Significance" on p. V.K.22, the SEIR states the significance standard upon which the conclusions of significance are based. As discussed under "Effects of Treated Combined Sewer Overflows" on pp. V.K.43-V.K.46, the SEIR determines that the water quality impact of the project, by itself, would be less than significant. The proposed project would be considered to have a significant effect if it would substantially degrade water quality. In the case of the project by itself, water quality would not be substantially degraded.

CEQA does not require that projects result in beneficial environmental effects; it only requires the identification of feasible measures for the reduction and avoidance of significant adverse environmental impacts caused by the project. The SEIR determines that the project would not result in a substantial degradation in the water quality of the Bay or near-shore waters, in a toxic effect on aquatic biota, a substantial change to sediment quality, nor a substantial impact on beneficial uses (pp. V.K.50-V.K.54). However, based on the high degree of public concern about CSOs; the lack of conclusive evidence refuting a causal relationship between CSOs, stormwater discharges, and sediment quality; and the recognition that the existing setting may be degraded, the SEIR conservatively finds a potentially significant cumulative impact from CSOs and untreated stormwater discharges. The project would contribute a small fraction of the cumulative increase in annual Bayside CSO volumes. This SEIR recommends measures to mitigate this project's contribution to the significant impacts. Appropriately, other projects contributing to this cumulative impact would also be responsible for their share of the solution, to the extent feasible. The contributions of other proposals to this cumulative

impact would be evaluated during the environmental review processes for those projects, and mitigation would be identified, as necessary and feasible for those projects. Mitigation Measure K.3 appropriately allocates the project sponsor's responsibility for mitigation, by eliminating the project's contribution to the potentially significant cumulative impact. Various mitigation options are available, as discussed in the response regarding "Illustrative Mitigation Scenarios," pp. XII.253-XII.277. While not necessary to eliminate significant impacts, the analysis and the suggested mitigation measures in the SEIR would not preclude decision-makers from requiring the project to reduce existing CSOs.

One comment incorrectly cites the analysis that Mission Bay would increase the average annual volume of CSO discharges by 98 million gallons per year. An increase of 98 million gallons per year would occur under the Cumulative Bayside condition, not under the proposed project condition, which would increase the average annual volume of CSO discharges by 2 million gallons per year (see Table V.K.3). To correct another comment statement, project and cumulative increases in CSO discharges would occur through outfalls located along the entire Bayside, not just to China Basin Channel and Islais Creek. See also "Rainfall Data Used in Bayside Planning Model" on pp. XII.307-XII.311 for a discussion of the rainfall data used to arrive at those numerical results, and "Environmental Justice" on pp. XII.378-XII.392 regarding increased project-related sanitary flows to the Southeast Water Pollution Control Plant, which would be less than significant as discussed under "Deep Water Effects of Increased Treated Effluent" on p. V.K.41.

Mosquito Control for Water Storage Facilities

Comment

The Mission Bay Citizens Advisory Committee supports:. . .A requirement that any temporary water storage facilities be treated for vector control particularly to control mosquitos. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

This comment inquires as to the need to control vectors, particularly mosquitoes, in project-related water storage facilities. To implement Mitigation Measure K.3 on p. VI.47, water storage facilities could be constructed to decrease the potential for combined sewer overflows without increasing the volume of stormwater discharged directly to the Bay. Water would only be stored in these facilities temporarily until it could either drain or be pumped to the combined sewer system for treatment. The water storage facilities would not provide favorable conditions for mosquitoes because drainage would be rapid after a storm, which would discourage mosquito breeding habitat from forming. Separate from temporary detention basins to implement Mitigation Measure K.3, interim drainage facilities during the phased development of the Project Area also would be designed to ensure rapid drainage

after a storm. See "Sewer Improvements: Central/Bay Basin" and "Interim and Temporary Uses" in Section V.M, Community Services and Utilities, pp. V.M.51-V.M.53, and "Proposed Interim Drainage Plans for Phased Development" and "Proposed Drainage Plans for Interim Giants Ballpark and UCSF Parking" on pp. V.K.55-V.K.56. Therefore, vector control measures would be unnecessary.

Alternative Technologies for Stormwater and Combined Sewer Overflows

Comments

The Mission Bay Citizens Advisory Committee supports:. . .A requirement that alternative wastewater technologies determined to reduce pollutant discharges into Mission Creek and S.F. Bay be incorporated into the project's design and infrastructure, as determined by the PUC and the Technical Review Committee. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Support the requirement that alternative wastewater technology reduce pollutant discharges into Mission Creek and San Francisco Bay be incorporated into the project's design and infrastructure as determined by the study that the PUC is now doing, and support a requirement that any discharges of combined sewer and storm water or storm water alone and any alternative treatment plans be designed to protect and enhance the aquatic environment and not contribute to degradation of that environment. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

These comments support the use of alternative technologies to reduce pollutant discharges to the near-shore environment and suggest that the project be designed to protect and enhance the environment as opposed to degrading it. Mitigation Measure K.4 on p. VI.47 would require the use of alternative technologies to reduce certain pollutant levels in project-related stormwater discharges to China Basin Channel. This measure is not identified for combined sewer overflows because Mitigation Measure K.3 on p. VI.47 would eliminate the project's contribution to overflows. Together, Mitigation Measures K.3 and K.4 would reduce project contributions to potential cumulative impacts to the near-shore environment to less-than-significant levels. For more information, refer to the response regarding "Pollutant Loads and Federal and State Antidegradation Policy" on pp. XII.367-XII.370.

Additional Mitigation Measures

Comment

Once the impacts indicated above are properly identified, additional mitigation measures will also be necessary. While we applaud the City and the project proponents for the willingness to include a separate stormwater collection system in a part of the project and for the inclusion of Mitigation

Measures K.3 and K.4, which would lessen stormwater flows from the project, these features and measures do not go far enough. (*Kate White, Program Director, Urban Ecology, Inc.*)

Response

This comment calls for unspecified additional mitigation measures, stating that the mitigation measures identified in the SEIR do not go far enough. CEQA requires that feasible mitigation measures be identified, to the extent possible, for all significant impacts, and such mitigation measures are to include practical means for reducing or eliminating significant impacts. CEQA does not require that mitigation measures be identified to reduce less-than-significant impacts or provide environmental benefits that would constitute improvements to existing conditions. Each mitigation measure identified in Chapter VI, Mitigation Measures, including Mitigation Measures K.1 through K.6 on pp. VI.45-VI.50, responds to one or more potentially significant adverse environmental impacts of the project, or adverse impacts to which the project would contribute. As explained under "Conclusion" on p. V.K.54, the SEIR is conservative in its findings of potential project contributions to cumulatively significant impacts. Implementing Mitigation Measures K.1 through K.6 would eliminate or reduce the impacts of the project to less-than-significant levels. These measures would also reduce the project's contribution to cumulative water quality impacts. Because Mitigation Measures K.3 and K.4 include performance criteria related to combined sewer overflow and stormwater discharges, the specific approaches to implementing these measures have not been selected; therefore, various specific mitigation strategies not specifically described in the SEIR could be employed. See also the response in Mitigation Measures regarding "Delay in Specification of Mitigation Measures," pp. XII.458-XII.460. Regarding possible mitigation options, refer to the response regarding "Illustrative Mitigation Scenarios" on pp. XII.253-XII.277.

Bayside Planning Model

Appropriateness of the Bayside Planning Model

Comments

The *Bayside Cumulative Impacts Analysis Draft Report* selectively uses very limited information generated by the *Bayside Planning Model*, resulting in an unnecessarily limited evaluation of impacts. For example:

The model is used only to indicate only "uncalibrated" incremental changes in CSO's between different alternatives, rather than provide a basis from which to evaluate (a) compliance with the CSO limits in the NPDES permit, and (b) impacts on beneficial uses.

The general statement that "the program is successful because it is supported by the citizens of the City, who want to protect the Bay and ocean." is not derived from nor reflected by the model. Any

attempt to validate such a statement would require using the model to calculate reductions in the frequency and volume of CSO's for different alternatives (e.g. project designs, segregation of stormwater and wastewater, larger transports and/or sewer storage capacities), followed by a survey of whether citizens support the expected impact of the CSO's.
(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])

The Bayside Cumulative Impacts Analysis Draft Report selectively uses very limited information generated by the Bayside Planning Model, resulting in a limited evaluation of the impacts. For example:

The model is used only to indicate incremental changes in CSO's between different alternatives, rather than provide a basis from which to evaluate (a) compliance with the CSO limits in the NPDES permit, and (b) impacts on beneficial uses.

The general statement that "the program is successful because it is supported by the citizens of the City, who want to protect the Bay and ocean." is not derived from nor reflected by the model. This will not offer the bay any of the protection required by all of the surrounding communities. Any attempt to validate such a statement would require using the model to calculate reductions in the frequency and volume of CSO's for different alternatives (e.g. project designs, segregation of stormwater and wastewater **in separate sewers**, larger transports and/or sewer storage capacities), and alternative destinations for the sewerage followed by a survey of whether citizens support the expected impact of the CSO's. *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]; bold in original)*

A great deal of effort is made in the SEIR to present the results of modeling of various "alternatives" in wastewater and stormwater collection and treatment. The Bayside Planning Model used is fatally flawed as a tool for the type of comprehensive, integrated, optimized system design required by the magnitude of the coming Bayside redevelopment. . .Then, three ranges of options are modeled. The comparisons begin only once water has already entered the major collection system and storage-containment structures at the bottom of the gradient, and only runs a hand-full of very limited scenarios.

The essence of watershed modeling is to begin at the top of the gradient and evaluate the entire fabric of options all the way down to the receiving waters. Running a genetic algorithm, a computer-assisted technique that utilizes all of the detailed and specific information that is available to projects of this scope to run millions of comparisons and evolve real optimizations, would be a much better investment of effort. In view of the tools available as we enter the 21st Century, including Geographical Information Systems (GIS) and satellite imaging, reliance on this limited and clumsy model is a poor guide for the contemplated investment of billions of taxpayer dollars. *(Bill Wilson, Environmental Planning & Design)*

Response

As discussed under "Changes in Discharges to Receiving Waters" on p. V.K.30, the SEIR relies on the Bayside Planning Model to estimate the foreseeable effects of the project on wastewater flows managed by the combined sewer system and to estimate any possible increases in combined sewer overflows

(CSO). As presented under "Effects on Receiving Waters" on pp. V.K.40-V.K.50, the SEIR evaluates impacts on beneficial uses on the basis of the model results and additional information. The Bayside Planning Model provides a reasonable means of assessing project-related effects for CEQA purposes. The Bayside Planning Model was developed to assist the City in designing its Wastewater Master Plan facilities and has been accepted by the Regional Water Quality Control Board for that purpose. It is an appropriate tool for studying the possible incremental effects of the project on these facilities. Its use for CEQA purposes is not intended as a design tool for facilities, nor is it intended to serve as a tool in evaluating San Francisco's compliance with its National Pollutant Discharge Elimination System (NPDES) permits, as discussed under "Combined Sewer System Permits" on pp. V.K.18-V.K.19.

The model accounts for the entire Bayside area, including all areas where flows enter the combined sewer system. Hourly dry-weather flows are combined with stormwater flows estimated on an hour-by-hour basis using actual rain data collected over 70 years. The model evaluates each watershed separately and adds its flows to appropriate storage and pumping facilities, accounting for transport times as necessary. To determine the effects of the project, system conditions not related to the project are held constant or adjusted to reflect a consistent operating strategy at each pump station. While holding basic operating assumptions constant, baseline and project scenarios were evaluated to discern project effects on typical combined sewer system operations and CSOs.

Because the model results used for SEIR purposes relate to flows from the storage facilities at the bottom of each watershed, the level of refinement provided by the model is adequate. There is no need to evaluate millions of comparisons and optimize parameters relating to watersheds that are not part of the Project Area. Furthermore, because the model is adequate for CEQA purposes, there is no need to employ geographic information systems and satellite imagery. These techniques could allow some refinement in flow estimates, but they would be unlikely to contribute meaningfully to the flow estimates derived from the model. The Bayside Planning Model provides adequate information to allow project decision-makers to adequately evaluate the effects of the project when considering project approval.

Regarding the statement about public support for the wastewater control program, the comment refers to a sentence in the *Draft Bayside Cumulative Impact Analysis*, a document that describes the Bayside Planning Model. The document states,

> Twenty-five years after the Clean Water Act was enacted, San Francisco is successfully completing a significant and complex wastewater control program. This program is successful because it is supported by the citizens of the City, who want to protect the Bay and ocean.

The Bayside Planning Model is not intended to reflect or validate this statement. The statement is a reflection of its authors' perspective. The SEIR does not rely on this statement to support its analysis or conclusion.

Regarding the use of the Bayside Planning Model as a guide for the investment of taxpayer dollars, project-related wastewater infrastructure would not cost billions of taxpayer dollars. In the event that the comment does not refer to the project, but to the entire wastewater management system, including the wastewater treatment plants, then the comment is misdirected. This SEIR focuses on the impacts of the Mission Bay project; comments regarding existing facilities are beyond the scope of this CEQA process. See the response under "Background Regarding Existing Combined Sewer System," on pp. XII.232-XII.238.

Regarding the calibration of the model, refer to the response regarding "Calibration and Verification of the Bayside Planning Model," on pp. XII.311-XII.312.

Assumptions Used in the Bayside Planning Model

Comments

There are several unclear points in the *Bayside Planning Model* report:

The footnote in Table A1 points out that pumps were added to the model even where they do not exist in reality, ". . .to accomplish flow balance. . .".

On page A16, there is a statement that the Flynn pump station ". . .must make up the difference by pumping more than 110 mgd", even though the actual capacity of the pump station is 110 mgd. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

Finally, it should be noted that the Bayside Planning Model is not clearly defined anywhere in the Draft EIR. It is introduced on page V.K.30 of the Draft EIR, where the text refers to Appendix J for a description of the model. Appendix J lacks any description of the actual functioning of the model, and it fails to show the inputs to the model in terms of hourly rainfall, watershed areas, runoff coefficients, pumping rates, storage volumes, or assumed wastewater and stormwater generation increases associated with cumulative projects. The EIR needs to disclose these input values so that they can be reviewed by the public.[4] This information needs to be included in a recirculated Draft EIR, since it has been impossible for the public to complete a thorough technical review of the model results without the necessary background information on the functioning of the model. . .

[4] Beth Goldstein and Michele Pla of the City's Public Utilities Commission supplied a memo, dated March 26, 1998, which purports to explain the working of the Bayside Planning Model. This memo, which is not part of the EIR, does not contain the information that we are requesting in this comment.

The Draft EIR (page V.K.34) states that the calculated increase in combined sewer overflows (CSOs) under base case + project conditions would be 0.2%, and that the base case + cumulative projects increase would be 11%. As noted above, these estimates will increase if appropriate assumptions regarding rainfall, treatment capacity and cumulative projects are included. (*Kate White, Program Director, Urban Ecology, Inc.*)

The model assigns runoff coefficients to various parts of an area that encompasses almost 2/3's of the City of San Francisco based on numbers given by a Metcalf & Eddy model from 1980 that has not been ground-truthed and may have changed considerably in the last two decades. (*Bill Wilson, Environmental Planning & Design*)

Response

Under "Changes to Discharges to Receiving Waters" on p. V.K.30, the SEIR cites a San Francisco Public Utilities Commission (SFPUC) staff report titled *Draft Bayside Cumulative Impact Analysis* (see endnote 57 on p. V.K.68). The report provides detailed information about the Bayside Planning Model that, for the sake of brevity, is not included in the SEIR. As stated in the note on p. V.K.70, a copy of this report is on file for public review at the Office of Environmental Review (Planning Department, 1660 Mission Street, San Francisco) and was available during the public review period for the Draft SEIR. In this way, the SEIR avoids placing these highly technical details and specialized analyses in the main body of the SEIR text.

Appendix A of the *Draft Bayside Cumulative Impact Analysis* describes the model, its inputs, its outputs, and critical assumptions used in the modeling effort. The report identifies watershed areas, runoff coefficients, pumping rates, storage volumes, and assumptions regarding cumulative development. Because the hourly rainfall data used by the model are contained in an electronic file with roughly 500,000 individual entries, they are not reproduced in the *Draft Bayside Cumulative Impact Analysis*. These data are available in electronic form upon request from the SFPUC. The *Draft Bayside Cumulative Impact Analysis* and summarized information provided in the SEIR provide sufficient information to allow a meaningful review of the reasonableness and adequacy of the SEIR analysis. The technical details provided by the SEIR are sufficient to permit the full assessment of any significant environmental impacts by reviewing agencies and the public.

SFPUC staff believe the March 26, 1998, memorandum to which a comment refers is a cover memorandum for the *Draft Bayside Cumulative Impact Analysis*. That memorandum was not intended to explain how the Bayside Planning Model works; that explanation is in Appendix A of the *Draft Bayside Cumulative Impact Analysis*.

Regarding the representation of pumps by the Bayside Planning Model where pumps do not exist (as noted in a footnote to Table A1 in the *Draft Bayside Cumulative Impact Analysis*), the model calculates

flows on the basis of mass balances. Dry-weather flows and stormwater runoff are estimated for each watershed, and the total of these flows is allocated among the treatment systems and combined sewer overflows. All the water entering the system is assumed to exit the system. In most cases, water moves through the system by means of pumps, each with a maximum operating capacity. The model considers the operations of these pumps and accounts for appropriate water transfers throughout the system. However, in a portion of the actual system near Hunters Point, water moves from one location to another by gravity. Although no actual pump exists in these locations, the model must account for the movement of this water to provide meaningful results. Therefore, the model uses a fictitious pump, whose pumping rate is adjusted to resemble the flows that actually occur by gravity.

Regarding the capacity of the Flynn pump station (as discussed on p. A16 of the *Draft Bayside Cumulative Impact Analysis*), the nominal capacity of the pump station is 110 million gallons per day (mgd). During wet weather, the Flynn pump station, the Southeast lift station, and the Channel pump station deliver wastewater to the Influent Control Structure, which combines these flows before they enter the Southeast Water Pollution Control Plant. The wet-weather capacity of the plant is 250 mgd. The capacity of the Channel pump station is 85 mgd, and the capacity of the Southeast lift station is 55 mgd. Therefore, the remaining 110 mgd flow (250 mgd - 85 mgd - 55 mgd = 110 mgd) is nominally allocated to the Flynn pump station. However, the Flynn pump station can actually pump at a rate greater than 110 mgd, and at times, it does. This occurs when the Southeast lift station cannot pump at a rate of 55 mgd because water storage levels are too low for the lift station to operate at this rate.

Regarding the use of runoff coefficients from 1980, the Bayside Planning Model assumes that surface area permeability has not changed substantially in the past 20 years because of the built-out, urban, paved nature of the Bay side. Of course, changes in runoff coefficients may have occurred since 1980, and these changes could affect the modeling results for individual watersheds. However, in the context of the entire Bayside area, these changes are believed to be inconsequential. Moreover, because the use of the model for CEQA purposes is intended to focus on the effects of the project, major adjustments need not be made to the assumptions used for watersheds not directly affected by the project. Any systematic errors introduced by using 1980 runoff coefficients for these watersheds in completing the baseline calculations would be roughly the same as those introduced in completing the calculations for baseline-plus-project conditions. When the effects of the project itself are determined by subtracting baseline values from baseline-plus-project values, the systematic errors are mostly eliminated. Some uncertainties associated with the model remain, however, as discussed further in the response regarding "Variability and Uncertainty in the Bayside Planning Model Results" on pp. XII.312-XII.315.

Levels of Treatment Assumed in the Bayside Planning Model

Comment

. . .[T]he Draft EIR (pages V.K.1-2) appears to assert that total wet-weather treatment capacity at the City's Southeast Water Pollution Control [Plant] is about 250 million gallons per day (mgd), with an additional capacity of 150 mgd provided during wet weather at the North Point Water Pollution Control Plant. There is no clear reference in the EIR, but it appears that all subsequent calculations of treatment capacity and combined sewer overflows (CSOs) are based on these numbers. However, these numbers far overstate actual treatment capacity. As noted on the same pages of the Draft EIR, there is only 150 mgd capacity for secondary treatment at the Southeast Plant. The remaining capacity at the Southeast Plant, and all capacity at the North Point Plant, is for primary treatment only. Effluent that has only received primary treatment results in unacceptable water quality conditions when it is released into San Francisco Bay. Therefore, secondary treatment capacity of 150 mgd should be the basis for all calculations of capacity and CSOs. The EIR should be revised to show how much effluent is currently released into the Bay without secondary treatment, and how much will be released under the project and project + cumulative conditions. (*Kate White, Program Director, Urban Ecology, Inc.*)

Response

The treatment capacities of the Southeast Water Pollution Control Plant, the North Point Water Pollution Control Plant, and the rest of the Bayside wastewater management facilities (as summarized under "San Francisco's Combined Sewer System" on pp. V.K.1-V.K.2) are defined by San Francisco's dry- and wet-weather National Pollutant Discharge Elimination System (NPDES) permits. In issuing these permits, the Regional Water Quality Control Board has determined that limited wet-weather discharges of wastewater that have received primary treatment are acceptable and comply with applicable water quality standards.

Table V.K.1 on p. V.K.34 estimates wastewater effluent and combined sewer overflow volumes for existing and future conditions on the basis of the Bayside Planning Model (described under "Changes in Discharges to Receiving Waters" on p. V.K.30). The Bayside Planning Model estimates average annual discharges on the basis of calculated mass balances over a 70-year period, as discussed further in the response regarding "Appropriateness of the Bayside Planning Model" on pp. XII.300-XII.303. Table V.K.1 presents the portions of combined sewer flows that receive primary and secondary treatment, and the portions that receive only primary treatment. These data are provided for existing, project, and cumulative conditions.

Base Case

Comment

The Bayside Base Case used as the starting point for comparison in the City's wastewater modeling effort incorrectly includes the proposed Giants' parking. Vol. II at V.K.30. That parking proposal is

not yet constructed, was not included in the Giants' EIR and, per agreement between BayKeeper and the City, will be the subject of public hearings before the Port Commission some time in the future. Bottom line, this proposed parking facility should not be part of any base case. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

The comment asserts that the Bayside Planning Model should not have included the proposed Giants Ballpark parking areas as part of the Bayside Base Case because the parking areas have not yet been constructed; they were not included in the Giants Ballpark EIR; and they are the subject of future Port Commission hearings.

While construction of the Giants Ballpark parking areas has not yet started, construction of the ballpark itself is currently underway, and the ballpark and its associated parking areas are scheduled for completion before opening day in April 2000. The parking areas are part of the overall ballpark project. The parking areas have been approved by the Zoning Administrator. Because this project is approved and under construction, it is reasonable to assume the parking areas as part of the Base Case, regardless of whether the parking areas may be the subject of future Port Commission hearings. Removing the parking from the Base Case would tend to inappropriately understate the effects of the Mission Bay project by, in effect, giving the project credit for removing direct stormwater flows to the Bay that will be removed by the ballpark project.

Regarding the comment that the parking areas were not included in the Giants Ballpark EIR, the parking areas in Mission Bay South were in fact proposed as part of the San Francisco Giants Ballpark project, and their environmental impacts were analyzed in the EIR for that project./30/

Rainfall Data Used in the Bayside Planning Model

Comments

We are also very concerned that the Bayside Model - as is underestimating the real volumes and impacts. We'd like to know what happened this year, what were the estimated volumes, pollutant loads, marine impacts? What about 1995 which was a 34 [in.] year. Are you using real everyday numbers with storms coming in with actual durations and intensities? That's the reality. Was the 14 year subset that you ran used as an average or each specific year. If each specific year, we'd like to see the picture of what occurred in those two El Nino years? In short we want a better estimation of real volumes of sewage and stormwater numbers because that's what will really determine effects, and from there the "levels of significance, and from there the mitigations. . .

