

City of Morro Bay

Morro Bay, CA 93442 • 805-772-6200

March 3, 2006

Mr. Jeffrey Young, Chairman
Regional Water Quality Control Board
895 Aerovista Way, Suite 101
San Luis Obispo, CA 93401-7906

Subject: Response to the Natural Resources Defense Council document, *Time is of the Essence: The Legal and Technical Reasons Why EPA and the Regional Board Must Deny the 301(h) Waiver and Require Upgrade of the Morro Bay-Cayucos Sewage Plant "As Fast As Possible"*

Dear Chairman Young,

Thank you for this opportunity to respond to the comments contained in the Natural Resources Defense Council (NRDC) document, *Time is of the Essence: The Legal and Technical Reasons Why EPA and the Regional Board Must Deny the 301(h) Waiver and Require Upgrade of the Morro Bay-Cayucos Sewage Plant "As Fast As Possible"* (NRDC Comments).

The City of Morro Bay and the Cayucos Sanitary District (MBCSD) have worked cooperatively and proactively with RWQCB and EPA staff for the past three years to develop a 9.5 year time schedule (the Schedule) for upgrading the MBCSD treatment plant to full secondary standards. It has required a tremendous amount of work, patience, and cooperation on the part of all parties involved. MBCSD would like to continue to work with the RWQCB and EPA in the cooperative and productive manner that has set the tone for our relationship over the last three years. Although there have been many areas of disagreement, the process has worked as designed and most issues have been successfully resolved. By working in a cooperative fashion with the best interest of the environment and all parties involved, we have managed to avoid the problems, pitfalls, and obstacles that have plagued other communities and which have resulted in protracted legal and administrative battles that have taxed the patience, resources, and funding of both the communities and regulatory agencies involved in these processes. MBCSD feels that the process to date has been a successful one and looks forward