With the Bayside Model and the proposed plan, it seems that there could be a much larger volume of water to the southeast treatment Plant, and or CSO's if storms [came] steady within your projected 1

inch, but kept on coming. Again, could you examine that issue, especially with real rain data. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

The *Bayside Planning Model* uses data only from 1907 to 1976. The only justification for not using data from 1977 to 1997, is that it was not entered in the computer's hard drive; this is unacceptable. I would also question the availability and quality of hourly data from the early years. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

The Bayside Planning Model uses data only from 1907 to 1976. . .(*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

The Draft EIR's stormwater and wastewater treatment analysis is based on a series of flawed flow capacity calculations. . . .[T]he entire EIR analysis is based on average rainfall calculations for San Francisco of just 21 inches per year. The use of this average is flawed for two reasons. First, the use of an average by definition means that the average will be [exceeded] roughly half the time. It is unacceptable to plan sewage capacity based on averages; planning should be done based on expected peaks, just as it is for traffic and other environmental factors. Second, rainfall data for the past few years suggest that the "average" rainfall figure is actually low. There was a record-breaking 47 inches of rain in the 1997-1998 season, and 34 inches of rain four years ago. There is a growing body of scientific research that suggests that "average rainfall" calculations like that of 21 inches for San Francisco are actually very low, and that calculated averages should be adjusted upwards. For both these reasons, the rainfall inputs in all stormwater calculations should be adjusted upwards as well. This should be done in the Draft EIR, which should recalculate all stormwater flows and treatment capacities. We would suggest the use of annual rainfall figures of at least 30 inches. (*Kate White, Program Director, Urban Ecology, Inc.*)

The changes in effluent, overflows and storm water volumes shown at Table V.K.1 is limited to average rainfall years (21" of rain per year). Vol. II at V.K.34. Hence, it fails to provide meaningful numbers for high rainfall years that are guaranteed to occur. . . .Keeping in mind that these estimates are only averages, one can surmise that the actual numbers in normal high rain years could be double or more those provided in Table V.K.1. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Another comment is that we built bridges to withstand strong earthquakes. But the wastewater treatment plants in this environmental report look at the standard average day. Already this year we are at twice that amount. We need to be planning for worst case scenarios and other scenarios. (*Kim Rogers*)

This whole thing is predicated on a Bay model that has 21 inches of rain. We are at 40, 45, probably, today, twice as much. So if the impact is based on 21 inches, what is it going to look like twice the amount? A four-year average is 30 inches, so that's 50% more. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

Our wastewater system is -- it's a cumulative impact, so this is probably by the Public Utilities Commission and it's based on the impact report are based on 21 inches of rain we have had. Over the

past five years we have had over 30% more than that, we have had about 28 inches of rain. This year we've had -- who knows? God knows what we had today, over twice the amount. As somebody said earlier, we build on earthquakes to withstand the worst possible scenario. Why don't we do that? We need to cover these things. (*Alex Lantsberg*)

Response

These comments object to the use of average rainfall data as inputs for the Bayside Planning Model, asserting that this understates the potential impacts of the project. The comments express concerns that the Bayside Planning Model may not rely on real storm data that reflects actual rainfall durations and intensities. Because of the recent record rainfalls in San Francisco attributed to El Niño, various comments suggest that the SEIR examine conditions during exceptionally wet years. Comments object to basing the analysis on an average annual rainfall of 21 inches, asserting that the average rainfall is now greater than 21 inches per year and suggesting that a value of 30 inches per year be used. The comments reject the notion of designing stormwater management systems for average conditions, suggesting instead that the analysis consider peak or worst-case conditions. Many comments question the use of rainfall data limited to years prior to 1977, when data since 1977 are available, particularly since the quality of the hourly rainfall data from the earlier part of this century could be less reliable than the more recent data. Regarding the use of a 14-year data set to estimate the stormwater volume likely to be captured with the initial flows (as proposed with the project), one comment asks if these values were used as an average or for each specific year. Another comment asks if the Southeast Water Pollution Control Plant could be shown to receive more wastewater if the analysis were to not assume that initial flows would capture the first one inch of each storm.

Different rain data and assumptions are used for different purposes to support the SEIR analysis. The Bayside Planning Model, which was used to estimate volumes of wastewater and stormwater managed by the combined sewer system, relies on actual rainfall data collected by the National Weather Service on an hourly basis for the 70 years from the winter of 1907/08 through the winter of 1976/77. Therefore, the Bayside Planning Model input data consist of real, hourly rainfall data, not averages, including actual durations and intensities observed in San Francisco. Only the model outputs are annual average values. Project Area stormwater runoff calculations completed for the SEIR do not require hourly data; only the average annual stormwater runoff from the Project Area was needed to estimate average annual stormwater pollutant loads. Therefore, the Project Area stormwater estimate assumes an average annual rainfall of 21 inches. To best estimate the likely performance of the initial-flow capture equipment proposed as part of the project, the San Francisco Public Utilities Commission used rainfall data for the 14 years from the winter of 1972/73 through the winter of 1985/86. These data were available in five-minute increments, which were necessary to evaluate local conditions with sufficient refinement.

Although several comments question the decision not to include in the Bayside Planning Model rainfall data from the winters of 1977/78 through the winter of 1996/97, the 70 years of data used by the model adequately represent foreseeable weather conditions in San Francisco. The data were obtained from the National Weather Service, the most reliable and authoritative source for such information. Using data representing 90 years instead of 70 years would not result in appreciably different results. Moreover, the additional 20 years of data were not included so that the model results obtained for the project are consistent in methodology and assumptions with the model results obtained over the years for the Wastewater Master Plan facilities. The Regional Water Quality Control Board (RWQCB) has accepted the methodology and assumptions for the model, as used for the SEIR. Including the more recent data would not substantially affect the modeling results. Like the older data, the recent data includes extremes of dry and wet years. The average annual rainfall observed for the period from 1907/08 through 1976/77 was 20.06 inches, whereas the average annual rainfall observed for the period from 1907/08 through 1996/97 was 21.05 inches./31/ The difference of 5% is too small to suggest a long-term change in meteorological conditions in San Francisco.

The rainfall value of 21 inches per year was conservatively used in estimating stormwater runoff for the Project Area for purposes of the SEIR. There is no basis for studying an arbitrarily chosen rainfall assumption such as 30 inches per year. The SEIR evaluates typical conditions with and without the project on the basis of a consistent set of data and assumptions. Reporting results in terms of long-term averages does not understate the environmental impacts of the project. In any given year, actual project-related flows would be greater or less than the values presented in Table V.K.1 on p. V.K.34, particularly during drought years and the exceptionally wet weather observed during El Niño events. Nevertheless, the information presented in the SEIR is representative of expected future conditions, and CEQA does not require the analysis of worst case conditions.

As for designing combined dry-weather and wet-weather wastewater management systems for peak conditions versus average conditions, few, if any combined systems have been designed for worst-case conditions because of the enormous storage, pumping, and treatment capacity needed to accommodate a maximum rainfall event. Combined sewer systems such as San Francisco's are engineered to allow limited overflows to occur. This is an inherent feature of such systems. A combined system designed to fully accommodate peak flows without overflow releases would require storage facilities with a much larger capacity than is already provided by the Bayside combined sewer system. The costs of constructing additional large-capacity combined sewers would far outweigh the benefits. Thus, accommodating all flows from above-average storms and rain years, such as El Ninõ years, would be physically and financially infeasible.

Further, the SEIR is not a design document. Its purpose is to evaluate the effects of the project as proposed. The design of the Wastewater Master Plan facilities was approved by the RWQCB and the U.S. Environmental Protection Agency as a cost-effective system to appropriately control the volume and quality of overflows while meeting applicable water quality standards and safeguarding beneficial uses. The system, as completed and operated, continues to meet water quality standards and to protect beneficial uses/32/,/33/. Furthermore, the system is designed to accommodate wastewater increases from future development in the City, and would therefore continue to meet water quality standards and protect beneficial uses with the project, as verified by the SEIR analysis.

As for the use of the 14-year data set to estimate the stormwater volumes to be captured with the initial flows, the analysis used the rainfall data collected in five-minute increments to understand how this particular portion of the sewer system could perform, as explained in Appendix J, pp. J.4 and J.5. It used this detailed data, rather than the average annual rainfall for the entire 14 years from the winter of 1972/73 through the winter of 1985/86, or data from individual years. As for the potential for the Southeast Water Pollution Control Plant to receive more water if rainwater were to fall so slowly that more than the first inch of runoff could be captured (or if rainfall after the capture of the first inch would be slow enough to allow additional capture), the analysis is based on data for the 14 years described above. There is no reason to believe that the data are not representative of typical rainfall conditions to be anticipated. Average annual rainfall during the 14-year period (24 inches) happened to be greater than the average annual rainfall observed over the 90-year period for which data are available (21 inches). Exceptionally long, slow rainfalls are represented within the 14-year data set, as are short, intense ones, and their associated impacts are considered in the SEIR.

Calibration and Verification of the Bayside Planning Model

Comment

The *Bayside Planning Model* claims that there was no way to calibrate or verify the results because the Southeast facilities were completed only in March 1997. Partial verification and calibration could have been done using (a) the previous model, which is the basis for this new model, and (b) modifications of the new model to reflect the wastewater system as it existed in different periods. The comparison with the Westside system would be far more valuable and relevant if more details were provided (e.g. more than 5 storms, probability distributions for CSO's vs. storms). *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])*

Response

As previously stated, the Bayside Planning Model cannot be calibrated to ensure that it accurately reflects existing conditions. This is, in part, because the Wastewater Master Plan facilities were only

completed in 1997. The period for which operating data have been obtained (since completing the Wastewater Master Plan facilities) reflects too short a time to be representative of typical operations. In addition, the available data regarding storage, pumping, and the volumes of treated effluent and combined sewer overflows are insufficient to reliably support a calibration. For example, the San Francisco Public Utilities Commission has no quantitative measurement of combined sewer overflow (CSO) volumes. Only the number and duration of CSOs are known. Furthermore, quantitative estimates of flows from the Southeast Water Pollution Control Plant are imprecise. In the period from 1991 to 1995, the discrepancy between the measured volume of water flowing into the plant versus the measured volume of water flowing out of the plant has ranged from 9% to 18%./34/ With uncertainties of this magnitude regarding the actual operations of the Bayside facilities, a meaningful calibration of the City's wastewater planning models is not feasible for the purposes of this SEIR. This would also be true if the calibration method proposed by the comment were attempted.

The comparison between the planning model used with the Westside system (which is similar in principle to the Bayside Planning Model) and a limited data set representing actual measurements from a series of five storms was included in the *Draft Bayside Cumulative Impact Analysis* for informational purposes. It was not intended to demonstrate that the Bayside Planning Model accurately represents actual Bayside conditions. It does suggest, however, that models similar to the Bayside Planning Model may be useful tools in representing possible future wastewater management operations. See the response under "Assumptions Used in the Bayside Planning Model" on pp. XII.303-XII.305 regarding the model's comparison of baseline and future conditions and the relevance of this comparison to a determination of project impacts even if some model assumptions are imprecise.

Variability and Uncertainty in the Bayside Planning Model Results

Comments

The most severe problem with the *Bayside Planning Model* is that it although it calculates 70 years of hourly data, no attempt was made to provide a probability distribution of CSO frequencies and volumes. An average value is meaningless in attempting to evaluate impacts, setting permit limits, or designing adequate wastewater and stormwater management system. For example, a rationally based limit might be a 99% probability of containment for 99% of storms. The model could easily be modified to present results as probability distributions, and project impacts should be analyzed accordingly. . .

The evaluation of changes in discharges to receiving waters relies on the *Bayside Planning Model* (p. V.K.30), with all the limitations noted separately in the previous section of this memo. The most important inadequacy is in this evaluation of CSO impacts. For example, long-term average annual CSO volumes are probably inaccurate and certainly do not account for variability (easily done by the model). Variability will show much higher loads in some years with the potential for significant

impacts (especially from copper and zinc loads). (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

The most severe problem with the Bayside Planning Model is that. . .although it calculates 70 years of hourly data, no attempt was made to provide a probability distribution of CSO frequencies and volumes. An average value is meaningless in attempting to evaluate impacts, setting permit limits, or designing adequate wastewater and stormwater management system. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

The SEIR fails to estimate the increases in volume of sewage expected during above average rain years. . .

The estimated average increase is estimated to be 2 million additional gallons of essentially untreated sewage combined with rainwater to Mission and Islais Creeks. That estimate does not reflect the wetter rain years, such as this past season. Indeed, as an average, it is guaranteed that greater than an additional 2 million gallons of sewage will be discharged in more than half of the years. . .

The estimate that the proposed "initial flow" storm water system would capture about 80% is limited to average rainfall years. Vol II at V.K.27. Assuming the estimate is accurate, obviously this means that the proposal would only achieve that estimated efficiency or better about half of the time. In any above-average rainfall year, the proposed system would capture much less. . .

Like the other projections described above, the cumulative analysis employs average rainfall data to run the planning model. As a result, the numbers underestimate normal high rainfall years and the percent increases will undoubtably be greater than projected. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

These comments criticize the SEIR for not adequately describing the potential variability of estimated combined sewer overflows (CSOs) from year to year, stating that the analysis should estimate the probability distributions of the overflow frequencies and volumes determined by the Bayside Planning Model. The comments assert that the average values reported in the SEIR should not be used to assess environmental impacts, to determine permit limits, or to design wastewater management systems, specifically because, during particularly wet years, copper, zinc, and other pollutant loads could be much higher than projected. One comment suggests a design target might be to contain 99% of the runoff from 99% of all storms. The comments also state that the long-term averages reported in the SEIR are probably inaccurate. Regarding this last point, refer to the response regarding "Rainfall Data Used in the Bayside Planning Model" on pp. XII.307-XII.311.

The number, duration, and volumes of CSOs vary from year to year, depending primarily on the number, volume, and intensity of individual storms. For this reason, the flows described in Table

V.K.1 on p. V.K.34 are estimated averages, and in any particular year, actual flows would be expected to be greater or less than these values, depending on actual meteorological conditions. The Bayside Planning Model algorithm calculates volumes for an entire 70-year period and then divides the total by 70 to obtain average annual values; therefore, other statistical parameters, such as standard deviation, are not readily available.

Table V.K.1 describes representative wastewater effluent, CSO, and stormwater flows with and without the project. The use of annual averages as the basis of the SEIR analysis is consistent with the Regional Water Quality Control Board's approach to determining water quality effects of a CSO discharge system. The analysis accounts for the fact that, due to the nature of an average when applied to numbers that are highly variable, such as annual rainfall and associated wastewater flows, in almost all years, the actual results will be higher or lower than the average. Thus, a year with much greater than normal frequency and/or intensity of storms will produce considerably greater wastewater flows than the average year. A drought year will produce considerably less flow. This does not change or invalidate the SEIR's analysis or conclusions regarding project impacts.

The data reported in the SEIR are intended to support the CEQA analysis. They are not intended for use in determining permit limits. Wet-weather flows managed by the Bayside facilities are, and with the project would continue to be, covered by San Francisco's existing wet-weather National Pollutant Discharge Elimination System (NPDES) permit, as discussed under "San Francisco NPDES Permits and Other Regulations" on pp. V.K.17-V.K.19. As used in the SEIR, the model results are not intended to suggest design changes to existing wastewater facilities; they are used to evaluate the environmental impacts of the project and the proposed changes to Project Area wastewater facilities.

Over time, pollutant loads would vary from those estimated in Tables V.K.2, V.K.3, and V.K.4 on pp. V.K.35, V.K.37, and V.K.39. In part, this variability would result from changes in weather conditions. As discussed under "Volume and Quality of Municipal Wastewater Effluent" and "Volume and Quality of Treated Combined Sewer Overflows" on pp. V.K.33-V.K.36, average pollutant loads would be assumed to be roughly proportional to average wastewater flows. However, pollutant loads would not necessarily be proportional to flows at particular times (i.e., when not considering average conditions). For example, pollutant loads from domestic sewage would not be expected to vary much from day to day, depending primarily on the size of the population served, not the volume of water being discharged to the combined sewer system. During rainy weather, increased CSOs would dilute the fairly constant pollutant loads to result in lower pollutant concentrations. During dry weather, when substantial water conservation efforts are in place, the decreased combined sewer flows would concentrate the pollutant loads to result in higher pollutant concentrations. In either case, the pollutant loads would remain roughly the same. In the same way, stormwater pollutant loads are not necessarily

proportional to flows. Because pollutants are deposited on the ground through many mechanisms in addition to falling rain, the rate at which some pollutants become available to contaminate stormwater runoff (regardless of its volume) can be fairly constant. The stormwater loads provided in Table V.K.4 were estimated by assuming that pollutant loads are proportional to surface areas of different types of land uses. As volumes of stormwater change, pollutant concentrations may change as well, resulting in relatively constant loads, at least when averaged over an entire year. In this way, the presentation of annual averages accounts for the variability (highs and lows) in annual flows. Many more assumptions would be needed to develop a more reliable analytical approach that also provides more detail regarding variations in stormwater flows, and such detail is not needed to evaluate the project's impacts.

There is no basis for adopting an arbitrary design standard such as 99% stormwater runoff containment of 99% of storms, and the project design has not done so. This measure would require a substantial investment of developable space to accommodate costly storage (and/or treatment) facilities sufficient to achieve the standard. The SEIR does not identify a significant environmental impact that would warrant this volume of storage nor was any substantial evidence of such an impact received during the SEIR's public review period.

Regarding rainfall assumptions used to evaluate the "initial flows" stormwater capture system, refer to the response regarding "Rainfall Data Used in the Bayside Planning Model," on pp. XII.307-XII.311.

Cumulative Assumptions

Comments

An EIR must discuss significant "cumulative impacts." CEQA Guidelines section 15130 (a). "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines section 15355(a). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects." CEQA Guidelines section 15355(a). A legally adequate "cumulative impacts analysis" views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable probable future projects whose impacts might compound or interrelate with those of the project at hand. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." CEQA Guidelines section 15355(b). The cumulative impacts concept recognizes that "[t]he full environmental impact of a proposed . . .action cannot be gauged in a vacuum." Whitman v. Board of Supervisors, 88 Cal.App.3d 397, 408 (1979).

The DEIR fails to adequately consider the cumulative impacts of the proposed project on beneficial use. To be adequate, the discussion must include a reasonable analysis of all of the relevant projects'

cumulative impacts, with an examination of reasonable options for mitigating or avoiding such effects. (CEQA Guidelines section 15130(b)); Environmental Protection Information Center v. Johnson, 170 Cal.App.3d 604 (1985). . .

The DEIR needs to look at cumulative issues (e.g. average overflow frequency to include volume and duration) to truly evaluate the environmental impacts. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

Now, a spate of new development projects planned along the Bay will increase the load on the sewage treatment system. Currently in dry weather 80% of the city's sewage is treated in Bayview and 20% at the Oceanside plant. That ratio just gets "more so" in wet weather, when millions of gallons of rainwater pouring into the sewers is partly alleviated on the east side by activating the old North Point sewage treatment plant.

But anticipated new development—from Treasure Island and China Basin, to Mission Bay, Hunters Point, and Candlestick/3Com Park—also presents "a major opportunity for wastewater treatment and planning," according to a resolution adopted by San Francisco's Commission on the Environment Feb. 10. (*Diana Scott*)

We do not feel that the SEIS/SEIR accurately quantifies the future foreseeable wastewater stream into the Southeast Water Pollution Control Plant. According to CEQA guidelines section 15130(a) the EIR must discuss all significant "cumulative impacts." Cumulative impacts are changes in the environment for the incremental impact of the project when added to other closely related, past, present, and reasonable foreseeable future projects. Future projects need not be certain to occur to be considered in the cumulative impact analysis, "Los Angeles Unified School District v. Los Angeles, (1997) 58 Cal. App. 4th 1019, 1024. Further lends meaning to cumulative impacts by stating, "Cumulatively considerable" under the statute means, "the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects and the effects of probable future projects." Cumulative impacts may result from projects that may be individually minor but collectively significant over a period of time. Id. At.1025.

Most notably absent in the cumulative impact analysis is the large scale development currently proposed by the San Francisco Planning and Urban Research Association (Attachment A). This project calls for twice the amount of homes as the Mission Bay Project, plus commercial and light industrial development. Although there have been no concrete plans for this project, the fact that the Mayor has come out in support of it and it is an extremely well developed proposal indicates that it is reasonably foreseeable. Its absence in the PUC's Cumulative Impact Analysis for the Southeast Water Pollution Control Plant (SWPCP) renders the conclusions regarding additional flows to the SWPCP and the resulting combined sewer overflows (CSO's) from the Mission Bay Project legally inaccurate and irrelevant for the purposes of the SEIS/SEIR.

In addition to the exclusion of a significant development project with twice the projected amount of residential units as Mission Bay, the PUC's cumulative impact analysis also fails to quantify the wastewater impacts, including resulting CSO's, of the nearly 2000 live/work units (Attachment B) currently in the Planning Department pipeline. San Francisco's building boom, for both residential and commercial/high-rise construction is completely [sic] This omission also renders the Cumulative

Impact Analysis and the SEIS/SEIR legally incomplete and inaccurate. (*Alex Lantsberg, Project Coordinator, Southeast Alliance for Environmental Justice*)

Our concern is that on the Bay side now, Mission Bay, and the series of other cumulative major projects over there, are actually going to be loading the system to the maximum it can before they start overflows and then dumping a lot more storm water into the Bay. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

We especially want a reconsideration of the cumulative development. We'd like to see the expanded list of projects, and perhaps a grid/range for various percentages of buildout. For example the Central Waterfront project severely throws the cumulative model out of wack. Both for development and dry weather sewage generation and stormwater - more intense development. While this plan may not be adopted in full - as today's letter to the editor in the Chronicle implies, could we see projections at 50% and 1/3. Even fifty percent development means a project equal to Mission Bay. Given the seriousness of this effort, clearly the estimation of "negligible" for port generation of sewage is way off track. (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

Second, the cumulative impact analysis in the stormwater and water quality section of the Draft EIR (Section K) is also inadequate. This section of the EIR utilizes the City's Bayside Planning Model to model cumulative wastewater/stormwater treatment impacts. This model's cumulative scenario claims to include the "major" reasonably foreseeable projects in the City that could affect Bayside operations. In fact, however, the model only includes four projects over and above the existing "baseline;" these four projects are Mission Bay, Candlestick Park, Hunters Point and some waterfront development.

The Bayside Planning Model is inadequate as a basis for prediction of cumulative stormwater generation and treatment impacts because it does not comply with CEQA requirements for cumulative project analysis. CEQA Guidelines 15130 (c) state that the cumulative discussion must include either (a) a list of past, present, and reasonably foreseeable anticipated future projects, including those outside the agency's control, that have produced, or are likely to produce, related or cumulative impacts, or (b) a summary of projections contained in an adopted general plan or related planning document that is designed to evaluate regional or area-wide conditions, provided that such documents are referenced and made available for public inspection at a specified location. The Bayside Planning Model's four projects do not meet either of these requirements, since they are only a subset of reasonably foreseeable projects and since they are not based on the City's General Plan.

In conversations with City staff since the publication of the Draft EIR, staff has indicated that the reason that the Bayside Planning Model does not include any cumulative projects other than the four listed above is that there are no other foreseeable projects in the City with the potential to convert undeveloped land (which currently drains to the Bay and/or allows runoff to infiltrate into the soil) to developed land (which would send stormwater to the collection and treatment system). Staff apparently reasons that stormwater, as opposed to wastewater, creates the major impacts on the City's treatment system, so an analysis of future cumulative wastewater impacts is not necessary.

This line of reasoning is flawed for three reasons. First, it is conclusory. There is no way of knowing what the impacts from sewage flows from cumulative development will be unless that cumulative development is modeled. Second, it is incorrect to assume that stormwater is a more significant contributor to total flows than wastewater. Although the Mission Bay EIR contains no clear data on the

split between stormwater and wastewater in the City's total flows, the data that is contained in the EIR suggest that wastewater flows are actually about 80% of total flows.[1] Therefore, wastewater flows from all urban uses are just as important as the stormwater flows from newly urbanized land. Third, increases in sewage as a part of the overall treatment stream will increase the concentrations of pollutants in effluent, and hence in CSOs.

For these reasons, the Bayside Planning Model's cumulative analysis must be expanded if it is to be legally adequate. It must include a full accounting of both stormwater and wastewater flows from all reasonably foreseeable projects in the City's Bayside Area.

In a phone conversation regarding the EIR, City staff acknowledged that other sections of the EIR have more extensive analyses of cumulative projects, which are purposely broad to account for future levels of development that might occur over the 20-year build-out horizon for the Mission Bay project. This same time horizon and project selection criterion should be applied to the cumulative stormwater and wastewater analysis.

For example, the Draft EIR already includes much more extensive lists of probable cumulative development in its other impact assessment sections. The Transportation Section (Section E, page V.E.38), for example, includes ABAG projections of San Francisco growth that include a 4.7% increase in population and a 19.5% increase in employment over current levels. Page V.E.38 goes on to state that these ABAG estimates probably *underestimate* growth, since they do not include [projects] such as the Mid-Market Redevelopment Plan, the Presidio Reuse Plan, or the Transbay Redevelopment Plan. The Transbay Redevelopment Plan alone could add up to 6.4 million square feet of office space, 200,000 of retail space and 8,000 new housing units.[2] At the very least, the cumulative scenario in the Bayside Planning Model should include the ABAG-projected growth rates and these additional projects.

Other foreseeable projects should also be included. These include the following:

- The Yerba Buena Gardens Children's Center.
- The Mexican Museum.
- The Jewish Museum.
- The 200,000-square foot retail/cinema complex at Yerba Buena Gardens.
- The planned. . .luxury hotel-apartment-club next to the Marriot on Market Street.
- The 400-plus room hotel now under construction next to the Museum of Modern Art.
- The 350,000-square foot office tower on Second Street south of Market.
- The proposed mixed-use building at Third and Mission Streets.

Additionally, the Bayside Planning Model needs to include development assumptions for the Central Waterfront Area. As reported by the San Francisco *Chronicle* on May 26, 1998, the San Francisco Planning and Urban Research Association (SPUR) recently promulgated a plan for 12,000 units in this area.[3] The cumulative project analysis for wastewater and stormwater must be revised to include all these projects.

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[1]The Draft EIR (page V.M.44) states that average dry weather flows to the Southeast Pollution Control Plant are 67 mgd, or 24,455 million gallons per year. The Draft EIR (page V.K.34) also states that total Bayside Base Case flows are 30,203 million gallons per year. This means that dry weather flows, which are essentially 100% wastewater, constitute 80% of total flows.

[2]*Transbay 20/20 Concept Plan,* San Francisco Redevelopment Agency, December 1996.

[3]A copy of a memo from Paul Deutsch to Beth Goldstein regarding City staff's previous projections of development potential along the waterfront is attached. This memo shows the staff has clearly underestimated the potential for waterfront development.

(*Kate White, Program Director, Urban Ecology, Inc.*)

The cumulative analysis of waste and storm water flows does not include all reasonably foreseeable projects which would contribute flows to the system. Vol. II at V.K.33. Left off the list are already approved highrises not yet built, individual residential development on the east side of the City (as BayKeeper understands it, perhaps totaling close to 2000 new homes expected during the life of the Mission Bay project implementation), a proposed new Waterfront District south and west of the Mission Bay Project being evaluated by the Planning Department and, more generally, population growth projections. The cumulative analysis should be redone including all reasonably foreseeable projects. . .

The environmental review's analysis of cumulative impacts of sewage overflows, storm water flows and increased flows to the Hunters Point plant fails to take into account all reasonably foreseeable development either planned or contemplated for the City, including already approved highrise projects, expected increases in housing stock in San Francisco and other communities served by San Francisco's sewage system (such as Brisbane) over the life of the Mission Bay project, and a proposed new Waterfront District south and west of the Mission Bay Project being evaluated by the Planning Department. . .LET'S BEGIN WITH THE MISSION BAY PROJECT TO PUT THE CITY ON A SUSTAINABLE COURSE IN MANAGING ITS WASTEWATER STREAMS. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

And more, it has inadequate review of many small development projects. And we think that you need to look at how to do the residential and some of the other smaller developments impact increase wastewater going through the system, and how that is going to impact the people of Bayview/Hunters Point who already have a disproportionate amount of the wastewater of the City coming through their community. (*Kim Rogers*)

Response

This group of comments asserts that the SEIR analysis of water quality effects did not account for all anticipated future development and thus did not adequately consider cumulative impacts. Comments cite examples of anticipated new development, ranging from very specific individual buildings to pending areawide plans such as Treasure Island and Hunters Point to a "large scale development" proposed by San Francisco Planning and Urban Research Association (SPUR).

The SEIR analysis was prepared after a thorough review to identify all reasonably foreseeable cumulative projects that could have an effect on each type of environmental impact, including all foreseeable projects and system changes that could affect the wastewater system. Cumulative development included not only the four projects described in detail in the Bayside Cumulative Impacts

Analysis, but also all development forecast by ABAG and all development that could make a difference in hydrologic impact, as described below.

For projections of future wastewater system flows, there are two critical information needs: the amount of sanitary sewage ("dry weather") flows and the amount of stormwater flows. Sanitary sewage flows are directly related to water consumption. Most water consumed within the City eventually ends up discharged as wastewater to the system. Estimates of City water consumption and concomitant sanitary sewage flows are based on demand from residential and nonresidential users. Therefore, future population and job projections are important in determining future sanitary sewer flows. With regard to flows from the City of Brisbane, San Francisco is under contract to accept a certain amount of dry-weather sanitary wastewater from Brisbane for treatment. Any increase to this amount that might be caused by growth in Brisbane would necessitate contract renegotiation.

Equally important is forecasting changes in per capita water use due to conservation programs. San Francisco has experienced declining per capita residential and nonresidential water use since the mid-1970's. Current water consumption in the City is about 82 million gallons per day (mgd)/35/, down from about 98 mgd in 1970./36/ Thus, between 1970 and the mid-1990's water consumption (and sanitary wastewater flow) declined by about 16% despite a population increase of about 6% (44,000 persons) and an increase in employees of about 8% (40,000 persons). A surplus in the wastewater treatment capacity for dry-weather conditions currently exists. Long-term conservation measures (such as retrofitting of older toilets with newer 1.6-gallon flush models) are projected to continue the trend of limiting increases in water consumption despite population and employment increases, which are projected using the most recent ABAG Projections.

The City has estimated that future water consumption in San Francisco will increase very slightly by 2015. The resulting dry-weather sewage flows are calculated using a constant factor expressed as a percentage of water consumption. The Bayside Cumulative Impacts Analysis incorporated the ABAG Projections 96-based citywide growth plus all other foreseeable projects that would make a difference in hydrologic impact. The resulting projected flows in 2015 will be well within the dry-weather capacity of the City wastewater treatment system. The projected sanitary sewer flows are consistent with those used for forecasting City water needs and wastewater system needs.

Stormwater flows in the City system are not dependent on population and employment but are most closely related to three different factors: the amount and intensity of rainfall, the land area that drains to the City sewers, and the runoff coefficient (which depends on overall permeability of the land surface in each drainage area). The first factor varies considerably from year to year; the long-term average rainfall amount for San Francisco is about 21 inches. The second and third factors will change

as anticipated development occurs in Mission Bay, Candlestick Park, Hunters Point Shipyard, and on waterfront piers and other Port property from which stormwater is not currently collected into the City system, and such development provides storm sewers to convey stormwater into the system. The acreage and runoff coefficients for all these areas from which stormwater inflows would substantially increase was calculated, and the resulting cumulative stormwater volumes incorporated into the cumulative Bayside Planning Model analysis. The reason for including these four projects in the Bayside Cumulative Impact Analysis report is not because they are the only projects analyzed in the cumulative analysis, but because they would increase stormwater flows, unlike most other cumulative development in the City which would be located in areas that are already substantially paved and sewered. Dry-weather sanitary flows from these other projects are accounted for in the analysis, as described above.

The sanitary sewage (dry weather) flow component of wastewater, now and in the foreseeable future, is well within the treatment capacity of the City's Bayside facilities. During wet weather, this flow is dwarfed by stormwater flows resulting from intense rain. When combined sewer overflows (CSO) occur, they are comprised of mostly stormwater (about 94% stormwater and 6% sanitary sewage). Thus, Mission Bay's contribution to changes in the sanitary sewage portion of CSOs would be very minor compared with overall stormwater volumes. While the projected increase in future cumulative sanitary sewage volume is based on the best available information and assumptions about future growth and per capita consumption trends, even a considerable underestimate (i.e., a few million gallons) would not have a material effect on the forecast changes in CSOs. Furthermore, while the cumulative forecast (as with any forecast) is subject to error, any such error would not change the project's effects on the frequency and quantity of CSOs, as described in the SEIR. If the wastewater and resulting water quality effects of cumulative growth turn out to be understated, then the project's percentage contribution to the cumulative effects would have been overstated in the SEIR. In either case, the SEIR's description of significant cumulative impacts and the mitigation measures suggested to eliminate the project's contribution to the significant impacts would not change.

Regarding the specific projects itemized by various comments, Treasure Island wastewater and Presidio stormwater are not processed by the Bayside facilities, and are thus not relevant to the analysis. Specific development proposals, such as those in and near Yerba Buena Center and specific office development, are accounted for in ABAG projections of population and employment, as are ongoing infill residential, live/work, and other population and employment-accommodating development.

Implementation of the SPUR rezoning proposal is highly speculative and is not appropriate to assume as part of the future cumulative analysis, as discussed in General, "Cumulative Impacts from Other Projects," on pp. XII.15-XII.19. The area already has sewers and so, even if such a rezoning proposal

were to be adopted and substantial development were to occur, the only wastewater effect would be on sanitary sewage flows, which (as described above) would still be well within treatment capacity and would constitute only a very small portion of CSOs. Ongoing development in the Central Waterfront area is accounted for in the Bayside Planning model based upon ABAG projections.

Regarding the project-related increase in flows to the Southeast Water Pollution Control Plant in the Bayview-Hunters Point area, refer to the response regarding "Environmental Justice" on pp. XII.378-XII.392.

Wastewater Flows

Comment

The amount of sewage generated by the MB/UC-SF project is listed as 2.4 mgd and given a value of 2.8% increase. That seems to be derived by dividing it over the total for the whole City or 84 mgd. In the Vol 2.M.47 (Utilities) the 2.4 mgd sewage is said to be [3.7%] of the 67 mgd currently treated by the S.E. Treatment Plant.

Should chart V.K.34 be adjusted. If this is an error can you check other areas of the report and change the numbers. Can you check that this mistake is not made in the cumulative analysis? (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

Response

This comment refers to apparent inconsistencies between information presented in Section V.M, Community Services and Utilities, and Section V.K, Hydrology and Water Quality. The discussion under "Sewers and Wastewater Treatment" on p. V.M.43 focuses on Project Area flow generation (i.e., what flows into the pipes), so it relates to infrastructure capacity. The discussion under "Changes in Discharges to Receiving Waters" on pp. V.K.30-V.K40 focuses on discharges (i.e., what flows out of the pipes) and their effects on the quality of receiving waters. Under "Wastewater Generation" on p. V.M.47, the SEIR states that about 0.1 million gallons per day (mgd) of wastewater are now generated in the Project Area, and with the project, the Project Area flow would increase by about 2.4 mgd to about 2.5 mgd. The potential increase of 2.4 mgd would be in addition to the approximately 67 mgd of wastewater currently treated at the Southeast Water Pollution Control Plant and the existing citywide total wastewater volume of about 84 mgd. The text of p. V.M.47 specifies that these flows refer to average dry-weather flows, which consist primarily of sanitary sewage. On the other hand, the flows summarized in Table V.K.1 on p. V.K.34 combine dry- and wet-weather flows. The effluent flows presented in Table V.K.1 refer to the portion of combined stormwater and sanitary sewage that receives secondary or primary treatment prior to discharge. These data are derived from the Bayside Planning Model (discussed under "Changes in Discharges to Receiving

Waters" on p. V.K.30 and on p. J.5 of Appendix J), which estimates the contribution of Project Area stormwater runoff to the flows managed by the Bayside facilities. Therefore, no changes are needed in Table V.K.1, which also correctly estimates cumulative flows managed by the Bayside combined sewer system.

Comment

Could you make the chart V.K.34 clearer in terms of breaking down volumes of primary and secondary sewage processed. If and when you do an analysis of a real years worth of effluent, could you do the same? (*Jeff Marmer, Coalition for Better Wastewater Solutions*)

Response

With regard to providing the wastewater volumes that receive primary and secondary treatment, Table XII.10 converts the percentages listed in Table V.K.1 of p. V.K.34 into actual volumes. The comment also requests that the same information be provided for a real year of data. With the exception of the stormwater data presented in Table V.K.1, the figures presented in Table V.K.1 are based on the results of the Bayside Planning Model, which represent the results of 70 years of real weather data obtained from the National Weather Service. Stormwater flows for the Project Area were estimated assuming average annual rainfall of 21 inches. As discussed in the response regarding "Rainfall Data Used in the Bayside Planning Model," pp. XII.307-XII.311. This value is the actual average rainfall that has fallen in San Francisco over the last 90 years.

Comment

Further, 14.1 hours tells users nothing about volume of partial treated sewage entering the creek and bay. There are no volume or mass limits for CSOs, and events are counted only if there is a 6-hour break in flow. This means that an intermittent 3-day, 1 million gallon event would be equal to a 2-hour, 1000 gallon event. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

Response

The comment requests the volume of combined sewer overflows attributable to the project. Table V.K.1 on p. V.K.34 presents the projected average volumes of combined sewer overflows (CSO) with and without the project. Table XII.10 provides the magnitude of the actual average change anticipated. Overflow volumes were estimated by the Bayside Planning Model, which estimates total flows on the basis of mass balance calculations. Taken together, the SEIR information about projected CSO annual average frequency, volume, and duration adequately describes existing, project, and cumulative CSO conditions. The main water quality analysis was based on long-term annual average volumes, which would not vary despite differences from year to year in frequency and duration. The

TABLE XII.10
CHANGES IN EFFLUENT, OVERFLOW, AND STORMWATER VOLUMES

		Bayside Base Case + Proposed Sewer System for Mission Bay Project		Bayside Base Case + 100% Combined Sewer System for Mission Bay Project		Cumulative Bayside	
	Bayside Base Case	Flow Volume	Change from Existing	Flow Volume	Change from Existing	Flow Volume	Change from Existing
Total Effluent (MG/yr)	30,203	31,045	842	31,045	842	31,496	1,293
Total Overflows (MG/yr)	910	912	2	928	18	1,008	98
Total Bayside Flow (MG/yr)/a/	31,113	31,957	844	31,973	860	32,504	1,391
Flow Treated							
Secondary	27,162	27,962	—	27,944	—	28,246	—
Primary	3,018	3,100	—	3,069	—	3,250	—
Project Area Stormwater Flow (MG/yr)	15.6	15.9	0.4	0	-15.6	15.9	0.4

Notes:

MG/yr = million gallons per year
a. Total Bayside Flow is the sum of Total Effluent and Total Overflows

Source: City and County of San Francisco, Public Utilities Commission, Clean Water Program, *Draft Bayside Cumulative Impact Analysis*, March 1998; EIP Associates.

duration was emphasized only in the discussion of water-contact recreation effects, as it is most relevant to the length of beach closures.

Comment

. . .[T]he EIR. . .fails to clearly analyze wet-weather flows from the project site. Although the EIR includes an analysis of cumulative stormwater flows (which is critiqued below), the EIR fails to provide a calculation of wet-weather flows that would flow from the Mission Bay project area alone. There is also no calculation of how flows from Mission Bay would impact available wet-weather treatment capacity at the Southeast Plant. These numbers must be included in the Final EIR, and impacts must be acknowledged where they would exist. If new significant impacts are identified, then the Draft EIR must be recirculated for further public comment. (*Kate White, Program Director, Urban Ecology, Inc.*)

Response

Table V.K.1 on p. V.K.34 presents both dry- and wet-weather flows. Combined sewer overflows (CSO) and stormwater runoff, both wet-weather effects, are evaluated under "Volume and Quality of Treated Combined Sewer Overflows" on p. V.K.36, "Volume and Quality of Direct Stormwater Discharges to Bay" on pp. V.K.38-40, and "Near-Shore Effects" on p. V.K.42-V.K.50. Because the project would not involve any physical changes to the Southeast Water Pollution Control Plant, it would not affect the wet-weather treatment capacity of the plant. When operations at the Southeast and North Point Water Pollution Control Plants reach capacity, CSOs occur. As demonstrated by the increased duration of typical CSOs by up to 11 minutes at some outfalls (as reported under "Effects on Water-Contact Recreation" on pp. V.K.49-V.K.50), the project would increase the amount of time each year that the Southeast Water Pollution Control Plant would operate at peak capacity. Nevertheless, the project would not increase wastewater flows sufficiently to adversely affect the operation or capacity of the treatment plant.

Comment

Moreover, the Table [Table V.K.1] fits into a style exhibited throughout the SEIR of the underemphasizing the volumes of waste being discussed, in this instant by its emphasis on percentage increases and numeric shorthand which, for many members of the public, would not readily indicate the actual volumes being discussed. Thus, the volumes corresponding to the percentages provided in the third column are the following: a 2.8% increase in sewage plant effluent equals 842 million gallons; a 0.22% increase in sewage overflows equals 2 million gallons of sewage; a 2.7% increase in total Bayside flows equals 844 million gallons and a 2.3% increase in storm water flows equals 300,000 gallons. On the cumulative side of the Table (the 7th column): a 4.3% increase in sewage plant effluent equals 1.3 billion gallons more effluent through the Hunters Point plant and an 11% increase in sewage overflows equals 98 million gallons of sewage flowing to the Bay. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

Table V.K.1 provides the information necessary to understand the changes in wastewater and stormwater flows. For the sake of clarity, Table XII.10 replaces the relative increases (percent changes) with the magnitude of the changes. As shown in Table XII.10, the change in direct stormwater discharges from the Project Area is about 2.3% of 15.6 million gallons per year (MG/yr), which is approximately 0.4 MG/yr. The values of both the stormwater discharges from the project area for existing and project conditions have been rounded to three significant digits.

The water quality impacts of the project do not relate directly to the percentage or the absolute increases in flows, but the resulting effects on beneficial uses, which are analyzed and described on pp. V.K.30-V.K.55. Also, as a point of fact, combined sewer overflows contain a relatively small fraction (about 6%) of sanitary sewage and a much larger fraction (about 94%) of stormwater, and

receive the general equivalent of primary treatment before discharge; therefore it is misleading to refer to them as "sewage overflows."

Comment

The concern is real. The project, as described in the SEIR, plans on discharging 2 million gallons a year of additional sewage overflows to the east side of the City. In addition, it will be close to a billion gallons of effluent going to the Hunters Point plant.

In terms of those CSOs, in terms of the additional 2 million gallons, the burden is disproportionately being placed on Islais Creek. It will be a natural reduction of overflows to Mission Creek. There will be an increase of 14 hours of overflows into Islais Creek. . .

The 2 million additional gallons of CSOs into Islais Creek primarily, the project shouldn't be increasing it by 2 million; should be shooting to decrease it by 2 million. This [is] exorbitant.

Instead of increasing the flow through Hunters Point plant of up to almost a billion gallons, it should be holding the line on that effluent stream. (*Michael R. Lozeau, Executive Director, San Francisco Baykeeper*)

Response

This comment expresses concern that project-related combined sewer overflows (CSO) would primarily and disproportionately affect Islais Creek. It also states a desire that wastewater flows at the Southeast Water Pollution Control Plant not increase.

The existing combined sewer system, including the Southeast Plant, was designed to accommodate growth such as the Mission Bay project. The dry-weather and wet-weather National Pollutant Discharge Elimination System (NPDES) permits also anticipate this growth.

According to the results of the Bayside Planning Model, the project would affect CSOs at only the Channel, Mariposa, and Islais Creek outfalls. The average annual CSO volume at the Channel would decrease about 4%, from 351 million gallons per year (MG/yr) to 337 MG/yr. At the Mariposa outfalls, the volume would increase about 11%, from 9.7 MG/yr to 10.8 MG/yr. At Islais Creek, the volume would increase about 3%, from 481 MG/yr to 497 MG/yr./37/ As discussed under "Effects of Treated Combined Sewer Overflows" on p. V.K.43, organisms in the near-shore environment are, and would continue to be, able to tolerate exposure to treated CSOs, and the incremental project-related increases in CSO volumes would not result in significant impacts related to sediment quality and water-contact recreation. Likewise, the SEIR does not identify significant impacts related to project-related effluent flows at the Southeast Plant; therefore, there is no basis for mitigation that would reduce wastewater flows to the Southeast Plant. For discussion of the potential for disproportionate

impacts in the Bayview-Hunters Point area, refer to the response regarding "Environmental Justice," on pp. XII.378-XII.392.

Stormwater Quality

Comment

The SEIR's characterization of urban storm water as "a large volume, lightly contaminated waste stream" is misleading. Vol. II at V.K.24. The Regional Board generally disagrees with the notion that storm water discharges are "lightly contaminated." See Basin Plan at 4-2 ("nonpoint sources are now generally considered to be the largest source of pollutants to aquatic systems"). Of the various pollutants currently impairing Central San Francisco Bay, both copper and diazinon are being discharged in large quantities through storm water systems See e.g. State Water Resources Control Board Resolution No. 98-055, 1998 California 303(d) List at 12; Cooper, Ashli, "Diazinon in Urban Areas" (City of Palo Alto, 1996). Moreover, anyone simply looking at storm water flowing along any curb is likely to observe a clear visible sheen, evidencing the significant quantity of oil mobilized by storm water. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

The statement under "Proposed Drainage Plan" on p. V.K.24 that urban stormwater is a "lightly contaminated waste stream" is not intended to mislead readers by suggesting that stormwater runoff is innocuous. Instead, the statement is intended to compare the concentrations of pollutants in stormwater with those found in sanitary sewage. The concentrations of most pollutants in untreated stormwater are much less than those in untreated municipal wastewater. However, because stormwater flows in the Bay Area are relatively large compared to municipal wastewater flows, stormwater can contain relatively large pollutant loads, despite the relatively low pollutant concentrations. The context of the statement was to contrast our present understanding of stormwater pollution with outdated notions that stormwater is uncontaminated.

Designation of China Basin Channel and Islais Creek as Toxic Hot Spots

Comments

No study has been performed on the pollutant loadings of the excess stormwater (up to 20%) that would not be captured and treated at SWPCP nor on the effects of such pollutants on Mission Creek. In view of the conclusions of consultants that pollutants from contaminated soils are unlikely to reach the Creek from the Project site, and the fact that the Creek was dredged in the mid-1970's when the Fourth Street ramps to I-280 were built, it is logical to conclude that the high levels of toxics (especially heavy metals) in the top 5 centimeters of sediment in the Mission Creek Channel are of recent origin, rather than from historical industrial uses, and result primarily from combined sewer overflows in wet weather, which consist largely of high volumes of stormwater. As it may be years before the existing contaminants are removed by such direct intervention, it makes sense to reduce or

eliminate the addition of more pollutants so that current contamination levels will not worsen and may actually modestly decline through dispersion. . .

Such questions as the following should be answered: To what extent will the proposed influx of stormwater and sewage overflows re-suspend toxics already in the creek bed sediments? (*Trent W. Orr, Attorney at Law, representing Mission Creek Conservancy*)

The DEIR, table V.K.1, predicts a conservative annual increase of close to 1 billion gallons of wastewater.[4] This includes an annual increase of two million gallons of partially-treated CSOs that will severely burden toxic hotspots already identified at Mission Creek and Islais Creek.[5] In the mid 1970's, when Mission Creek was dredged to help build the street ramp for Route 280 freeway, it was found to have high levels of toxic metals in the top 5 centimeters. The RWQCB concluded that Mission Creek high levels were a result of CSOs which carry high volumes of stormwater.

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[4] This estimate is based on a rainfall average of 21 inches. National Weather Service: San Francisco rainfall 1994-95, 34.02 inches; 1995-96, 24.89 inches; 1996-97, 22.63 inches, and 1997-98, 47.07 inches.

[5] RWQCB, San Francisco Bay Region, Proposed Regional Toxic f Cleanup Plan, December 1997.

(*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

In view of the conclusions of the consultants looking at contaminated soils and groundwater[1], and the fact that the Creek was dredged in the mid 1970's when the 4th Street ramps to the 280 freeway were built, it appears that the high levels of toxics (particularly heavy metals) found in the top 5 cm. of sediment in Mission Creek (China Basin Channel), which have led the RWQCB to conclude that Mission Creek is the second worst toxic hot spot in San Francisco Bay, are contemporaneous (not from historical uses). They are most probably the result of combined sewer overflows (CSOs) which occur during wet weather, and which primarily consist of high volumes of stormwater.

While the RWQCB has proposed that Mission Creek be listed as a "candidate" toxic hot spot for cleanup, a cleanup plan is yet to be proposed, let alone evaluated in terms of cost-benefit, or funded. Since it may be many years before the existing contaminants are removed, if ever, by a formal cleanup, it seems logical to presume that a reduction or elimination of additional pollutants would, over time, help reduce the existing levels through dispersion.

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[1] The tidal influence study and the tidal influence model support the "attenuation" theory that metal concentrations in groundwater meet water quality standards when they get to Mission Creek or the Bay, and the technical documents support the conclusion that the near shore aquatic community is not at risk from Volatile Organic Compounds (VOCs) or Petroleum Hydrocarbons (TPH-gasoline, TPH-diesel, TPH-motor oil, BTEX compounds and napthalene) found as COPECs (chemicals of potential ecologic concern) in groundwater.

(*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

The Regional Water Quality Control Board (RWQCB) has recently listed both China Basin Channel and Islais Creek as "candidate" toxic hot spots. Although the Draft EIR implies that this designation carries no regulatory weight, the designation should be of considerable concern nonetheless. CSO

exceedances, which will be exacerbated by the Mission Bay project and cumulative projects, would affect water quality at both of these locations. Given that the RWQCB is already concerned about unacceptable levels of toxicity at these locations, there is all the more reason that additional CSO exceedances should be considered significant impacts in the EIR. (*Kate White, Program Director, Urban Ecology, Inc.*)

The SEIR's discussion of the Bay area Regional Toxic Hot Spot Plan misstates the significance of that report, which lists both Mission Creek and Islais Creek as candidate toxic hot spots. Vol. II at V.K.14. The SEIR is incorrect in stating that "Candidate toxic hot spots are not considered 'known' toxic hot spots without further study." Id. As the Hot Spot Plan makes clear, the only thing standing between candidacy and known for Mission and Islais Creeks is a hearing before the State Board where it will be asked to concur with the findings already proposed by the San Francisco Regional Board. Hot Spot Plan at 9. As for new information, the Hot Spot Plan states that, as regards Mission and Islais Creeks, "[w]e have not received some of the data from th[ese] site[s]. These data could provide additional evidence that this site is impacted. Therefore, after we receive and analyze these data this site may be changed to a rank of high." Hot Spots Plan at 28 (Ranking Matrix). Hence, the notion put forth in the SEIR that the candidate list is "preliminary" is far from accurate. Both Mission and Islais Creeks are truly impaired with toxic constituents. . .

In discussing the estimated 2 million gallon average increase per year of sewage overflows to Mission and Islais Creeks anticipated by the project, the SEIR fails to acknowledge that those two creeks already are not meeting water quality standards applicable to the rest of San Francisco Bay. Vol. II at V.K.36. Indeed, they have been identified as candidate toxic hot spots by the Regional Board. In addition, Table V.K.3, to the extent it suggests no net increase in loadings of the listed pollutants does not provide a useful analysis of the additional loads that must occur if the project increases overflows by 2 million gallons. Of course, as mentioned above, the discussion and table only refer to average rainfall events, underestimating actual increases that will occur during normal high rain years. It also is important to note that overflows, on average, occur 10 times per year. Thus, on average, each set of overflow events during a specific rain event (from various outfalls) is, according to Table V.K.3, expected to contribute 47 lbs of lead to [the] local Bay environment! Similarly, each set would add 30 lbs of copper to waters already impaired by that pollutant. A preventable increase of even 1 lb of toxic pollutants such as those should not be taken lightly. In addition, the discussion fails to mention pollutants such as PCBs, chlorpyrifos and chlordane, elevated levels of which form part of the rationale for listing Islais and Mission Creeks as Candidate Toxic Hot Spots. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

In view of the conclusions of the consultants looking at contaminated soils and groundwater and the fact that the creek was dredged in the mid-'70s when the Fourth Street ramp to the 280 freeway was built, it appears that the high level of toxics, particularly heavy metals, which have led the Regional Board to conclude that Mission Creek is the second worst toxic hot spot in San Francisco Bay, are contemporaneous, not from historical uses, and most probably the result of combined sewer overflows which occur during wet weather and which primarily consist of high volumes of storm water.

While the Regional Board has proposed that Mission Creek be listed as a candidate toxic hot spot for cleanup, a cleanup plan has yet to be proposed, let alone evaluated in terms of cost benefit or funded.

Since it may be many years before the existing contaminants are removed, if ever, by a formal cleanup, it seems logical to presume that a reduction or elimination of additional pollutants would over time help reduce the existing level through dispersion.

Since Mission Creek is a key focal point of the residential development and provides badly needed open space to offset high density, particularly as respects Mission Bay North. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

These comments contend that the SEIR fails to study how stormwater and combined sewer overflow (CSO) pollutant loadings could affect China Basin Channel (Mission Creek), which one comment calls the second worst toxic hot spot in the Bay. The comments suggest that, given the already unacceptable levels of pollutants in the Channel and Islais Creek, additional CSO and stormwater discharges should be considered significant impacts. Several comments suggest that existing CSOs are primarily responsible for contamination of the Channel and Islais Creek and call for the reduction of pollutant discharges to improve existing conditions in the Channel and Islais Creek.

One comment requests that the SEIR text be modified to better reflect the difference between "candidate" toxic hot spots and "known" toxic hot spots. In response to this request, the last two sentences on p. V.K.14 have been replaced with the following:

> ~~**"Candidate" toxic hot spots are not considered "known" toxic hot spots without further study. More data would need to be collected and analyzed, and a public hearing process would need to be conducted before China Basin Channel and Islais Creek were considered "known" hot spots.**~~ **"Candidate" toxic hot spots are not considered "known" toxic hot spots until hearings are held by both the RWQCB and the State Water Quality Control Board./31a/ China Basin Channel and Islais Creek would be considered "known" toxic hot spots if and when they are included in a Regional Toxic Hot Spot Cleanup Plan adopted by the RWQCB and approved by the State Water Quality Control Board. Both sites have been proposed for inclusion by the RWQCB./31b/**

Also, the following two endnotes have been added to p. V.K.66.

> **31a. Regional Water Quality Control Board, San Francisco Bay Region, *Proposed Regional Toxic Hot Spot Cleanup Plan*, December 1997, pp. 6-9.**
>
> **31b. Regional Water Quality Control Board, San Francisco Bay Region, *Proposed Regional Toxic Hot Spot Cleanup Plan*, December 1997, p. 23.**

In response to the other comments, the SEIR describes in detail how project stormwater and CSO discharges could affect the near-shore environment, including the Channel and Islais Creek. These issues are addressed beginning at "Effects on Receiving Waters" on p. V.K.40 and continuing through

"Cumulative Issues" on pp. V.K.50-V.K.55. The SEIR concludes that the project, by itself, would have little effect on water quality; however, it also concludes that the project could contribute to potentially significant cumulative impacts to the near-shore environment from increased CSO and stormwater discharges. The SEIR conservatively concludes that the project could contribute to this cumulatively significant impact, despite the relatively small loads associated with the project. Mitigation Measures K.3 and K.4 on p. VI.47 are intended to reduce pollutant discharges to near-shore waters, including the Channel and Islais Creek. The City's facilities operate according to, and fully comply with, existing water quality-based permit conditions, and no evidence has been provided in the comments that refute existing data on effects of CSOs (see the responses under "Wet-Weather NPDES Permit," pp. XII.371-XII.376, and "Reductions in Combined Sewer Overflow Volumes," pp. XII.295-XII.298).

Table V.K.3 on p. V.K.37 does not understate the foreseeable project-related increase in CSO pollutant loads. Under "Volume and Quality of Treated Combined Sewer Overflows" on p. V.K.36, the SEIR indicates that the increase in CSO volumes would be about 0.22% and states that, for analysis purposes, the foreseeable increases in CSO pollutant loads are assumed to be proportional to increases in CSO volumes. Because the increase in CSO volumes would be about 0.22%, the foreseeable increase in pollutant loads would also be about 0.22%. This relatively small increase is generally less than the level of uncertainty associated with the pollutant loads estimated for the base case. To avoid representing an unwarranted level of precision in these estimates, all numerical estimates in Table V.K.3 have been rounded to two significant figures. As shown in Table V.K.3, the increase of 0.22% would result in pollutant loads that would probably not be measurably different from those of existing conditions. In this way, the analysis discloses the nature of the impacts under study in accordance with accepted scientific and statistical practices.

Although the Channel is a candidate toxic hot spot, the RWQCB has not characterized it as the "second worst toxic hot spot in the San Francisco Bay." According to the RWQCB's "Proposed Regional Toxic Hot Spots Cleanup Plan," three sites the RWQCB considers "High Priority Candidate Toxic Hot Spots" include San Francisco Bay (in its entirety), Point Potrero/Richmond Harbor, and Castro Cove./38/ Recognizing the concerns about water and sediment quality in the creeks, the SEIR analyzes and discusses the effects of CSOs and stormwater discharges on sediments in the Channel and Islais Creek (see "Effects of Mass Pollutant Emissions on Sediment Quality" on p. V.K.48 and "Sediment Quality" on p. V.K.53).

Regarding potential sources of polychlorinated biphenyls (PCBs), chlordane, and chlorpyrifos in the Channel and Islais Creek, PCBs are of concern primarily in Islais Creek, whereas chlordane and chlorpyrifos are of concern in both Islais Creek and the Channel. Other contaminants in the Channel

include silver, chromium, copper, lead, antimony, and zinc./39/ The SEIR discusses sources of PCBs under "Impairment of Central San Francisco Bay" on p. V.K.9. PCBs have historically been used for their chemical stability in electrical equipment and other applications. Chlordane has been used as an insecticide against ticks and mites on corn crops, citrus crops, lawns, and gardens. Chlorpyrifos is commonly found in flea control products and is presently marketed under the trade names "Dursban," Lorsban," and "Pyrinex." Because PCBs are no longer manufactured in the United States and chlordane is not registered for use in California, the project would not create new sources of PCBs or chlordane. PCBs and chlordane from past and ongoing activities could enter project-related stormwater, however. Similarly, because chlorpyrifos is readily available in commerce, it could also be found in project-related stormwater. The project would likely increase discharges of these pollutants as stormwater flows increase and land use changes in the Project Area result in more impervious surfaces; the increases would probably be similar to the ranges of increases shown for the pollutants listed in Table V.K.4 on p. V.K.39.

Table V.K.4 estimates pollutant loads associated with Project Area stormwater discharges, illustrating that stormwater pollutant loads could increase from 10% to 60%, depending on the pollutant considered. These data are derived from a stormwater quality study commissioned by the Bay Area Stormwater Management Agencies Association (BASMAA)./40/ Concentrations of many pollutants are highly variable and difficult to measure in stormwater. The results published by the BASMAA are based on recent and locally collected data. However, BASMAA monitoring data are not available for some pollutants, such as PCBs, chlordane, and chlorpyrifos.

Regarding the potential for CSOs to contribute to contamination of the Channel and Islais Creek, the relationship of past CSOs to water quality in these inlets is unknown, because (as explained in the SEIR on pp. V.K.13-V.K.14) the Channel and Islais Creek have been subject to numerous historical polluted discharges. Pollutants in current and future CSOs and other City wastewater system discharges do not and would not contribute to degradation of sediments in either location, as determined by the RWQCB in issuing the NPDES permits for the City system. See "Wet-Weather NPDES Permits" on pp. XII.371-XII.376 and "Reductions in Combined Sewer Overflow Volumes" on pp. XII.295-XII.298.

As the comments have suggested, the Channel may have been dredged in the 1970s because the Bay Conservation and Development Commission issued the Port of San Francisco a permit (No. 3671) for maintenance dredging there in 1972./41/ That permit would have allowed the Port to have dredged the Channel to a depth of 32 feet below mean lower low water. The Bay Conservation and Development Commission does not maintain any records from that time that would confirm whether the dredging actually occurred. Port of San Francisco records are not available for the period before 1986 (dredging

has not occurred in the Channel since then)./42/ Staff at the U.S. Army Corps of Engineers are unable to locate any record of dredging in the Channel using their permit database./43/

Regarding the potential for contaminated groundwater in the Project Area to affect the Channel, refer to Contaminated Soils and Groundwater, "Metals in Groundwater," pp. XII.215-XII.223.

Regarding the use of average rainfall in performing these calculations, refer to the response regarding "Rainfall Data Used in the Bayside Planning Model," pp. XII.307-XII.311, which explains that the SEIR appropriately analyzes representative possible future conditions consistent with scientific practice. CEQA requires analysis of reasonable, realistic conditions, as best as can be estimated.

Adequacy of Water Quality Data for China Basin Channel and Islais Creek

Comment

Although the project sponsors conducted an extensive sampling program on soils and groundwater at the project site, no new data was collected relating to water quality in Mission and Islais Creeks. Indeed, the SEIR notes that "no comprehensive water quality data have been collected for China Basin Channel [i.e. Mission Creek] since. . .1979. . .And the most recent data for Islais Creek are from studies conducted by the City. . .in 1985." (Vol II at V.K.12). If the discussion in the SEIR reflects the contents of that 19 year old and 13 year old data, the studies did not look at metals, organics or other pollutants of concern but were limited to pH, coliforms and dissolved oxygen (which appear to show violations of water quality standards during dry and wet seasons). Hence, no recent data, reflecting all of the pollutants of concern in the Central Bay, is available to support any conclusion that the CSO discharges are less than significant. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

The comment criticizes the SEIR for not including up-to-date sampling results for the Channel and Islais Creek, noting that substantial effort has been devoted to collecting recent soil and groundwater data. It suggests that the sampling results from the 1980s demonstrate violations of water quality standards and contends that no recent data support the SEIR's impact conclusions regarding combined sewer overflow (CSO) discharges.

The comment is correct in that no new sampling effort was undertaken in the Channel or Islais Creek specifically for this SEIR. The SEIR relies on recent CSO and effluent monitoring data and available data about stormwater discharge constituents to analyze water quality impacts of the project. New sampling data to establish current water quality conditions are not necessary for the analysis and conclusions in the SEIR. Whether new data indicated that water quality in the creeks is better, worse, or the same as previously found, the very small pollutant increments estimated to be generated by the

project would not change, and therefore the project impacts as disclosed and discussed in the SEIR would not change. More current water quality data is not considered necessary or helpful for this project's impact analysis, and was also not obtained or considered necessary for the 1990 FEIR. In contrast, the recent soil and groundwater sampling was necessary to develop specific risk management and remediation strategies for development of the Project Area.

The data regarding existing water quality in the Channel and Islais Creek are adequate for the purpose of the SEIR's analysis of the effects of increasing CSO and stormwater volumes. First, under "China Basin Channel and Islais Creek" on pp. V.K.11-V.K.14, the SEIR acknowledges that both the Channel and Islais Creek may be degraded, having been designated candidate toxic hot spots by the RWQCB. Second, under "Volume and Quality of Treated Combined Sewer Overflows" on p. V.K.36 and "Effects of Treated Combined Sewer Overflows" on pp. V.K.43-V.K.46, the SEIR uses recent CSO monitoring data from 1995, 1996, and 1997 (see Table V.K.3 on p. V.K.37) to assess the effects of the project on the near-shore environment. Completion of the Wastewater Master Plan projects in 1997 has substantially reduced the volume and improved the quality of CSO discharges, and causal (cause and effect) relationships between CSO and stormwater discharges and water quality have not been established, so that older studies cannot be used to accurately infer present water quality conditions.

Water Quality Criteria

Comment

The evaluation of near-shore effects of CSO's is inadequate:

- Only concentrations are evaluated; not loads
- Only acute toxicity is evaluated (p. V.K.44); chronic toxicity is ignored.

(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])

Response

Contrary to the comment's assertion, the SEIR estimates both pollutant loads and concentrations. Table V.K.3 on p. V.K.37 shows pollutant loads in CSOs under base case and proposed project conditions. While water quality *concentration* standards have been established for San Francisco Bay, quantitative standards relating specifically to pollutant *loads* have not been developed by the City and County of San Francisco, the State Water Resources Control Board, or the Regional Water Quality Control Board. Therefore, the SEIR uses quantitative, concentration-based screening levels derived from the Basin Plan and other authoritative sources in its analysis. These screening values are not regulatory or permit requirements for discharge concentration at outfalls (as used in the SEIR), but they are useful yardsticks for conservative EIR comparisons. As explained under "Effects of Treated

Combined Sewer Overflows" on p. V.K.44, acute toxicity water quality screening values were used to evaluate CSO pollutant concentrations because CSOs are a transient phenomenon. Organisms would be exposed to undiluted or slightly diluted CSOs for short durations (e.g., a few minutes or hours) rather than the longer durations associated with chronic effects.

Comment

The 1979 Bayside Overflow studies referenced at Vol. II, page V.K.9 downplay the significance of the City's CSO discharges. For example, the reference to dilution effects in Mission and Islais Creeks is directly contrary to the general prohibition in the San Francisco Bay Basin Plan prohibiting discharges into shallow water areas and prohibiting the application of dilution factors in those instances where discharges are allowed in exception of that policy. Similarly, the discussion does not, nor could it, state that CSO discharges do not violate the water quality standards applicable throughout the Bay. Indeed, a significant omission from the discussion, indeed from the entire SEIR, is the long history of the City's request for exceptions from those very standards. The fact that fish and other biota do not immediately die (i.e. In 1979, there was no evidence of acute toxicity) is little proof that CSO overflows are good for the creeks. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

This comment refers to the discussion of combined sewer overflow (CSO) effects under "Near-Shore Bayfront Waters" on p. V.K.9, noting that the Basin Plan prohibits discharges into shallow water and that, where exceptions are made to this policy, no allowance for dilution may be made in evaluating the effects of such a discharge. Table V.K.6 on p. V.K.45 shows the concentrations of various pollutants in CSOs discharged to near-shore waters. These concentrations were estimated assuming no dilution, in accordance with the Basin Plan methodology. However, the SEIR also explains that some dilution of CSOs actually does occur in the environment (see p. V.K.44). As discussed on p. V.K.44, dye studies undertaken to determine the extent of this dilution have indicated that, in most cases, mixing with Bay waters occurs fairly rapidly with observed initial dilutions ranging from 1:1 to more than 300:1. By assuming no dilution of CSOs, the SEIR provides a conservative analysis. An endnote was inadvertently omitted from the Draft SEIR. The reference mark for Endnote /66a/ has been added to p. V.K.44 at the end of the second sentence of the second paragraph, and Endnote 66a has been added to p. V.K.68 as follows:

> **/66a/ City and County of San Francisco, *Bayside Overflows*, prepared by CH2M Hill, June 1979.**

Regarding the comment that the survivability of fish does not prove that CSOs are good for the creeks, the SEIR does not offer any simplistic judgment about whether CSOs are "good" or "bad"; rather, it describes the results of various water quality studies of nearshore waters on pp. V.K.9-V.K.13. The analysis in the SEIR shows that project-related changes to treated CSO discharges would not

significantly impact nearshore waters based on the fact that the project would not materially affect the concentration of pollutants in treated CSOs, the nearshore sediment quality, or water-contact recreation (see pp. V.K.46-V.K.50).

Current CSO discharges do not violate any applicable water quality standards and, as a result of facility design and CSO treatment, provide adequate protection of beneficial uses/44/. The City does not operate under any exception to water quality standards. The RWQCB has granted exceptions to specific requirements, such as shallow water discharge limitations, but only upon finding that, based on evidence, water quality protection would be maintained. The *Bayside Overflows* study was prepared by a respected independent consultant (CH2M Hill) and has been used and accepted by the Regional Water Quality Control Board as well as the City. No evidence has been presented in any of the comments that contradicts the data, analysis, or conclusions of *Bayside Overflows* or the SEIR.

Comment

The SEIR's assertion that "[t]he critical consideration regarding biological impacts due to pollutant discharge to an aquatic system rests not in the mass load, but in the extent to which discharges to the system serve to increase contaminant concentrations" is incorrect. Vol. II at V.K.41. In fact, controlling the mass loading of pollutants is critical to bringing San Francisco Bay's water quality into compliance with applicable water quality standards. The SEIR acknowledges this in discussing the total maximum daily load and waste load allocation requirements triggered by the Regional and State Boards' impaired waters list. Vol. II at V.K.16-17. See also Basin Plan at 4-2 ("wasteload allocation supports the identification and implementation of the most effective and economically efficient means of achieving water quality objectives. . ." and "for some pollutants,. . .Concentrations in water are not good indicators of their impairment of beneficial uses"). Increases in mass loading, especially of those parameters that already are impairing the Bay, in particular copper, mercury, PCBs, selenium, and pesticides, means that incremental and continual degradation of the Bay continues to occur.

Comparing the City's discharges of essentially raw sewage and other effluent with applicable water quality criteria is not "extremely conservative." Vol. II at V.K.41. It is the relevant comparison and anything above those criteria likely is adversely affecting beneficial uses in the Bay.

A dilution factor of 20 is hardly conservative given the fact that the maximum allowable dilution factor (for constituents not already impairing the Bay) allowed by the Regional Board's Basin Plan is 10! Vol. II at V.K.42. Likewise, the SEIR's observation that "[PUC] staff do not expect the proposed changes to the copper and selenium objectives to cause compliance problems for the City" is very likely incorrect. Id. For pollutants like copper, mercury and selenium, that already are impairing the Central Bay, renewal of the existing permit will consider removing dilution credits for pollutants impairing the Bay (how can dilution occur of the water column concentrations already above the standards?). Hence, the end-of-pipe effluent limits applied to the City's discharge for those pollutants will be equivalent to the applicable water quality criteria (4.9 ug/l for copper, .025 for mercury and 5 ug/l for selenium). The City's current average discharge is at 52 ug/l for copper, .16 ug/l for mercury and 4.4 ug/l for selenium. See Table V.K.5. Thus, with the requisite effluent limitations and assuming current plant performance, the City will more often than not be in violation of the copper and mercury

limits and, to some significant extent, be in violation of the selenium limit as well. Lastly, the conclusion that the increase in effluent [from] the plant will not "cause a substantial degradation" begs the question whether it might cause a normal degradation. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

This comment disagrees with the SEIR statement under "Effects on Receiving Waters" on p. V.K.41 that the critical consideration regarding biological impacts to an aquatic system rests on the extent to which discharges to the system serve to increase contaminant concentrations. The comment quotes the Basin Plan as support for an assertion that the SEIR should have used mass loading rather than concentrations of pollutants. The comment disagrees with the SEIR statement that the approach used to assess effects of treated CSOs is conservative, and suggests that in the future effluent limits imposed by the RWQCB will be so stringent as to place the City in violation on a regular basis.

The SEIR does not present the limited picture suggested by the comments. Mass loads are discussed in the appropriate context. CEQA (Section 21068) defines a significant effect on the environment as a substantial, or potentially substantial, adverse change in the environment. The SEIR analysis is conservative in evaluating the environmental effects of deepwater discharge because it uses the lower end of measured dilution ratios and, in using slack water conditions, assumes the least amount of mixing. The combined sewer overflow (CSO) discharges are not "essentially raw sewage," as they average about 94% stormwater and about 6% sanitary sewage and they receive near-primary treatment in the transport/storage facilities prior to discharge. The project's contribution to Bayside discharges would not cause violations of the City's NPDES permit, and the City is expected to remain in compliance with the regulatory requirements of its permit.

The point of the SEIR text quoted from p. V.K.42 is that individual animals and plants react to the concentrations of contaminants they experience, not to mass loads. The SEIR does not disregard the relationship between pollutant load and pollutant concentration (pollutant load is the product of multiplying pollutant concentration by water volume). As demonstrated in Tables V.K.2, V.K.3, and V.K.4 on pp. V.K.35, V.K.37, and V.K.39, the SEIR acknowledges that the project could increase mass loads of various pollutants to San Francisco Bay. The full paragraph of the Basin Plan text to which the comment refers discusses toxic pollutant management in the larger San Francisco Bay Estuary System. For context, it is quoted below./45/

> Wasteload allocations based on the achievement of numerical water quality objectives will provide appropriate protection of beneficial uses for many toxic pollutants. For some pollutants, however, concentrations in water are not good indicators of their impairment of beneficial uses. Instead, wasteload allocations for such compounds are

> developed based on mass, rather than concentration, and tissue and sediment concentrations. Typically, mass-based allocations require more extensive technical information of the fate and transport of pollutants in the system than those based on water alone.
>
> The Regional Board implements narrative objectives regarding sediment accumulation and bioaccumulation in several ways. . .In general, pollutants are identified and monitored in both discharges and the aquatic system. At a minimum, limits placed on point and nonpoint discharges take pollutant accumulation into consideration. Ultimately, the goal is to develop system wide, mass-based wasteload allocations for appropriate substances.

Although the project would contribute to the mass loading of pollutants for which the Bay has been determined to be impaired, the project's contribution to this load would be relatively low. As stated on p. V.K.52, the total increase in pollutant load would be less than 3% of the existing Bayside facilities load, which in turn represents about 12% of all municipal discharges in the Bay Area. Municipal discharges and other permitted industrial discharges represent about 1-6% of the total pollutant load to the Bay-Delta estuary. The project would not impede the City's ability to continue to comply with its National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Water Quality Control Board (RWQCB). Discharge limitations in the NPDES permit ensure that the City's discharges remain consistent with Basin Plan objectives, including those relating to pollutants with the potential to accumulate within the Bay. As stated on p. V.K.52, the RWQCB may initiate a "total maximum daily load" regulatory process that could result in different effluent limitations than those provided in the Basin Plan. The City would have to comply with any changes to its NPDES permits resulting from RWQCB actions. For additional information, refer to the responses regarding "Pollutant Loads and Federal and State Antidegradation Policies," on pp. XII.367-XII.370 and "Consumption of Bay Fish," pp. XII.389-XII.392.

Regarding the comment that the SEIR incorrectly states that its comparison of municipal wastewater effluent to Basin Plan Water Quality Objectives is extremely conservative, the analysis is conservative because it does not account for the full effect of dilution at the deepwater outfall. While Basin Plan guidelines recommend using a dilution ratio of 10:1, this ratio is for the purposes of calculating effluent limitations for deepwater dischargers and to establish a regulatory limit. Calculated effluent limitations for the Southeast Water Pollution Control Plant already exist and are discussed on pp. V.K.18-V.K.19. The purpose of the SEIR is not to establish effluent limitations for the Southeast Plant, but to evaluate the environmental effects of the discharge under actual dilution conditions. The Basin Plan acknowledges, ". . .the actual initial dilution of many deepwater discharges is greater than ten. . ."/46/. As discussed under "Deep Water Effects of Increased Treated Effluent" on p. V.K.42, studies (cited in Endnote 62 on p. V.K.68) have shown that during slack water, when mixing is at a minimum, actual

dilution is between 19:1 to 34:1. A dilution ratio of 20:1 was chosen as a conservative ratio to evaluate end-of-pipe effects under the conservative conditions of slack waters.

Regarding the comment citing the current average discharge concentrations as 52 μg/l for copper, 0.16 μg/l for mercury, and 4.4 μg/l for selenium, Table V.K.5 lists the current average discharge concentrations of copper, mercury, and selenium in Bayside effluent as 8.3 μg/l, 0.07 μg/l, and 0.72 μg/l, respectively, and Table V.K.6 on p. V.K.45 lists the current average discharge concentrations of copper, mercury, and selenium in combined sewer overflows as 39 μg/l, 0.37 μg/l, and 0.85 μg/l, respectively. The source of the comment's concentrations is unknown, but they do not reflect current data. As noted at the bottom of Table V.K.5, the source of the effluent information in the SEIR is a 1997 monitoring report. The Southeast Plant's existing NPDES permit limits discharges of copper, mercury, and selenium to 37 μg/l (daily average), 0.21 μg/l (monthly average), and 20 μg/l (daily or 4-day average). The current average effluent concentrations are well below the NPDES permitted limits, and therefore, existing effluent discharges are assumed to meet the water quality objectives established in the Basin Plan. As noted at the bottom of Table V.K.6, the source of the CSO information in the SEIR is data from 1994/95, 1995/96, and 1996/97 monitoring efforts by the Southeast Water Pollution Control Plant staff. The wet-weather NPDES permit for the Bayside facilities does not specify numerical concentration limits for CSOs.

As for whether possible changes to copper or selenium objectives would result in compliance problems for the City, the SEIR reports on p. V.K.42 that San Francisco Public Utilities Commission (SFPUC) staff do not expect that the copper and selenium objectives proposed by the U.S. Environmental Protection Agency for California would cause compliance problems for the City. This conclusion was based on a comparison of existing copper and selenium discharge data against the copper and selenium objectives in the proposed California Toxics Rule, which has not been adopted as of August 1, 1998. SFPUC staff determined that the City's deepwater effluent discharge would be within the proposed standards. Refer to the response regarding "New Water Quality Standards" on p. XII.376.

Comment

Table V.K.5 is replete with subtle misrepresentations. To the extent column two consist of a single number as representative of the daily discharge from the Hunters Point plant, one must assume that the numbers represent the average quality of the discharge. Vol. II at V.K.43. If that is true, then half the time, the quality of the discharge is less than that reported in the Table. The Table should include a column reflective of the plants normal "poorest" performance. Similarly, the inclusion in the fourth column of a single number as representative of the "ambient Bay concentration" is not the entire picture. Presumably the offered number is some kind of average of RMP data. In any event, there is no basis described why the specific numbers offered should be deemed reflective of ambient bay

concentration. Lastly, the use of the Basin Plan's l-hr average objectives provides an overly narrow point of comparison and, for several of the listed pollutants does not reflect the current decisionmaking of the Regional Board. For example, for lead, the 4 day average in the Basin Plan is 5.6 ug/l. Basin Plan at 3-9. That is the criteria generally applied in discharge permits throughout the Bay area, not the 140 ug/l cited at Table V.K.5. Similarly, for mercury, the criteria being cited by the Regional Board is .025 ug/l (the 4 day average), not the 1-hour average of 2.1 ug/l cited in the SEIR Table. The only number offered in the fifth column that actually reflects the water quality criteria applied on a permit level by the Regional Board is the copper criteria. One last comment, the Table fails to evaluate increases in dioxin, PCBs or pesticides, all of which are discharged through the sewage plant. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

This comment takes exception to presenting average effluent and ambient Bay water concentrations and to the use of Basin Plan average 1-hour objectives in Table V.K.5 on p. V.K.43. As noted in footnote (a) in Table V.K.5, the effluent concentration data is taken directly from 1997 monitoring data, the most recent data available. At individual points in time, concentrations could be higher or lower than concentrations measured during the 1997 monitoring year. Therefore, the presentation and evaluation of average pollutant concentrations for 1997 is a reasonable and adequate approach. Temporal variations in concentrations would not affect the impact conclusions of the SEIR. For additional information about the use of averages in the SEIR, refer to the response regarding "Variability and Uncertainty in the Bayside Planning Model Results."

The comment challenges the use of Regional Monitoring Program data to represent ambient Bay concentrations. The use of Regional Monitoring Program data to reflect ambient Bay conditions is consistent with its use in the Basin Plan to represent background concentrations, which the Regional Water Quality Control Board accounts for when calculating deepwater effluent limitations for discharge permits. However, the SEIR evaluates actual effects in the environment. As discussed under "Deep Water Effects of Increased Treated Effluent" on p. V.K.42, the SEIR reasonably assumes an actual dilution ratio of 20:1 (i.e., one part effluent diluted by 19 parts ambient Bay water). This SEIR provides reasonable estimates of ambient pollutant concentrations on the basis of ongoing monitoring efforts.

The comment questions the SEIR's use of 1-hour averages rather than 4-day averages for lead and mercury. The belief that acute objectives are the most appropriate is based on outfall performance. The deepwater outfall at the Southeast Water Pollution Control Plant directs effluent discharge sideways and upward (somewhat analogous to a lawn sprinkler); no discharge is directed downward. Although the discharged effluent is relatively well-mixed (at least 19:1 to 34:1 [see p. V.K.42]) soon after it exits the diffuser outfall, it is less saline, and therefore, lighter, than Bay water, and begins to rise through the water column until it is fully mixed. One could visualize that the discharge from the

Southeast Plant is continuous, but does not form a stable plume; instead, the plume moves under the influence of tides and wind. Organisms that potentially could be exposed to the discharge are those that are capable of movement and are likely to move away from the discharge if distressed by changes in salinity. Few creatures, except perhaps those living on the outfall/diffuser structure itself, are exposed to the wastewater discharge for long periods. It is more appropriate, therefore, to use one-hour averages to assess acute, short-term effects. In any case, the use of Basin Plan Water Quality Objectives in the context of this CEQA analysis is conservative in that these objectives are not meant to apply at outfalls.

However, even if 4-day averages were used to more conservatively assess effluent toxicity, all pollutants except copper, including lead and mercury, would be below the 4-day continuous concentration average. Copper, at a diluted effluent concentration of 2.6 μg/l, would exceed the 4-day screening value of 2.4 μg/l. The diluted effluent concentration is measured as a total value and the screening value is expressed as dissolved. Given that about 26% of copper would be in the dissolved phase, the concentration of dissolved copper would be about 0.67 μg/l, which would be below the 4-day screening value of 2.4 μg/l.

The comment notes that Table V.K.5 does not list data for dioxin, polychlorinated biphenyls (PCBs), or pesticides. Table V.K.5 is intended to focus on metals present in the effluent wastestream. The effluent concentrations of dioxin, PCBs, and pesticides are assumed to remain the same with the project, but the project would likely increase their pollutant loads in proportion to increases in discharge flows. As suggested by Table V.K.2 on p. V.K.35, effluent loads for these pollutants would likely increase by about 2.8%.

Comment

The SEIR's statement that "[t]he effects in the near-shore are not evaluated against water quality objectives or other water quality screening criteria because CSO and stormwater discharges are short-term, seasonal, variable in duration and volume, and scattered at a number of locations along the shoreline" is inconsistent with the Basin Plan and the Clean Water Act. Vol. II at V.K.44. This statement amounts to the SEIR drafters rewriting the water quality rules in order to avoid the relevant comparisons. The notion that pollution in CSOs and stormwater should only be deemed "bad" where it exceeds acute toxicity concentrations is ridiculous, ignoring the full range of adverse effects which pollutants have on the aquatic environment. The fact that the 303(d) list of impaired waters, which compares water quality data to water quality standards and criteria, cites stormwater discharges as a consistent source of most of the stressors to the Bay debunks this self-serving equation set forth in this portion of the SEIR. Hence there is nothing "conservative" about comparing the very high concentrations of metals and other pollutants in CSOs to acute screening values, nor, for that matter, is there anything "conservative" about comparing effluent quality from the sewage plant to existing water quality criteria and objectives. Vol. II at V.K.44. In any event, even applying the numbers offered up at Table V.K.6, it is clear that the CSO discharges are in fact acutely toxic to marine organisms,

copper, silver, zinc and cyanide all falling within the acute toxicity range. Table V.K.6. Nothing in the existing Basin Plan supports the evaluation offered by the SEIR that the impact of the CSO discharges should be explained away by ignoring those portions of the metals found in particulate form, rather than dissolved form. Vol. II at V.K.46. The Basin Plan regulates total recoverable metals, including both forms. Moreover, to the extent recent criteria proposed for California by EPA do differentiate between dissolved and particulate phases, the recently issued draft Biological Opinion of the USF&WS makes it eminently clear that such proposals are scientifically flawed and legally deficient. See Biological Opinion at 183. Hence, the entire discussion of the quality of sewage overflows supports a finding of significant adverse impact.

Likewise the discussion of storm water quality is of little utility given the SEIR's truncated analysis comparing data estimates with acute toxicity criteria. Vol. II at V.K.47-48. Even with that limited review, it is clear that discharges of copper and zinc from the proposed storm water outfalls to shallow waters of Mission Creek and the Bay will in fact be lethal to certain aquatic organisms. Table V.K.7. The SEIR's discussion of dissolved forms, rejected by USF&WS and not yet (if ever) finalized by EPA, does not alter this obvious conclusion. The discussion also overlooks any discussion of discharges of dioxin, PCBs and pesticides through storm water flows. This section again can only support a finding of significant impact. . .

The assertion that copper concentrations (and indeed other parameters as well) fall within the acute toxicity range but would not be acutely toxic is this SEIR's version of double-speak, seeking to explain away every obvious concern rather than provide a specific mitigation plan to eliminate likely impacts. Vol. II at V.K.53. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

The Regional Water Quality Control Board (RWQCB) has determined that the City's combined sewer overflows (CSO), given their quality and quantity, are consistent with the Basin Plan./47/ The SEIR provides a detailed analysis of near-shore effects of existing and projected future CSOs, including the change in CSOs resulting from the proposed project. While the SEIR conservatively applies acute toxicity concentration ranges as a "yardstick," the results would not be substantially different if Basin Plan acute water quality criteria were used.

The comments assert that the acute toxicity concentration ranges shown in Tables V.K.6 and V.K.7 on pp. V.K.45 and V.K.48 are inconsistent with the Basin Plan. However, the acute toxicity concentration ranges provided in Tables V.K.6 and V.K.7 are based on toxicity data compiled by an accepted authority, the U.S. Environmental Protection Agency (U.S. EPA)./48/ The Basin Plan states that its "objectives are intended to govern the concentration of pollutant constituents in the main water mass. The same objectives cannot be applied at or immediately adjacent to submerged effluent discharge structures."/49/ Similarly, it is inappropriate to apply the objectives at or immediately adjacent to submerged or surface shallow-water discharges. However, Tables V.K.5 (p. V.K.43), V.K.6, and V.K.7 provide all the information one would need to compare existing near-shore

discharges with Basin Plan criteria. While not necessary to evaluate impacts of the project, the SEIR data in those tables have been recombined in Tables XII.11 and XII.12 for illustrative purposes.

As shown in SEIR Table V.K.6, total copper, zinc, silver, and cyanide in existing CSOs could be above acute toxicity levels. If Basin Plan criteria are used, the results are similar. Table XII.11 shows that existing CSOs could contain total copper and silver concentrations above Basin Plan screening values. Table V.K.7 indicates that total copper and zinc in stormwater could be above acute toxicity levels. If Basin Plan criteria are used for stormwater, as shown in Table XII.12, the results are similar. Stormwater could contain total copper and zinc concentrations above Basin Plan screening values. The Basin Plan screening values for acute toxicity apply to dissolved pollutants./50/ The actual concentration of the dissolved fraction of the pollutants would be substantially less than the total concentrations reported in these tables, and as stated under "Aquatic Biotic Effects" on p. V.K.53, CSO and stormwater effects would be seasonal, intermittent, and short in duration. Furthermore, CSOs would undergo considerable dilution upon entering the Bay. Therefore, the conclusions of the analysis would be the same regardless of which acute toxicity benchmarks are considered and project-related CSO increases would not result in a significant impact on near-shore waters as is also indicated by the RWQCB NPDES permit findings that the City's CSOs comply with the Basin Plan./51/

The comparisons shown in Tables V.K.6 and V.K.7 are conservative because they make no allowance for dilution. As stated under "Effects of Treated Combined Sewer Overflows" on p. V.K.44, dye studies along the Bay shoreline have indicated that CSOs receive dilution of between 1:1 and 1:300. The analysis is also conservative because comparisons are made with "low acute" values. The acute toxicity ranges provided in Table V.K.6 and V.K.7 indicate the lowest concentrations at which acute toxicity was observed in various studies; therefore, in many cases acute toxicity is not necessarily observed until pollutant concentrations are well above the lower end of the range used for analysis purposes. The actual concentration at which a species could experience toxic effects depends on the species.

As the comments note, Table V.K.6 suggests that total copper, silver, zinc, and cyanide concentrations in CSOs could fall within the range of acute toxicities. However, Table V.K.6 does not reflect adjustments to account for only the soluble, biologically available fractions, as discussed with respect to copper and zinc under "Effects of Treated Combined Sewer Overflows" on p. V.K.46. To clarify issues pertaining to silver and cyanide, the following text changes have been made, beginning with the first sentence on p. V.K.46.

TABLE XII.11
ILLUSTRATIVE COMPARISON OF POLLUTANT CONCENTRATIONS IN CSO'S WITH ACUTE WATER QUALITY SCREENING VALUES

Pollutant	CSO Concentration (μg/l)/a/	Acute Water Quality Screening Values (μg/l)
Arsenic	7.9	69 /b/
Cadmium	2.2	43 /b/
Chromium	12	1,100 /b/
Copper	39	4.9 /b/
Lead	61	140 /b/
Mercury	0.37	2.1 /b/
Nickel	21	74 /c/
Silver	4.9	2.3 /b/
Zinc	32.0	90 /c/
Selenium	0.85	290 /c/

Notes:

a. Mean concentration derived from data sources provided by Jim Salerno, Laboratory Supervisor, Southeast Water Pollution Control Plant, September 5, 1997:
City and County of San Francisco, Department of Public Works, Bureau of Water Pollution Control, Bayside Wet Weather Overflow Monitoring Program Data Summary, October 1994 - June 1995.
City and County of San Francisco, Department of Public Works, Bureau of Water Pollution Control, Bayside Wet Weather Overflow Monitoring Program Data Summary, October 1995 - June 1996.
City and County of San Francisco, Department of Public Works, Bureau of Water Pollution Control, Bayside Wet Weather Overflow Monitoring Program Data Summary, October 1996 - June 1997.

b. San Francisco Estuary Institute, *1995 Annual Report: San Francisco Estuary Regional Monitoring Program for Trace Substances*, 1996.

c. Corresponds to the U.S. EPA Acute Ambient Water Quality Criteria for the protection of saltwater life (40 CFR, Section 131.36).

Source: EIP Associates; Woodward Clyde International.

TABLE XII.12
ILLUSTRATIVE COMPARISON OF POLLUTANT CONCENTRATIONS IN STORMWATER WITH ACUTE WATER QUALITY SCREENING VALUES

Pollutant	Stormwater Concentration (μg/l)/a/	Acute Water Quality Screening Values (μg/l)
Cadmium	1.7	43 /b/
Chromium	18	1,100 /b/
Copper	35	4.9
Lead	83	140 /b/
Nickel	38	74 /c/
Zinc	220	90 /c/

Notes:

a. Concentration estimates derived from Bay Area Stormwater Management Agencies Association, *San Francisco Bay Area Stormwater Runoff, Pollutant Monitoring Data Analysis, 1988-1995, Final Report*, prepared by Woodward-Clyde Consultants, October 15, 1996, Table 5-2.
b. California Regional Water Quality Control Board, San Francisco Bay Region, *Water Quality Control Plan* (Basin Plan), June 27, 1995, Water Quality Objectives for Toxic Pollutants, for surface waters with salinities greater than 5 parts per thousand p. 3-9, Table 3-3; 1-hour average concentrations.
c. Corresponds to the U.S. EPA Acute Ambient Water Quality Criteria for the protection of saltwater life (40 CFR, Section 131.36).

Source: EIP Associates; Woodward Clyde International.

Table V.K.6 shows that, with the exception of copper, silver, cyanide, and zinc, the total concentrations of pollutants in treated CSOs are well below the lowest concentrations of pollutants causing acute toxicity in saltwater organisms.

Zinc concentrations in treated CSOs were estimated to exceed the lowest zinc concentration causing acute toxicity. However, acute toxicity in water from metals is due almost exclusively to metals in the dissolved form. Studies show that zinc in CSOs is present primarily in the particulate form, and that 41.5% of the total zinc in CSOs would be in the dissolved, bio-available form./68/ The zinc measured in treated CSOs represents not 320 μg/l, but a value less than half of that, approximately 132 μg/l. Thus, the actual concentration available to biota that are exposed to treated CSOs would be below the acute toxicity concentration range.

The total silver concentration in treated CSOs appears to be within the acute toxicity concentration range. Because the reported silver concentration is based on data near or below the analytical detection limit for silver (half the detection limit was assumed when no silver was detected), the silver data reflect substantial uncertainty. Only the dissolved

portion of the total concentration would be potentially available to biota, and studies of metals in stormwater runoff show that roughly 23% of the silver would be in the soluble, biologically available phase./68a/ Therefore, the actual concentration of silver in treated CSOs to which biota might be exposed would be about 1.1 μg/l in the dissolved phase, and the actual concentration available to biota that are exposed to treated CSOs would be below the acute toxicity concentration range.

The total copper concentration in treated CSOs is within the acute toxicity concentration range. However, only the dissolved portion of the total concentration would be potentially available to biota. Studies of metals in overflow waters show that about 26% of copper in the waste stream is in the soluble, bioavailable phase./69/ Thus, the actual concentration of copper in treated CSOs to which biota might be exposed, would be about 10 μg/l in the dissolved phase. Although this concentration exceeds the lowest acute toxicity value by a small amount, it is at the low end of the range. Furthermore, the CSOs are an existing condition; the project's effects would increase the duration of the overflow for a few minutes and increase the overflow volume by about 0.2%. The project is not expected to materially affect the concentration of copper (or any other pollutant) in treated CSOs. The project effect would not be a significant impact.

The total cyanide concentration in treated CSOs is slightly within the acute toxicity concentration range. For analysis purposes, all the cyanide is assumed to be dissolved and potentially available to biota, although this is a conservative assumption. Although the cyanide concentration exceeds the lowest acute toxicity value by a small amount, it is at the low end of the range. The project would not be expected to materially affect the concentration of cyanide in treated CSOs.

CSOs are an existing condition; the project's effects would increase the duration of the overflow for a few minutes and increase the overflow volume by about 0.2%. Treated CSOs would undergo unquantified mixing and dilution in the near-shore environment. Mobile salt-water species would quickly move away from fresh water CSOs. The data presented in Table V.K.6 suggest that organisms in the near-shore environment of San Francisco Bay could tolerate exposure to treated CSOs ~~water undiluted with Bay water~~, and would not experience acute toxicity. The incremental change as a result of the project would be relatively small compared to existing conditions (a roughly 0.22% increase in load) and probably impossible to measure. ~~Given that treated CSOs would undergo unquantified mixing and dilution in the near-shore environment~~ For these reasons, there would be no significant impact of treated CSOs on the aquatic biota in the near-shore environment on the Bayside.

The following endnote has been added to p. V.K.69:

/68a/ Bay Area Storm Water Management Agencies Association, *San Francisco Bay Area Stormwater Runoff Monitoring Data Analysis, 1988-1995, Final Report*, prepared by Woodward-Clyde, October 15, 1996, Appendix E.

The analysis considers environmental effects of near-shore discharges in addition to acute toxicity. The SEIR considers effects on sediment quality and water-contact recreation on pp. V.K.48 and V.K.49. The SEIR does not evaluate chronic toxicity because the project's contribution to effluent, overflow, and stormwater discharges would thoroughly mix with ambient Bay waters within the time frame (i.e., several days) for considering chronic effects. Project-related loads would be small compared to existing pollutant loads flowing to the Bay, and the project would not be expected to result in any detectible changes to ambient pollutant concentrations in the Bay.

Regarding the consideration of just the soluble fraction in assessing acute effects, recently, the U.S. EPA has been determining compliance with metals effluent limits on the basis of the dissolved fractions rather then the total metals content./52/ The U.S. EPA approach is reasonable, although not all agencies agree with it./53/ Some believe it fails to account for the fact that metals associated with particulates may eventually become biologically available. However, because the SEIR conservatively compares undiluted discharge concentrations to acute toxicity levels, which relate to short-term exposures, there is no reason to presume that the particulate-associated pollutants would dissolve within the time frame to induce acute toxicity. Therefore, in the specific context of this SEIR analysis, this approach is believed to be appropriate. The Basin Plan acute toxicity criteria specifically apply to soluble pollutants, with the exception of mercury./54/

Regarding dioxins, PCBs, and pesticides, Table V.K.4 on p. V.K.39 estimates pollutant loads associated with Project Area stormwater discharges, illustrating that stormwater pollutant loads could increase from 10% to 60%, depending on the pollutant considered. While not every pollutant in stormwater could be included in Table V.K.4, by illustrating the range of possible increases, the SEIR does not ignore other pollutants. The SEIR does not challenge the assertion that urban stormwater discharges are one of the main sources of pollutants found to be impairing Bay water quality. Stormwater is discharged into the Bay untreated from hundreds of square miles of urban development in the Bay Area. The Mission Bay project is unusual in the context of the Bay Area, although not in San Francisco, in that it proposes to provide stormwater treatment by diverting "initial flows" to the City's combined sewers. (Also see the response regarding "Illustrative Mitigation Scenarios," on pp. XII.253-XII.277.)

As stated under "Standards of Significance" on p. V.K.22, "The proposed project would be considered to have a significant effect on. . .water quality if it would. . .substantially degrade water quality." This language is derived from Appendix G of the State CEQA Guidelines. The conclusion presented in the SEIR is based on a reasonable analysis of the facts related to foreseeable discharge volumes, the concentrations of pollutants in the discharges, established acute toxicity screening values, potential biological effects, likely dilution effects, and discharge frequency and duration, among other

considerations. The relatively small increment to existing CSO quantities that the project would generate is not considered sufficient to conclude that the project would substantially degrade water quality and thereby have a significant impact, based on the SEIR analysis on pp. V.K.43-V.K.46 and V.K.49-V.K.50. In summary, the project, in and of itself, would not substantially degrade water quality because 1) CSOs are an existing condition and they do not cause substantial degradation of water quality; 2) the project's effects would increase the duration of CSOs by only a few minutes and increase the volume of CSOs by about 0.2%; and 3) mixing and dilution would occur. Due to these factors, the impact on aquatic biota and water quality would be expected to be less than significant. Nevertheless, the SEIR does determine under "Conclusion" on p. V.K.54 that the project would contribute to a potentially significant cumulative impact on near-shore waters of San Francisco Bay from treated CSOs (which could increase in volume by about 11% as a result of cumulative development) and direct stormwater discharges to China Basin Channel. Mitigation Measures K.3 and K.4 on p. VI.47 address this potential cumulative impact.

Comment

Variability of concentrations were not evaluated even though (a) dissolved concentrations for both copper and zinc are very close to acute toxicity levels (p. V.K.46), and (b) sediments in Islais Creek and China Basin Channel are candidates for designation as toxic hot spots. If the variability in concentrations and volumes were combined in the *Bayside Planning Model*, the conclusion of no significant impact from the project might be very different, especially for copper. *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])*

Response

Noting that project-related copper and zinc concentrations are close to acute toxicity levels and that China Basin Channel and Islais Creek are "candidate" toxic hot spots, this comment asserts that the conclusions of the SEIR could be different if the inherent variability of the discharge concentration data were to be considered to a greater extent. The SEIR reports average discharge concentrations in Tables V.K.6 and V.K.7 on pp. V.K.45 and V.K.48. These average concentrations are representative of the actual foreseeable future concentrations, which would at times be higher or lower than these levels because discharge concentrations vary naturally. Variations depend on the location of the discharge, the amount of water contained in the discharge, the particular pollutant load captured by the discharge, and many other factors. Sample analysis results also vary as a result of analytical uncertainties, which are exacerbated when concentration measurements are close to detection limits, as is often the case with stormwater measurements. The variability inherent in the concentration data presented in the SEIR would also relate to flow volumes. For more information regarding variability of flows, refer to "Variability and Uncertainty in Bayside Planning Model Results" on pp. XII.312-XII.315.

Although actual project-related discharge concentrations would peak from time to time, periods when concentrations rise above the acute toxicity concentrations listed in Tables V.K.6 and V.K.7 (conservatively considered for comparison purposes, not regulatory purposes), if any, would be seasonal, intermittent, and shorter in duration than the already relatively short duration of CSOs and stormwater discharges. For this reason, occasionally discharging concentrations higher than those reported in the SEIR would not lead to substantially different impacts than discussed in the SEIR. Concentrations lower than those reported in the SEIR would occur with roughly equivalent frequency. Furthermore, the use of conservative analytical assumptions, such as assuming no dilution of combined sewer overflow and stormwater discharges, reinforces the SEIR conclusions that the project would not cause acute toxic effects. Regarding sediment quality, the concentrations of pollutants in sediments near discharge locations reflect the deposition of particles over periods of time. Concentrations of pollutants adsorbed to or absorbed in sediment particles would not change as a result of the project, although the project could contribute to deposition of layers of sediment. The project would not change the rate that chemicals from sediment become dissolved in bay waters that is now occurring and would continue to occur. Therefore, although the project may add to the quantity of sediment, the amount of pollutants that are gradually released to the water column from the upper layers of sediment would remain the same.

Near-Shore Dilution

Comment

When a CSO occurs in Islais or Mission Creek, the entire volume of the inlet is apt to be replaced by sewage. Since these areas are poorly mixed by waters from the open Bay, these insults take a long time to dissipate. Yet the SEIR takes the tone that these are transitory events that can be accommodated. (*Bill Wilson, Environmental Planning & Design*)

Response

Page V.K.11 of the SEIR states that tidal circulation in China Basin Channel is strong, and describes the factors that lead to that conclusion. Page V.K.12 describes Islais Creek, in which there is less tidal circulation compared to China Basin Channel. The SEIR analysis is not focused on the effects of existing combined sewer overflows (CSO) to these inlets, but the relatively small increment that the project and cumulative development would cause. CSOs are discharged according to the requirements of the NPDES permit, which were developed from extensive water quality analysis. See "Wet-Weather NPDES Permit," pp. XII.371-XII.376, for further discussion. There is no data or evidence that demonstrates that the relatively small increases in CSO volumes projected by the SEIR analysis, in and of themselves, would cause a substantial degradation of water quality or have a substantial impact on biota, nor has any such data or evidence been presented by any SEIR comments. Nevertheless,

the SEIR conservatively concludes on p. V.K.54 that project-related increases in CSOs could contribute to a significant cumulative impact, and Mitigation Measure K.3 on p. VI.47 addresses this potential impact.

CSOs are not "sewage", as suggested by the comment. They are comprised of 94% stormwater and 6% sanitary sewage and have received the equivalent of primary treatment. In addition, CSOs, being freshwater, are about 2.5% lighter than the ambient Bay water, and consequently, the CSOs float on the surface (upper 1 to 2 meters) as shown by 1979 CH2M-Hill dye studies./55/ Wind shear tends to drag the surface layer towards the open Bay which in turn induces a counter-flowing bottom current of new (to the inlets) Bay water. Complete flushing of China Basin Channel and Islais Creek, and/or dilution of contaminants to very low levels, occurs within one to two full tidal cycles.

Fish species in the upper waters swim to lower depths to avoid the freshwater CSO field. Studies of benthic organisms near CSO outfalls have shown that species diversity and abundance were highest at sampling stations in intermediate proximity to the CSO outfalls, indicating that bottom-dwelling species are relatively unaffected by CSOs./56/

Pathogenic Bacterial Contamination

Comments

Areas around bacteria. Residents in Bayview and other people adjacent to Candlestick are threatened constantly. From 1993 to 1997, 115 days of no swimming, 165 days of people getting sick.

Aquatic Park and Crissy Field posted 110 days with 242 days of people getting sick. And Baker Beach and Ocean Beach, 955 days with people getting sick over 855 days.

The City would attribute this to rainfall like we are having today to the combined sewage system which does not -- it's not designed to reduce these toxins that get into the fish and the bacteria that get people sick. The question is what will water quality be like in Mission Bay after the one billion gallons of wastewater is added?

And how about human health with the Mission Bay project adding 2 million gallons of partially treated combined sewage overflows a year? (*Mike Thomas, Communities for a Better Environment*)

San Francisco's Southeast Water Pollution Control Plant (WPCP), which will handle the Mission Bay development currently treat 67 million gallons per day (mgd), below its 150 mgd secondary treatment capacity. During wet weather, the plant can handle 250 mgd, treating the excess 100 mgd to primary standards. Storage and transport facilities have a capacity of 125 million gallon. Once the system reaches collection and storage capacity, combined sewage overflows occur into the Bay. The Regional Water Quality Control Board permits San Francisco to average 15 Bayside CSOs per year. Those portions of the Mission Bay which are not currently connected to the combined sewage system will be

developed to capture and discharge into the combined system, thereby increasing the incidence and/or severity of CSOs.

Beneficial use is already in peril and the predicted two million gallon annual volume of partially treated overflows (Table V.K.1) will increase bacterial contamination of the San Francisco shoreline. The beach health warning postings issued by the City because of overflows[1] demonstrate ongoing discharge of pathogens which negatively affect water contact recreation (e.g., swimming and sailboarding). Citywide posting against swimming total over 2,300 in number during the past six wet seasons (92/93, 93/94, 94/95, 95/96, 96/97, and 97/98).[2] This averages over 400 beach postings a year. Candlestick Park, a favorite for sailboards and children swimming, has been posted over 115 times since 1993.

In recent years, there have even been recurring instances of dangerous dry weather bacteria levels in swimming areas near outfalls that pose a human health threat. Human epidemiological studies (US EPA, 1983 Health Effects Criteria for Marine Recreational Water. EPA-600/1-80-031) show that a significant number of users who submerge their heads under water with enterococcus counts above 10 suffer gastroenteritis (symptoms include vomiting, diarrhea and digestive distress) in following days. The health impact on users would have put people at Candlestick State Park at risk over 280 days during 1993 and 1994.[3]

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[1] Evidence that overflows cause numerous beach postings is presented in Attachment 1

[2] Note that when swimming areas are posted on the same day this count includes both of them (2 days) instead of undercounting the areas posted

[3] See Attachment #2, SF Public Utilities Commission Bacteria Data

(Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment)

There *are* negative impacts on beneficial uses. There are frequent occurrences of bacterial contamination that prevent fishing, swimming, and surfing, which should trigger the "opener" clause for re-evaluating CSO limits. *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])*

There are negative impacts on beneficial uses. There are frequent occurrences of bacterial contamination that prevent fishing, swimming, and surfing, which should trigger the "opener" clause for re-evaluating CSO limits. *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter])*

Response

One comment notes that the project would contribute to foreseeable increases in combined sewer overflows (CSO) and asserts that such increases would, in turn, increase bacterial contamination along the shore of the Bay. After stating that the bacteria, and therefore wet-weather overflows, negatively affect water-contact recreation by causing beach closures, the comment discusses bacteria levels during dry weather. The comment refers to data on *Enterococcus* levels measured in 1993 and 1994, noting that they often exceeded a level where adverse human health effects (i.e., gastroenteritis) have been

observed. Another comment suggests that, because bacterial contamination affects beneficial uses (including water-contact recreation and fishing), requirements for CSOs should be re-evaluated.

As discussed under "Combined Sewer System Permits" on p. V.K.18, the City's wastewater system is designed to achieve secondary or primary treatment of all wastewater and stormwater flows, except those that occur from large storms. The system is designed to limit CSOs pursuant to the NPDES permit which achieves adequate protection of beneficial uses. The City's Wastewater Management system was completed March 4, 1997, after over 20 years of construction to comply with Regional Water Quality Control Board (RWQCB) cease-and-desist orders. Since then, the City has been in compliance with RWQCB orders for the first time in at least 25 years. The fully operational system is designed to greatly reduce the number of combined sewer overflows and increase the water quality in the overflows compared to pre-1997 conditions.

The SEIR acknowledges that the unmitigated project and cumulative development would increase the volume and duration of overflows, as discussed under "Volume and Quality of Treated Combined Sewer Overflows" on p. V.K.36 and under "Effects on Water-Contact Recreation" on p. V.K.54. The project would increase typical CSO volumes by about 0.22% (zero increase if Mitigation Measure K.3 is adopted). Increased CSOs could increase bacteria levels, but the relationship between CSO volumes and bacteria counts would be complex, and probably not directly proportional.

As discussed under "Water-Contact Recreation" on p. V.K.10, the San Francisco Public Utilities Commission's Water Quality Bureau posts designated beaches (Candlestick Point Recreation Area, Aquatic Park Beach, Crissy Field Beach, Fort Point, Baker Beach, China Beach, and Ocean Beach) whenever a CSO is reported, regardless of the volume of the CSO. At the same time, water samples are collected at the shore and analyzed for total coliform bacteria. Coliform bacteria are associated with human and animal feces. The presence of coliform bacteria indicates the potential presence of pathogenic bacteria. Preliminary total coliform counts are available within 24 hours/57/; therefore, posted beaches remain posted for a minimum of 24 hours, regardless of actual bacteria counts. In practice, they are typically posted for at least about 48 hours./58/ Beach postings remain until total coliform levels can be shown to be within recreational water-use standards. Because the Draft SEIR incorrectly states that coliform tests require 48 hours to complete, the following sentence has been deleted from the last paragraph on p. V.K.10:

> **Because water coliform tests require 48 hours for completion, beaches remain closed for an average of three days following a CSO.**

As shown in Table XII.13 the Water Quality Bureau posted beaches on 36 days in 1997. The number of days postings occurred dropped substantially in 1997, from a 1995 high of 227 days. The drop is attributed to completing construction of new wastewater storage and transport systems on both the west and east sides of the City./59/ Because postings occur following every CSO event and last at least about two days as water samples are tested, the cumulative increases in CSO durations (between 8 minutes and 1.4 hours, depending on the outfall considered, as described under "Effects on Water Quality Recreation" on p. V.K.54) would not likely affect the number of days postings would be necessary.

TABLE XII.13
BEACH POSTINGS IN SAN FRANCISCO

Year	Number of Days Posted	Fraction of Entire Year (%)	Annual Rainfall (inches)
1997	36	10	20
1996	173	47	26
1995	227	62	26
1994	186	51	24
1993	180	49	22

Source: Arleen Navarret, Senior Marine Biologist, Water Quality Bureau, San Francisco Public Utilities Commission, letter to EIP Associates, June 19, 1998.

One comment appears to be concerned with the effect of *Enterococcus* bacteria levels associated with dry-weather flows from the Southeast Water Pollution Control Plant. During dry weather, treated (disinfected) effluent is discharged to the deep waters of San Francisco Bay. Dry-weather flows would increase somewhat with the project. Table V.K.1 on p. V.K.34 shows increases in total Bayside effluent flows, which include both dry- and wet-weather flows. California does not regulate *Enterococcus* levels. The Basin Plan sets forth water quality objectives for total and fecal coliform and refers to U.S. Environmental Protection Agency criteria for *Enterococcus*./60/ The steady state criterion for *Enterococcus* is 35 counts in all areas, and the maximum criteria for designated beaches is 104 counts, for moderately used areas is 124 counts, for lightly used areas is 276 counts, and for infrequently used areas is 500 counts. The Water Quality Bureau bases beach postings on coliform bacteria levels, not *Enterococcus* levels, because California has adopted standards for coliform

bacteria, and because preliminary laboratory results for coliform bacteria are available more quickly (within 24 hours) than for *Enterococcus*. Collecting data more quickly on possible bacterial contamination allows the City to alert the public to potential problems and avoid unnecessary beach postings. The *Enterococcus* data attached by the commentor are for 1993 and 1994, and therefore are not representative of conditions since the 1997 improvements were made to the City's wastewater storage and transport systems. These improvements have decreased the volume and frequency of CSOs, and improved the quality of CSO discharges.

Beach postings are intended to protect the public from bacterial contamination. As stated above, the number of beach postings would not be likely to increase as a result of the project; therefore, the project would not substantially affect water-contact recreation (see the response regarding "Water Contact Recreation," pp. XII.354-XII.357). The Bayside wet-weather NPDES permit does provide for modifying permit conditions if the RWQCB were to find changes in the location, intensity, or importance of beneficial uses or demonstrated adverse impacts, but for the reasons stated above and in the SEIR (Section V.K, Hydrology and Water Quality: Impacts), the project would not necessitate any re-evaluation of permit requirements related to combined sewer overflows. For a discussion of the relationship between CSOs and fishing, see the response regarding "Consumption of Bay Fish," pp. XII.389-XII.392.

Water-Contact Recreation

Comments

Since the design objectives adopted by the CAC include a respect and enhancement of the natural environment and wildlife potential of the area, and notwithstanding the EIR statement in item V.K-10, that there is no water contact sport, there is, in fact, water contact in that area. We swim in it, and people dive in that creek. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Notwithstanding the DEIR statement (V.K.10, V.K.50, V.K.54) there IS water contact recreation in Mission Creek and in S.F. Bay adjacent to the project area; (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

The SEIRs conclusions that water-contact recreation does not occur in either Islais or Mission Creek is not supported by any empirical evidence, including surveys. Vol. II at V.K.10. That conclusion also is inconsistent with the Regional Board's Basin Plan which lists water contact recreation as a beneficial use of Central San Francisco Bay including its tributary waters (which include both Islais and Mission Creeks). Basin Plan at 2-15; see also 2-5 ("the beneficial uses of any specifically identified water body generally apply to all its tributaries"). Indeed, it is BayKeeper's understanding that swimmers do not confine themselves exclusively to Crissy Field and Aquatic Park but do venture in the direction of downtown. Similarly, BayKeeper wonders where kayaking fits in. I can attest from personal experience that one does not stay dry when kayaking. Kayakers frequently launch from Mission Rock

and undoubtedly spend time paddling in the Mission and Islais Creek areas. Perhaps most importantly, the conclusion is circular, to the extent that few people swim in Mission and Islais Creeks because that is where the sewage overflows have been located. The conclusion of the analysis amounts to, because the City has made these areas unswimmable, the City is justified in allowing an increase in the pollution that cause them to be unswimmable in the first place. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

As stated under "San Francisco Bay Basin Water Quality Control Plan (Basin Plan)" on p. V.K.15, the Basin Plan lists water-contact recreation as a beneficial use of Central San Francisco Bay; however, water-contact recreation does not necessarily occur at every location in the Bay or to the same degree at all locations. Immediately following the Basin Plan text quoted in the comment, the Basin Plan states, "In some cases a beneficial use may not be applicable to the entire body of water, such as navigation in Calabazas Creek or shellfish harvesting in the Pacific Ocean."/61/

The Basin Plan defines "water-contact recreation" as follows:/62/

> Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs.

The Basin Plan defines "noncontact water recreation" as follows:/63/

> Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

The factor of primary importance in distinguishing water-contact recreation from noncontact water recreation is the reasonable potential for water ingestion. Kayakers may occasionally paddle in the Project Area, but although kayakers may frequently be exposed to water, they probably ingest Project Area water infrequently compared to surfers or swimmers.

While the Bay is not frequently used for water-contact recreation activities in China Basin Channel near-shore waters adjacent to the Project Area, and waters south of the Project Area including Islais Creek, individuals do use certain portions of this area for water-contact activities such as swimming, diving, and kayaking. In light of these comments, the following text has been added at the end of the first paragraph under "Water-Contact Recreation" on p. V.K.10:

While the Project Area shore and China Basin Channel are not necessarily attractive locations for water-contact recreation due to poor access and the generally industrial nature of the area, some water-contact recreation may occur there from time to time, particularly if houseboat residents swim in the Channel. Water-contact recreation is most likely to occur during dry weather; wet-weather conditions are normally less desirable for these activities.

To clarify the extent to which water-contact recreation occurs in the Project Area, the text of the first sentence under "Effects on Water-Contact Recreation" on p. V.K.49 has been revised as follows:

Although water-contact recreation occurs infrequently in the Project Area, water-contact recreation on the Bayside primarily takes the form of swimming and windsurfing on the north shore (off Crissy Field and in Aquatic Park) and ~~primarily~~ windsurfing ~~in~~ on the southeast shore near the Candlestick Point State Recreation Area.

The treatment and storage capacities of the existing combined sewer system have been designed to minimize combined sewer overflows (CSOs). The system allows a limited number of CSOs to occur, and the number of overflows at each outfall relates to such factors as how frequently these areas are used for water-contact recreation. In this way, the system has been designed to result in fewer CSOs (e.g., about one to four per year) in areas where water-contact recreation is relatively frequent (e.g., beaches) and more CSOs (e.g., about ten) in areas where relatively little water-contact recreation occurs (e.g., China Basin Channel and Islais Creek). The number of CSOs anticipated in these areas is expected to be much fewer than have occurred historically (before construction of the Master Plan facilities began, Islais Creek experienced about 47 CSOs per year) because system improvements have been completed in accordance with the Wastewater Master Plan. These improvements are expected to decrease beach closures and lead to long-term improvements to water quality, including water quality in areas where little water-contact recreation occurs.

The limited use of the Project Area for water-contact recreation would not be adversely affected by the project because this type of recreation would occur primarily during dry weather, when no combined sewer overflows or stormwater would be discharged adjacent to the Project Area. Furthermore, as explained under "Effects on Water-Contact Recreation" on pp. V.K.49-V.K.50, the durations of combined sewer overflows in the Channel would probably decrease by about 0.4 hour per year (about 2.4 minutes per event) as a result of the project. Although overflow durations at Mariposa and Islais Creek facilities would increase by up to 1.8 hours, or 11 minutes per event, these increases would not have a significant effect on water-contact recreation during the infrequent circumstances that such recreation would occur at these locations.

To correct the text on p. V.K.50, the following change has been made to the third sentence in the second paragraph on the page:

> **~~There is no~~ Water-contact recreation occurs infrequently at these locations on the Bayside.**

To further correct the text, the third sentence in the last paragraph on p. II.27 in Chapter II, Summary, has been revised as follows:

> **There is ~~no~~ little water-contact recreation at these locations on the Bayside.**

Significance Finding

Comments

Moreover, CSOs are not acceptable under any circumstances if San Francisco Bay water quality is to be protected. While the City may have permits that allow for some CSOs, there can be no doubt that all CSOs have a negative effect on water quality in the Bay. Therefore, any increase in CSOs should be considered significant. Yet the Draft EIR states that the project would have less-than-significant impacts, and that the cumulative impacts would be "potentially significant" (page V.K.54). In fact, CEQA does not allow for the identification of "potentially significant" impacts; impacts must be found to be either significant or less-than-significant prior to mitigation. In this case, the Draft EIR clearly treats this impact as significant, since it identifies it and suggests mitigation measures for it. Thus the EIR should be revised to find both project and cumulative impacts on CSOs to be significant. (*Kate White, Program Director, Urban Ecology, Inc.*)

Perhaps the greatest shortcoming in the EIR process as applied to the coming redevelopment of the Bayfront is the narrow, incremental, and piecemeal way in which it is being analyzed. The SEIR repeatedly notes that there will be only an incremental or insignificant impact on Bay water quality resulting from discharging some stormwater into the Bay and hooking up with the present system with the rest and with sanitary flows. Completely lacking is any appreciation for the present condition of the Bayfront extremely degraded. Much of this degradation is the result of the long term buildup of such 'negligible' or 'incremental' loading. (*Bill Wilson, Environmental Planning & Design*)

The SEIR's view that expected increases, based on an average rainfall year, in sewage overflows to Mission and Islais Creeks by 2 million gallons per year, and increases in polluted rain water and increases in sewage loads to the Hunters Point plant by roughly 1 billion gallons (again, expected during an average rainfall year) do not amount to significant environmental concerns is incorrect. The SEIR's discussion continually understates the degradation already caused by sewage overflows to Mission and Islais Creeks. . .

By way of illustration, the simple fact that the SEIR chooses to discuss the average increase of 2 million gallons predicted by the City's model as a "0.22%" increase glosses over the true import of raw sewage discharging along San Francisco's shoreline. . .

The SEIR's discussion of sewage overflows exemplifies BayKeeper's concerns with the SEIR. The SEIR is legally flawed because it asserts that no significant impact to either Mission or Islais Creeks will result from increases in discharges of essentially raw sewage. Describing the increase in estimated sewage overflows as a 0.22% increase in the current overflows (see Table V.K.5), omitting any discussion of the City's existing exceptions to San Francisco Bay water quality standards in Mission and Islais Creeks, or asserting that "overflows receive the equivalent of primary treatment" (Vol. II at V.K.13) do not alter the fact that the City's combined sewer system currently discharges, on average, 90 million gallons of combined sewage and rain water along the City's eastern shoreline every rainy season. The Mission Bay project, without any mitigation plan, will increase the sewage discharged at CSO outfalls by at least 2 million gallons, again on average. . .The cumulative impacts analysis on water quality only attempts to downplay the impact rather than honestly analyze the proposed increase of 98 million gallons of sewage overflows mostly to Islais Creek. . .The "standards of significance" set forth in the SEIR undermine the meaning of the term "significance." The SEIR limits significant water quality concerns to two extreme categories: "substantially degrade water quality" or "contaminate a public water supply." Vol. II at V.K.22. The SEIR goes on to say that "criteria for evaluating surface and ground water quality in the San Francisco Bay area are based on beneficial uses and water quality objectives established by the RWQCB." Id.. . . Just a brief comment on the cumulative analysis. First, the City's contribution via the Hunters Point plant of 12% of all municipal sewage plant discharges to the Bay is an enormous contribution. 35 sewage plants currently discharge to the Bay. Evenly distributed, they would discharge about 2.9% each of the sewage going to the Bay. The Southeast Plant is the third largest sewage plant discharger to the Bay, surpassed only by San Jose and East Bay MUD. Basin Plan at 4-74. For the SEIR to attempt to downplay the cumulative impacts which the Mission Bay proposal is forecasting by stating that "the City discharges are a very small portion of the region-wide discharges to the Bay" [comment's emphasis] is irresponsible.

Indeed, the whole discussion which attempts to explain away any significance from the projected cumulative discharges because other facilities discharge large amounts of pollution as well is nonsensical. Vol. II at V.K.52. That "dilution by pollution" argument only heightens the significance of the projected increases because the Bay is under assault from all sides. The fact that numerous other problems exist does not relieve in any way the significance of what is being discussed on the east side of San Francisco. . .Lastly, the SEIR's begrudging finding of a "potentially significant impact" because of "public concern" is inconsistent with the immediately preceding description of the cumulative analyses conclusion that after build-out of the numerous large scale projects on the east side of the City, the Bayview neighborhood and Islais Creek may potentially suffer an additional 14 hours of sewage dumping into that already impaired shallow water environment. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

These comments disagree with the SEIR's conclusion that the project's projected annual average 2-million-gallon increase in combined sewer overflows (CSOs) is not a significant impact and assert that the impact of cumulative development's projected annual average 98-million-gallon increase in CSOs is downplayed.

As presented in the SEIR and cited by the comment, the existing annual average CSO volume from Bayside facilities is 910 MG/year. According to the Bayside Planning Model, the project alone would increase the volume by 2 MG/year, or 0.22%. Assuming no physical changes to the City's system, cumulative development could add about 98 MG/year of CSO volume. At Islais Creek, as noted by one comment, the annual average duration of CSO discharges would increase by about 14 hours from cumulative development. Far from downplaying the potential effects, the SEIR presents best available information about the volume and quantity of these and other projected discharges to the Bay, analyzes the effects on receiving waters and biota (pp. V.K.30-V.K.55), and concludes, based on the analysis, that neither the project nor cumulative development would have a significant impact on Bay water quality, aquatic biota, sediment quality in Islais Creek and Mission Creek, water-contact recreation and other beneficial uses. While comments disagree with these conclusions, no evidence has been presented that the incremental increases in CSOs that the project and cumulative development would generate would lead to significant impacts.

Contrary to statements made by some comments, CSOs are not raw sewage; rather, they comprise about 94% stormwater and 6% sanitary sewage. CSOs receive the equivalent of primary treatment before discharge. CSO discharges are monitored and reported to the Regional Water Quality Control Board (RWQCB). There are no discharges of raw sewage from any City outfall structure. All City discharges meet or exceed requirements of the federal Clean Water Act, Water Code, RWQCB Basin Plan, and all other applicable laws and regulations, and would continue to do so with the project and cumulative development. (See also the responses regarding "Background Regarding Existing Combined Sewer Systems" on pp. XII.232-XII.238, and "Wet-Weather NPDES Permit" on pp. XII.371-XII.376.)

Notwithstanding the technical analysis which suggests that the impacts could have been found less than significant, the SEIR conservatively found a significant cumulative impact, recognizing the high degree of concern about CSOs. As discussed on pp. V.K.54-V.K.55, the finding of significance allows for continued discussion regarding these concerns and also allows the SEIR to suggest mitigation measures (K.3 and K.4) which would eliminate CSO increases from the project and thus eliminate the project's relatively small (2%) contribution to projected cumulative increases in annual average CSO volume.

The standards of significance set forth in the SEIR (p. V.K.22) are based directly on Appendix G of the state CEQA Guidelines, which suggests examples of significant effects. The SEIR also uses beneficial use and RWQCB water quality objectives as criteria for determining significance; thus, the

impacts analysis discusses potential effects on beneficial uses and RWQCB Basin Plan Water Quality Objectives for Toxic Pollutants.

Cumulative pollutant discharge increases are not "explained away" in the SEIR solely by reference to the 12% share of total municipal dischargers to the Bay represented by the Southeast Water Pollution Control Plant. The SEIR goes on to state that all the municipal dischargers and industrial point source dischargers to the Bay, when combined, represent about 1-6% of the total load input to the Bay-Delta estuary (p. V.K.52). Other major contributors to Bay loading include agricultural runoff and mine discharges. In this context, the 3% project increase and 4-6% cumulative increase in Southeast Plant effluent discharge is small relative to all pollutant inputs to the Bay. Furthermore, the SEIR's conclusion of non-significance from this source is also based on the lack of significant impacts caused by existing discharges from the Southeast Plant, which operates under a National Pollutant Discharge Elimination System (NPDES) permit that includes effluent pollutant concentration limits based on water quality goals as defined in the federal Clean Water Act (p. V.K.18).

Regarding the alleged exception to water quality standards pertaining to wet-weather flows, no such exception exists. The City's wet-weather discharge permit, issued by the RWQCB, finds that the number of long-term annual average overflows permitted under the permit (10 per year in and around Mission and Islais Creeks, fewer in certain other portions of the shoreline) "will provide adequate overall protection of beneficial uses," and that CSO discharges comply during wet weather with water quality standards./64/ The comment may be referring to an exception to discharge prohibitions against discharge of waste to dead-end sloughs and where initial dilution is less than 10:1. As part of the current wet-weather discharge permit, the RWQCB reaffirmed a prior conclusion that this exception is consistent with the Basin Plan, which was adopted to protect Bay water quality./65/ Thus, the exception is to a particular discharge prohibition and not to any water quality standards.

Regarding the term "potentially significant" as used under "Conclusion" on p. V.K.54, some impacts are "potentially significant" in that, if the project is implemented, the impact may or may not occur, or the impact may or may not be significant. "Significant impacts" and "potentially significant impacts" are all addressed in the same manner under CEQA. All are treated as significant adverse environmental impacts that would or could occur if the project were approved and implemented. Appropriate mitigation measures or alternatives for the project are identified to the extent feasible, as listed in Chapter VI, Mitigation Measures, and Chapter VIII, Alternatives. Regarding the need to prepare a more detailed mitigation plan, refer to the response in Mitigation Measures regarding "Delay in Specification of Mitigation Measures" pp. XII.458-XII.460. Regarding a combined mitigation strategy, refer to the response regarding "Illustrative Mitigation Scenarios" on pp. XII.253-

XII.277. Regarding alternative stormwater treatment technologies, refer to the response regarding "Alternative Stormwater Management Technologies" on pp. XII.245-XII.249.

Water Discharges from Research and Development Activities

Comments

One of the things that I noted was that UCSF has identified hundreds of biohazards and other biotechnology byproducts that may be discharged into the sewer systems. And the system right now is not designed to handle these discharges. We need to look into ways to handle these before they go into the wastewater sewage system and before they go into Bayview/Hunters Point. *(Kim Rogers)*

Furthermore, in order to protect worker exposure the UCSF biotechnology industry needs to incorporate a stringent source reduction plan which ensures waste will not enter the sewage system nor get into the aquatic food chain. *(Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment)*

Environmental Setting and Impacts: Hydrology and Water Quality: The report acknowledges that ". . .UCSF and Commercial Industrial operations may involve the discharge of some pollutants not typically associated with most other San Francisco discharges, which if improperly handled, could discharge chemicals, radioactive materials, and biohazardous materials. . ." (p.V.K.23). This is an obvious understatement; genetic engineering R&D and potential full-scale production of bio-engineered products is *almost certain* to generate wastewater with such constituents. Their potential environmental, health, and safety impact must be evaluated in the report in detail. A commitment to develop local wastewater pre-treatment ordinances to ensure removal of all biohazards, including genetically engineered products, must be proposed as a mitigation measure (beyond the solid waste measure I.1 on p. VI.40). *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter])*

These enteric pathogenic impacts could be overshadowed by the possibility of releases of level four and five bioengineered organisms into an overflowing medieval sewer system which will overflow into the bay. More than casual conditioning of this type of industry must be instituted at the project planning level. Even Activated sludge with tertiary filtration is not capable of offering safe handling of any of this kind of wastewater. . .Environmental Setting and Impacts: Hydrology and Water Quality: The report acknowledges that ". . .UCSF and Commercial Industrial operations may involve the discharge of some pollutants not typically associated with most other San Francisco discharges like level 4 biological agents, which if improperly handled, could discharge chemicals, radioactive materials, and biohazardous materials. . ." (p. V.K.23). This is an obvious understatement; genetic engineering R&D and potential full-scale production of bio-engineered products is almost certain to generate wastewater with such constituents. Their potential environmental, health, and safety impact must be evaluated in the report in detail. A commitment to develop local wastewater pre-treatment ordinances to ensure removal of all biohazards, including genetically engineered products, must be proposed as a mitigation measure (beyond the solid waste measure I.1 on p. VI.40). *(Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter])*

The Mission Bay project is expected to accommodate significant biotechnological and research & development uses, which are known to generate large amounts of wastewater, often with higher-than-average levels of contamination and types of pollutants that differ from those in the normal waste stream. Yet the Draft EIR fails to analyze these potential impacts. The Draft EIR should document the expected flows and pollutant loads from the expected uses, and it should then identify appropriate impacts and mitigation measures in relationship to these uses. This additional analysis of water quality and treatment impacts associated with these uses must be recirculated for public review. . .Second, all biotechnological and research & development functions to be included in Mission Bay should be required to include their own primary treatment facilities that will result in discharges to the sanitary sewer system. . .with water quality levels equivalent to that of domestic wastewater. This will ensure that the wastewater impacts of biotech and R&D uses will be the same as those. . .uses. (*Kate White, Program Director, Urban Ecology, Inc.*)

The SEIR downplays the threats posed by wastewater discharges from UCSF labs and biotechnology firms to the sewage system. The pretreatment program should institute a flat prohibition on discharges from such facilities by keeping those facilities' labs and areas where chemicals, radioactive materials and biohazardous materials are used entirely separate from the sewage system. . .

The need to keep such facilities "off-line" is evident from the SEIR's juggling of this concern. The SEIR's discussion of industrial pollutants that are expected to be discharged to the Hunters Point plant from new facilities in Mission Bay is internally inconsistent. The discussion concludes that "pollutants in wastewater from the Project Area are unlikely to differ substantially from other City wastewater." Vol.II at V.K.23. This conclusion follows a discussion which notes that "UCSF and Commercial Industrial operations may involve the discharge of some pollutants not typically associated with most other San Francisco discharges. . ." Id. In particular, radioactive materials and biohazardous materials are mentioned. Moreover, the discussion focusses on the likelihood that "occasional" discharges of these materials "could go undetected," apparently because any one discharge would not cause the sewage plant itself to show a violation. Nevertheless, the plant is not designed to treat radioactive and biohazardous materials and such discharges will end up in the Bay, or, during large rain events, could end up in Mission and Islais Creeks. In short, the discussion suggests that the City's pretreatment program, in most cases, may not address these discharges unless they were very large. Each such facility should have its own self-contained waste disposal (or perhaps recycling) process. Simply because discharges of these materials are not visible as violations at the plant does not lead to a conclusion that those discharges are just like everyone elses. They should be kept out of the waste stream. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Ms. Jackson just spoke about UCSF's biohazards and the possibility that there are biohazards going southeast, and that's definitely unacceptable. (*Alex Lantsberg*)

Response

These comments assert that the SEIR is internally inconsistent and that it downplays the threats of wastewater discharges by UCSF and Commercial Industrial facilities. Particular comments refer to biohazardous materials that could be discharged with wastewater. Various comments suggest the need to prohibit chemical, radioactive, and biohazardous discharges from UCSF and Commercial Industrial

facilities, and to separate areas that handle these types of materials from the rest of the sewage system. Some comments express concern that occasional discharges could go undetected and that the existing wastewater treatment system is not designed to handle radioactive and biohazardous wastes. Specific comments voice concern that chemical, radioactive, and biohazardous wastes could be discharged to China Basin Channel and Islais Creek, particularly during large storms. One comment expresses concern that these materials could be released into the Bayview-Hunters Point area.

According to several comments, the SEIR fails to evaluate the potential water quality impacts of biotechnology and research and development discharges. These comments call on the City to estimate expected flows and pollutant loads, and to recirculate the SEIR for public review after additional water quality and health and safety evaluations take place. One comment urges source reduction as a means of protecting worker exposure and minimizing wastewater discharges.

On pp. V.K.30-V.K.40, the SEIR estimates project-related wastewater and stormwater flows and pollutant loads to the extent that information is available. Under "Quality of Municipal Wastewater from the Project" on p. V.K.23, it discloses that discharges from some UCSF and Commercial Industrial facilities could include some types of pollutants not typically associated with most other San Francisco discharges. The SEIR is not inconsistent, however, when it also assumes on pp. V.K.33-V.K.36 that the overall concentrations of pollutants in Project Area wastewater would not be substantially different from the concentrations that already exist elsewhere in San Francisco. In part, this is due to the relatively large wastewater flows already discharged by San Francisco. The project would result in an increased wastewater flow of roughly 3%, as indicated under "Volume and Quality of Municipal Wastewater Effluent" on p. V.K.33. Because flows from project-related research and development operations would be relatively small compared to existing and foreseeable future flows from all of San Francisco, research and development laboratories would have little effect on typical pollutant concentrations within the wastewater treatment system. Furthermore, sewer discharges similar to those anticipated from the Project Area already occur in San Francisco from existing sources, such as at UCSF's existing campus sites. The text on p. V.K.23 is intended to disclose the potential effects of the project, not to downplay them. The issue of hazardous materials releases to the sewer system is further discussed in Table V.I.8 on p. V.I.28 and Appendix H, Health and Safety, on p. H.30.

As discussed on p. V.K.21, the discharge of chemical, radioactive, and biohazardous wastes into the City's sewer system is generally prohibited, except where discharges are specifically allowed by an industrial waste discharger permit in accordance with the City's Industrial Waste Ordinance. The Industrial Waste Ordinance does not allow such discharges in cases where they could interfere with,

obstruct, or damage the sewer system; cause a nuisance; interfere with system repair or maintenance; or cause violations of the City's National Pollutant Discharge Elimination System (NPDES) permits./66/ Specific prohibitions relate to materials capable of obstructing sewer flows; flammable or explosive substances; garbage; toxic, hazardous, noxious, and malodorous substances; and bioaccumulative toxic substances. In cases where discharges comply with pretreatment program requirements, they may be permitted. In this way, minimal quantities of certain chemicals or radioactive materials (e.g., tritium) may be discharged to the sewer. Chemical wastes that are regulated as hazardous wastes may not legally be discharged to the sewer system under any circumstances. Hazardous wastes are to be treated on site or hauled off site in accordance with hazardous waste regulations, as described in Table V.I.2 on p. V.I.5 and Appendix H, Health and Safety, under "Hazardous Waste Management" on pp. H.15-H.16. As discussed under "Hazardous Waste Disposal" on p. V.I.40, hazardous waste source reduction is addressed by existing programs and regulations. In addition to minimizing the generation of hazardous wastes, effective source reduction strategies can reduce worker safety risks and potential sewer discharges.

As discussed under "Larger Waste Generators" (pp. V.I.33-V.I.35), most radioactive waste generated by Commercial Industrial facilities would be stored on site for decay or sent to a radioactive waste landfill. A relatively small portion could be discharged to the sewer system if permitted by the California Department of Health Services Radiologic Health Branch and the San Francisco Public Utilities Commission (SFPUC) Bureau of Environmental Regulation and Management. San Francisco prohibits discharges of radioactive waste unless (1) the discharger obtains a permit for the discharge from the General Manager of the SFPUC, (2) the discharger obtains a license for the discharge from the Radiologic Health Branch of the California Department of Health Services, and (3) the discharge conforms to the California Radiation Control Law and its implementing regulations found in Title 17 of the California Code of Regulations./67/ These regulations prohibit discharges of radioactive wastes to uncontrolled areas (e.g., the sewer) in excess of specific levels identified for each radionuclide. These levels are set so as to ensure that the relatively low levels of radioactive waste discharged to the sewer system would not substantially affect background levels of radiation that occur naturally in the environment. As a matter of policy, UCSF does not discharge radioactive waste from its research operations to the sewer./68/

The biohazardous materials listed in Table H.2 of Appendix H (pp. H.6-H.11) would not be allowed to be discharged to the sanitary sewer. Table H.2 lists representative examples of the types of infectious agents that could be handled by UCSF and Commercial Industrial facilities in the Project Area, but not all of these organisms would be used. Contrary to one comment, Mitigation Measure I.3 on p. VI.40 would prohibit the handling of Risk Group 4 biohazardous materials (those that would

require Biosafety Level 4 containment) in the Project Area. Moreover, the application of standard microbiological practices, which are industry standards, would preclude any discharge of biohazardous materials to the sewer system (see SEIR Appendix H, Health and Safety, "Standard Industry Practices," pp. H.18-H.21). Mitigation Measure I.1 on p. V.I.40 would ensure that Commercial Industrial operations comply with the guidance found in *Biosafety in Microbiological and Biomedical Laboratories* and *Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines)*, or their successor documents./69/ As explained under "Enforcement of Guidelines for Work Involving Biohazardous Materials and Animals on p. V.I.27, UCSF complies with these guidelines as a matter of institutional policy and as a condition of receiving federal funding for its research. According to these documents, standard microbiological practices require the following:/70/

> All cultures, stocks, and other regulated wastes are decontaminated before disposal by an approved decontamination method, such as autoclaving. Materials to be decontaminated outside of the immediate laboratory are to be placed in a durable, leakproof container and closed for transport from the laboratory. Materials to be decontaminated at off-site from the laboratory are packaged in accordance with applicable local, state, and federal regulations, before removal from the facility.

This requirement applies to all activities involving infectious agents, including those that require only Biosafety Level 1 containment, which are not considered biohazardous for purposes of this SEIR./71/ Work involving biohazardous materials (those that require at least Biosafety Level 2 containment) requires the following additional practices and facilities:/72/

> Cultures, tissues, or specimens of body fluids are placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping.
>
> Laboratory equipment and work surfaces should be decontaminated with an appropriate disinfectant on a routine basis, after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination by infectious materials. . . .
>
> A method for decontamination of infectious or regulated laboratory wastes is available (e.g., autoclave, chemical disinfection, incinerator, or other approved decontamination system).

Whenever activities require Biosafety Level 3 containment, the following additional practices are required, and in-lab decontamination facilities are recommended:/73/

> All potentially contaminated waste materials (e.g., gloves, lab coats, etc.) from laboratories or animal rooms are decontaminated before disposal or reuse.

> Spills of infectious materials are decontaminated, contained and cleaned up by appropriate professional staff, or others properly trained and equipped to work with concentrated infectious material.

In light of these standard industry practices, the potential for project-related use of biohazardous materials to result in substantial wastewater discharges of infectious or genetically altered organisms appears remote. As a matter of policy, UCSF does not dispose of any hazardous chemical, radioactive, or biological waste to the sewer, even if permitted to do so by law. On a regular basis, UCSF collects laboratory wastes segregated by waste type and does not charge laboratory occupants for this service. Researchers can schedule additional waste pick-ups by request. By providing convenient waste disposal services at no charge, UCSF eliminates possible incentives for inappropriate hazardous waste disposal./74/ For these reasons, the biohazardous materials handled in the Project Area would not be expected to affect residents of the Bayview/Hunters Point area (see the response regarding "Environmental Justice" on pp. XII.378-XII.392, and Appendix H, Health and Safety, "Larger Community Exposure [Off-Site Environment Within and Outside the Project Area]," pp. H.27-H.32).

Although routine discharges of chemicals, radioactive materials, and biohazardous materials would be prohibited, except where specifically allowed by permit, the SEIR acknowledges the potential for occasional accidental or unintentional discharges of hazardous substances to the sewer, as discussed under "Quality of Municipal Wastewater from the Project" on p. V.K.23 and under "Waste Disposal" in Appendix H (p. H.30). The effects of a singular discharge would probably not be detectible (i.e., no demonstrable environmental effect would occur). Some chemicals would decompose or would be removed by treatment processes. Similarly, some radionuclides would adsorb onto sewage sludge removed from the treated effluent. Most infectious agents would be rendered inactive outside the laboratory in the "wild" environment of the sewer system and by the disinfection portion of the treatment process. In all cases, substantial dilution would occur throughout the wastewater collection and treatment system. The SEIR acknowledges the need for facilities constructed in the Project Area to be designed to facilitate the rapid discovery and identification of any inappropriate discharges. Mitigation Measure K.2 on pp. VI.46-VI.47 addresses this issue by requiring wastewater sampling ports in any building anticipated to have a potentially significant discharge of pollutants to the sanitary sewer. By facilitating the tracking of inappropriate discharges at their sources (before substantial dilution has occurred), this measure would minimize the potential for such discharges to recur, thereby avoiding a potentially significant impact.

No available evidence suggests that the occasional accidental or unintentional discharge of hazardous chemical, radioactive, or biohazardous materials to the sewer system would substantially harm water

quality, including water quality in China Basin Channel and Islais Creek during and after large storms. Large storms would provide maximal dilution of pollutants. Given San Francisco's size and the diversity of its existing dischargers, such occasional discharges probably occur now without incident. The SEIR discusses the foreseeable effects of combined sewer overflows on pp. V.K.36-V.K.37 and V.K.43-V.K.46. and finds these effects less than significant. On the basis of the above discussion, the separation of UCSF and Commercial Industrial wastewater flows (particularly those from research and development activities) from the rest of the sewage treatment system would be unwarranted.

The SEIR fully and adequately evaluates the water quality and health and safety effects of potential discharges from foreseeable research and development operations within sections V.I. Health and Safety and V.K. Hydrology and Water Quality. Therefore, no further analysis is necessary and no recirculation for public review is required.

Pollutant Loads and Federal and State Antidegradation Policy

Comments

How does the Project comport with the anti-degradation section of the Clean Water Act? How will the Project comply if Mission Creek is designated a Total Mass Daily Loadings (TMDL) site? (*Trent W. Orr, Attorney at Law, representing Mission Creek Conservancy*)

These comments are directed at the DEIR regarding how the existing project alternatives and the impact of combined sewage overflows (CSOs) endanger beneficial use. . .San Francisco's combined sewer system collects, treats and disposes of its municipal wastewater and urban stormwater. The existing combined system volume in both wet and dry season is already challenging the goals of the RWQCB to protect beneficial use for water contact and non-water contact recreation, ocean, commercial, sport fishing, marine habitat, wildlife habitat and increasing wastewater flows at the rates predicted in the DEIR will only further endanger public health and the regulatory goals for San Francisco. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

Toxic concentrations are assumed not to change in the wastewater (p. V.K.33-36). The need to *reduce* toxic *loads* has been ignored (p. V.K.41), even though the SF Bay RWQCB has recognized the need for reductions in selenium, mercury, copper, diazinon, and PCB's (p. V.K.16). Although the City's wastewater permits do not yet include Total Maximum Daily Limits (TMDL's), copper will be inevitably targeted, just as it already has been for all other Bay Area POTW's. Merely asserting that ". . .The City would have to comply with any changes to its permit that might result from RWQCB action" (p. V.K.17) ignores obvious impacts, both environmental and economic. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

Although the SEIR notes that the Central Bay has been determined by the Regional Water Quality Control Board to be impaired by copper, mercury, diazinon (a common pesticide), PCBs and selenium, no serious discussion is provided as to whether the anticipated increases in CSO discharges should be allowed to further contribute to those impairments. Vol. II at V.K.8. Such increases will increase the mass of those contaminants in the Bay and will violate the Clean Water Act's and State Water Resources Control Board's antidegredation policies. . .

As regards Table V.K.2, BayKeeper simply notes that proposing a project that will contribute an additional 100 lbs per year of copper, 10 lbs per year of selenium, 1 lb per year of mercury through the sewage plants' effluent, given the fact that the Central Bay already is impaired with each of those toxic pollutants, is inconsistent with the Clean Water Act's antidegredation policy and obviates the significance of the Mission Bay project's impact on effluent discharges. Although 100 lbs, 10 lbs, and 1 lb do not sound like very large numbers, when one considers that the criteria recently proposed by the USF&WS for selenium and mercury are 2 ug/1 (parts per billion) and 2 ng/1 (parts per trillion), respectively, and the existing criteria established by the Regional Board for copper is 4.9 ug/1, when one is discussing pounds even in a waterbody as extensive as the Bay, one is talking very large amounts of these very toxic substances. See USF&WS, Draft Biological Opinion re: USEPA California Toxics Rule (April 10, 1998); Regional Board Basin Plan at Table 3.3. Table V.K.2 relating to mass pollution from the sewage plant, supports a finding of a significant impact on water quality from the Mission Bay project standing alone. . .

Indeed, given that it is evident that the new storm water system proposed for the Mission Bay project will contribute pollutants that are currently impairing the Bay, including at a minimum copper, PCBs and pesticides, it appears arguable that such a new source cannot legally be issued a permit. Section 122.4 of Title 40 of the Code of Federal Regulations states that "No permit may be issued. . .(I) To a new source. . .If the discharge from its construction or operation will cause or contribute to the violation of water quality standards." The only exception to that flat prohibition would be by reference to a completed load allocation which was not entirely used up and specific compliance measures already in place for all other sources. 40 C.F.R. § 122.4(I). See also 40 C.F.R. § 122.2 (definition of "new source"). Thus, the SEIR's assertion that a municipal storm water permit will be forthcoming covering the proposed new outfalls or even the existing may not be correct. See Vol. II at V.K.17. (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

California has adopted an antidegradation policy that incorporates the federal requirements in Title 40 of the *Code of Federal Regulations* (Section 131.12). The policy applies to State Water Resources Control Board and Regional Water Quality Control Board (RWQCB) decisions that affect water quality. The antidegradation policy applies where water quality standards are not specific enough for a particular water body or where water quality standards do not address a particular pollutant./75/ The policy also provides guidance for setting standards and for other regulatory decisions, to determine when additional control measures should be required to maintain beneficial uses and high quality waters.

The state and regional boards have followed the antidegradation policy in establishing the water quality objectives of their water quality control plans. The policy is also applicable to individual permitting decisions, including issuance of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permits. For example, waste discharge requirements for new discharges or for the substantial expansion of existing discharges ordinarily require preparation of an analysis applying the policy./76/ However, if the issues have already been studied as part of a water quality control plan amendment, a new analysis is not required to issue waste discharge requirements.

The project would not involve any new or substantially expanded existing discharges. Effluent discharges currently exist, and the project-related 2.8% increase in effluent flows would not be considered a substantial expansion of this existing source. Similarly, combined sewer overflows (CSO) currently occur from time to time, and the project-related 0.22% increase in CSO volumes would not be considered a substantial expansion of this existing source. Stormwater is currently discharged directly from the Project Area, and although project-related stormwater would be discharged from different locations (still within the Project Area), the project-related 1.9% increase in stormwater discharges would not be considered a substantial expansion of this existing discharge. The City will comply with Phase II stormwater regulations when the U.S. Environmental Protection Agency adopts them (draft regulations have been published)./77/ The antidegradation policy will be considered during the stormwater permit process, if necessary.

The SEIR estimates project-related changes in wastewater and stormwater flows and pollutant loads in Tables V.K.1-V.K.4 on pp. V.K.34-V.K.39. The SEIR describes San Francisco's NPDES permits under "Combined Sewer System Permits" on p. V.K.18. These permits cover discharges from the Southeast Water Pollution Control Plant and CSOs. Contrary to the comments, these permits explicitly find that the City's wastewater system protects all beneficial uses. As these permits are renewed every five years, the RWQCB ensures consistency between the permitted discharges and the antidegradation policy. As discussed under "Deep Water Effects of Increased Treated Effluent" on p. V.K.41, San Francisco currently complies with its NPDES permits (e.g., maximum flows and discharge concentrations) and would continue to comply with its permit requirements if the project were approved. See also the response regarding "Wet-Weather NPDES Permit," pp. XII.371-XII.376.

Because relatively small loads (e.g., on the order of a few pounds) can sometimes affect water quality, the SEIR does not rely on any arbitrary significance threshold based on loads. Instead, it compares pollutant concentrations estimated for project-related discharges with concentration-based acute toxicity criteria. As discussed under "Effects on Receiving Waters" on pp. V.K.40-V.K.50, the

project would not, by itself, substantially affect water quality in San Francisco Bay. However, based on the high degree of public concern about CSOs; the lack of conclusive evidence refuting a causal relationship between CSOs, stormwater discharges, and sediment quality; and the recognition that the existing setting may be degraded, the SEIR conservatively finds a potentially significant cumulative impact from CSOs and untreated stormwater discharges. The nature of the setting's impairment is described under "Impairment of Central San Francisco Bay" on p. V.K.8 as it relates to mercury, copper, selenium, diazinon, and polychlorinated biphenyls (PCBs).

Contrary to one comment, no total mass daily loads (TMDL) have been established for any pollutant, and the RWQCB has not placed TMDLs on any Bay Area Publicly Owned Treatment Works (POTW). At this time, there is insufficient information to meaningfully evaluate how TMDL processes would relate to the project. What is known is that the TMDL process for mercury is expected to begin in 1998 and last until 2003./78/ The TMDL processes are scheduled to start in 2000 for diazinon, in 2003 for copper and PCBs, and in 2006 for selenium. Because the main sources of mercury in the Bay are erosion and drainage from abandoned gold and mercury mines (see p. V.K.8), the TMDL process for mercury may or may not have substantial consequences for San Francisco's discharge requirements. Similarly, the relationship between the TMDL processes for diazinon, copper, PCBs, and selenium may or may not substantially affect the City. The RWQCB must complete additional studies before a more detailed evaluation can occur. The project's (about 2.8%) and cumulative projects' (4.3%) contribution to the Southeast Plant pollutant load would not appreciably affect the City's ability to comply with whatever TMDL requirements may be promulgated. For example, if TMDL requirements are promulgated at levels that necessitate a reduction in the City's load, whatever action the City might perform to meet those requirements would need to be performed throughout the Bayside, and would not be limited to just the project areas.

The schedules above assume that individual TMDL development cycles will take five years to complete. The Regional Water Quality Control Board admits that, in many cases, this may be a gross underestimate. Schedules for TMDL development after the first two years should be regarded as very tentative./79/ Completion will depend on the availability of funding and staff, watershed stakeholder group priorities, and further evaluations of the need for and feasibility of the TMDLs.

Wet-Weather NPDES Permit

Comments

Exemptions from the California coastal water quality limits and the RWQCB's shallow water limits, defining the North Point Wastewater Treatment Plant as a discharge point rather than a POTW, all exempt the City's combined system from performance standards and discharge limits. (*Mike Thomas, SAFER!/CBE Organizer; Lesley Barnhorn, Legal Intern; and Scott Kuhn, Staff Attorney, Communities for a Better Environment*)

The *Bayside Cumulative Impacts Analysis Draft Report* claims no need to evaluate compliance with CSO limits, even with the very permissive "long term" averages. More importantly, the report claims no need to evaluate CSO impacts on beneficial uses, because the NPDES permit does not require it. Besides being a possible violation of the CEQA/NEPA process, the CSO exemptions in the NPDES permits are based on several assumptions that are incorrect:

- Construction of the CSO containment system is *not* complete. First of all, the original Master Plan project was never completed as proposed (e.g. the Cross Town tunnel). . . .

This means that direct evaluation of water quality impacts is needed, not simply certification that the CSO containment system is adequately constructed and operated. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from John Rosenblum, Ph.D., Rosenblum Environmental Engineering; attachment to Mr. Marmer's letter]*)

The Bayside Cumulative Impacts Analysis Draft Report claims no need to evaluate compliance with CSO limits. . . [A]nd the report claims no need to evaluate CSO impacts on beneficial uses, because the NPDES permit does not require this. This asks the regulatory board to design your project and stifles any creative solutions to the problems. Besides being a possible violation of the CEQA/NEPA process, the CSO exemptions in the NPDES permits are based on several assumptions that are incorrect:

- Construction of the CSO containment system is not complete. First of all, the original Master Plan was never completed as proposed (e.g. the Cross Town tunnel). There are alternatives to this plan which are far less expensive and create great benefits for San Francisco and the State of California. . .This will continue and could be construed to be a deliberate preconditioning justification for the very expensive and unnecessary cross town tunnel. It is almost an attempt to piece meal that project by exacerbating the problem which the tunnel will be invented to fix. . .

This means that direct evaluation of water quality impacts is needed, not simply certification that the CSO containment system is adequately constructed and operated. (*Jeff Marmer, Coalition for Better Wastewater Solutions [letter from Robert W. Rawson, International Organic Solutions; attachment to Mr. Marmer's letter]*)

Additionally, the Draft EIR does not discuss project and cumulative CSOs impacts in a format consistent with the Combined Sewer Overflow (CSO) Policy (50 FR 18688). Although the Draft EIR (page V.K.18) alludes to the requirements of the Federal Combined Sewer Overflow Control Policy, the impacts section does not discuss the project's consistency or means of achieving the nine

minimum levels of CSO controls. Page V.K.36 simply states that the increases in the CSO volumes would not constitute a violation of the City's NPDES permit, result in a violation of water quality objectives, substantially degrade water quality, or substantially affect aquatic organisms. The impacts section does not mention the Federal Combined Sewer Overflow Control Policy and its associated measures. (*Kate White, Program Director, Urban Ecology, Inc.*)

Response

These comments take issue with the City's compliance with its National Pollutant Discharge Elimination System (NPDES) permit with regard to combined sewer overflows (CSO). Comments assert that data are not available to determine whether the City actually complies with CSO requirements because the San Francisco Wastewater Master Plan improvements assumed by the NPDES permit have only recently been completed. Additional comments question whether the sewer system is complete because a cross-town tunnel has not been constructed. One comment states that exemptions from the RWQCB's shallow water limits exempt the City from water quality standards. Another comment states that the impact analysis is not consistent with the Federal Combined Sewer Overflow Control Policy.

The SEIR has thoroughly analyzed the impacts of the project, significant impacts have been identified and disclosed to the public, and mitigation measures have been developed to reduce the impacts to a less-than-significant level. Many of the comments relate to the City's wastewater system and its NPDES permits, and not project impacts. The comments misunderstand or misinterpret the regulatory findings and assumptions under which the City's system operates, as explained below.

Any exemptions from shallow water limits for CSO discharges were duly adopted by the Regional Water Quality Control Board (RWQCB), with U.S. Environmental Protection Agency (U.S. EPA) concurrence, based on water quality impact assessments conducted pursuant to federal regulations and Basin Plan requirements and procedures that provided a basis for the agencies to find that no inappropriate degradation of water quality would occur. The Bayside wet-weather NPDES permit states the following with regard to this matter:/80/

> In Order No. 84-28 the Board concluded that the exception to discharge prohibitions against discharge of waste to dead-end sloughs and where initial dilution is less than 10:1 *are consistent with the Basin Plan* [emphasis added]. A report submitted by the discharger to the Board in March 1980 concluded that an inordinate financial burden would be placed upon the discharger relative to the increased protection of beneficial uses that would be gained by requiring a minimum initial 10:1 dilution of wastes.

Impacts of project-related CSOs on water-contact recreation, a beneficial use, are described on pp. V.K.49-V.K.50 and V.K.54. With regard to impacts of CSOs in general on beneficial uses, such

impacts were exhaustively studied during the NPDES permit issuance process. Page V.K.18 discusses the rationale behind the long-term average annual overflows allowed by the NPDES permit; the following is language from the Bayside wet-weather NPDES permit/81/:

> In 1979 the Board issued Order No. 79-67 for the wet-weather facilities. Based on the Regional Board's staff findings and evidence presented at the public meeting concerning the cost differences of facilities necessary to achieve specific overflow frequencies and the water quality benefits derived from construction of those facilities and considering the location and intensity of existing beneficial uses; a long term average of 4 overflows per year for diversion structures No. 9 through 17, a long term average of 10 overflows per year for diversion structures No. 18 through 35 and an average of 1 overflow per year for diversion structures No. 36 through 43 *will provide adequate overall protection of beneficial uses* [emphasis added].

Based on the above permit findings, the SEIR states that the City's system operates in compliance with all applicable water quality standards. As an EIR on a development project and not the City's wastewater management system, there is no need for this SEIR to re-evaluate impacts of existing CSOs. The comments present no evidence of water quality or beneficial use impacts from either CSOs or the project that would warrant such an analysis.

The Wastewater Master Plan contains a series of inter-related projects designed to ensure San Francisco's compliance with the Clean Water Act and foreseeable regulatory agency standards for dry- and wet-weather effluent discharges. The system was designed to reduce the discharge of untreated sewage to the ocean and Bay. The purposes of the Wastewater Master Plan were to:

- Increase and upgrade the City's dry-weather treatment capacity to accomplish secondary treatment;
- Provide storage for wet-weather flows that exceed the system's treatment capacity during storms; and
- Use an automatic control system to maximize use of the system's storage, transport, and treatment facilities.

To achieve the goals of the Wastewater Master Plan, 19 major projects were constructed between 1977 and 1997. Of these projects, those on the Bayside included:

- North Shore Outfalls Consolidation
- North Shore Pump Station
- North Point Treatment Plant
- Channel Outfalls Consolidation
- Channel Pump Station
- Mariposa Facilities

- Islais Creek Transport/Storage
- Flynn Pump Station
- Southeast Treatment Plant (modernization)
- Hunters Point Facilities
- Griffith Pump Station
- Yosemite Facilities
- Sunnydale Pump Station
- Sunnydale Facilities

All of the CSO facilities proposed by the Wastewater Master Plan were completed as of March 4, 1997, and are fully operational.

A crosstown tunnel was included in the Wastewater Master Plan to transport combined sewage from the Bayside to the Oceanside treatment plant for treatment and discharge. The existing combined sewer system is in full compliance with all requirements, and the RWQCB does not currently require the City to construct a crosstown tunnel to meet water quality requirements. Therefore, no current plans exist to finance it or schedule its construction. See also the responses regarding "Background Regarding Existing Combined Sewer System" pp. XII.232-XII.238, and "Cross-Town Tunnel," pp. XII.277-XII.278.

The North Point Water Pollution Control Plant is not a publicly owned treatment works as defined by Title 40 of the *Code of Federal Regulations*, Section 122.2, and as supported by subsequent case law (Montgomery Environmental Coalition vs. Costle, 646 F.2d568 [D.C. Cir. 1980]). The Bayside wet-weather facilities NPDES permit does, however, specify discharge prohibitions and effluent limitations for the North Point Plant in accordance with the technology-based limitations applicable to non-POTWs under the federal Clean Water Act. The permit is designed to protect beneficial uses in accordance with the Basin Plan. The long-term design criteria for CSOs must be complied with, but are not intended to be used to determine operational compliance, which is measured by conformance with the operations plan./82/ Therefore, sufficient information is available to assess permit compliance. Additional data regarding the effectiveness of the newly completed Bayside facilities in meeting the CSO design criteria are not necessary to evaluate permit compliance.

The U.S. EPA adopted its Combined Sewer Overflow Control Policy in 1994./83/ This policy establishes a consistent national approach for controlling discharges from CSOs to the nation's waters and consists of a two-phase process. During Phase I, NPDES permittees are required to implement nine minimum controls to reduce CSOs and their effects on receiving water quality. These nine controls include the following:

1. Conduct proper operation and regular maintenance programs for the combined sewer system and the CSO outfalls;

2. Maximize use of the collection system for storage;

3. Review and modify pretreatment programs to ensure that CSO impacts are minimized;

4. Maximize flow to the publicly-owned treatment works for treatment;

5. Prohibit CSOs during dry weather;

6. Control solids and floatable materials in CSOs;

7. Develop and implement pollution prevention programs that focus on contaminant reduction activities;

8. Notify the public; and

9. Monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

Implementation of Phase I is meant to achieve compliance with the technology requirements of the Clean Water Act. Compliance with the minimum controls was required by January 1, 1997. Under the policy, NPDES permittees are also required to develop long-term control plans to select CSO controls. Phase II of the process involves implementing these long-term control plans, which are intended to ensure the implementation of the water quality requirements of the Clean Water Act./84/ San Francisco has implemented the long-term CSO control plan, and based on a RWQCB evaluation, the CSO control requirements in the wet-weather permit comply with both Phase I and Phase II of the federal policy./85/

As explained in the SEIR (pp. V.K.34 - V.K.36), the project's wastewater contributions would fit within the performance parameters of the City's system permits, and thus comply with state and federal regulatory schemes for discharge permits. In addition, the SEIR explores the potential for the project to contribute to CSOs and the potential contribution to impacts related to water quality, aquatic organisms, sediment quality in China Basin Channel and Islais Creek, and water-contact recreation, as discussed under "Evaluation of Potential Water Quality Impacts" on pp. V.K.30-V.K.50. The SEIR concludes that no project-specific significant water quality impacts would result. However, based on the high degree of public concern about CSOs; the lack of conclusive evidence refuting a causal relationship between CSOs, stormwater discharges, and sediment quality; and the recognition that the existing setting may be degraded, the SEIR conservatively finds a potentially significant cumulative impact from CSOs and untreated stormwater discharges. Mitigation Measure K.3 on p. VI.47 would ensure that the project would not contribute to cumulative CSO volumes. The

wording of Mitigation Measure K.3 leaves open the means by which the project-related CSO volumes would be eliminated. Any number of means could be employed to implement Mitigation Measure K.3; however, implementing all available means is likely to be unnecessary and unwarranted.

New Water Quality Standards

Comments

Water quality objectives are expected to become stricter with implementation of tougher national, state and local pollution discharge elimination regulations and programs (V.K.19-20); (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

And not -- we know that water quality objectives are expected to become tighter with implementation of national, regional, and local pollution discharge elimination regulations and programs. (*Corinne W. Woods, Chair, Toxics Subcommittee, Mission Bay Citizens Advisory Committee*)

Response

These comments correctly state that water quality objectives could become more restrictive in the future; however, the SEIR cannot reasonably anticipate how water quality standards will change in time without engaging in speculation, which is not required by CEQA. For this reason, the SEIR relies on standards adopted as of the time the SEIR was prepared. Regardless of the adoption of new standards at some future time, the physical effects of the project would likely be no greater than those presented in the SEIR. If standards were to become more strict and greater controls affecting the project were to be enacted to protect water quality, then the project could have lesser effects than those described in the SEIR, and cumulative effects could also diminish.

Definition of Primary Treatment

Comment

It is not factually correct for the SEIR to state that "CSO's from these outfalls [in Mission Creek] receive the equivalent of primary treatment during wet weather." Vol. II at V.K.13. See Vol. III at J.3-4 (city-wide, 11% of combined sewage receives "primary treatment and 12% receives "flow-through treatment in the transport/storage sewers", i.e. flow through treatment is not primary treatment). See also Vol. II at V.K.2 ("[t]he treatment that occurs within the structures is approximately equivalent to primary treatment"). (*Michael R. Lozeau, Executive Director, San Francisco BayKeeper*)

Response

This comment asserts that the flow-through treatment provided for combined sewer overflows (CSO) is not the same as the primary treatment provided by San Francisco's wastewater treatment plants.

While the two forms of treatment are not exactly the same, they function similarly. Primary treatment consists of basic physical processes typically undertaken in a large tank where wastewater is held. As time passes, floatable materials are skimmed from the top and settleable materials settle. The flow-through treatment provided for combined sewer overflows relies on similar physical processes. As wastewater enters the transport/storage facilities, the velocity of the flow decreases and some time passes before combined sewage is discharged, if any discharge occurs. A system of baffles and weirs allows settleable materials to settle and floatable materials to be retained. Because the physical processes used for primary treatment and flow-through treatment are essentially the same, both types of treatment produce similar results (i.e., both reduce the solids portion of the wastewater). To avoid confusion, however, the last sentence in the first full paragraph on p. V.K.13 has been changed as follows:

> **CSOs from these outfalls receive <u>essentially</u> the equivalent of primary treatment during wet weather.**

Stormwater Permit

Comment

Currently, all stormwater runoff from the 65 acre project basin flows directly to the bay. I was not aware that the city has a Storm Water Discharge Permit for this discharge. In fact, the City has not been required by the Regional Water Quality Control Board to have a Stormwater permit—because there are supposed to be no stormwater discharges. For this development, all of the stormwater runoff should be considered. (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

Response

The SEIR considers all stormwater discharges from the Project Area. As shown in Figure V.K.2 on p. V.K.25, the analysis also includes stormwater discharges from the area northeast of the Project Area bounded by Third, Terry A. Francois, and Mission Rock Streets because, although this area is outside the Project Area, stormwater runoff from this area would flow through Project Area sewers.

As discussed under "Phase I Stormwater Regulations" on p. V.K.19, San Francisco does not currently operate under a National Pollutant Discharge Elimination System (NPDES) Municipal Storm Water Permit because the majority of stormwater runoff in San Francisco drains into the City's combined sewer system, where it is treated and discharged in accordance with NPDES permits for the wastewater treatment plants. San Francisco's wastewater treatment plant permits include requirements for stormwater quality similar to those of municipal stormwater permits held by stormwater

dischargers elsewhere in the Bay Area. Areas of the City served by separated sewer systems are exempt from the Phase I stormwater regulations because they serve populations less than 100,000.

As discussed under "Phase II Stormwater Regulations" on p. V.K.20, proposed Phase II stormwater regulations anticipated to become final in 1999 will apply to small municipal separate storm sewer systems not currently subject to the Phase I regulations. These regulations would apply to stormwater discharges from the existing Bay Basin and, if the project were constructed, to stormwater discharges from the Central/Bay Basin (the approximately 20% not captured with the initial stormwater flows). San Francisco is pursuing a general municipal NPDES permit under Phase I regulations and plans to comply with Phase II regulations when they take effect.

The Phase II regulations would require San Francisco to develop and implement a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable. Mitigation Measure K.5 on p. VI.47 would require the implementation of an individual Stormwater Management Program that includes Best Management Practices for Mission Bay until the Phase II regulations become final and Mission Bay is included in the City's Stormwater Management Program.

Environmental Justice

Comments

The local neighborhoods have been impacted by the Eastside Treatment Plant [Southeast Treatment Plant] and all of the current problems associated with it. Now they will be impacted further with increased CSO's and no decrease in their current problems . . .

There should be significant mitigation efforts for the neighborhoods affected by the increased flows to the Eastside plant (especially Hunters Point and Bayview). (*Michael J. Paquet, Environmental Committee Chair, Surfrider Foundation, San Francisco Chapter*)

These comments are directed at the DEIR regarding how the existing project alternatives and the impact of combined sewage overflows (CSOs). . .ignore environmental justice. . .The DEIR does not consider the environmental justice impacts of the Mission Bay project. Under NEPA, a draft EIS must "to the fullest extent possible" integrate into the NEPA analysis "surveys and studies" required by other "environmental review laws and executive orders." 40 C.F.R, § 1502.25(a). Because CEQA was modeled on NEPA, the California courts have generally looked to Federal cases interpreting NEPA as "strongly persuasive" authority. *See No Oil, Inc. v. City of Los Angeles* (1975) 13 Cal.3d 68, 86, fn.21.

Executive Order No. 12,898 (59 Fed. Reg. 7,629)(1994), "Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations," issued by President Clinton on February 11, 1994 declares

> [E]ach Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.

Section 4-4. Subsistence Consumption of Fish and Wildlife of the Executive Order reads,

> 4-401. *Consumption Patterns.*
>
> In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

59 Fed. Reg. 7629. The Presidential Memorandum that accompanied the Executive Order calls for a variety of actions. Specific actions directed at NEPA-related activities, included:

1. Each federal agency must analyze environmental effects, including human health, economic, and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA.

2. Mitigation measures outlined or analyzed in EAs, EISs, or Records of Decision (RODs), whenever feasible, should address significant and adverse environmental effects of proposed federal actions on minority communities and low-income communities.

3. Each federal agency must provide opportunities for community input in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving accessibility of public meetings, official documents, and notices to affected communities.

On September 30, 1997, the United States EPA issued its Interim Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. The EPA NEPA Guidance Analyses provides an excellent blueprint for an agency to use to ensure that environmental justice concerns are adequately researched, considered, avoided, and mitigated. Specifically, Exhibit 3. Summary of Factors to Consider in Environmental Justice Analysis provides an excellent list of the demographic, geographic, economic, human health, and risk factors that should be used to consider environmental justice in the NEPA process. (26-30).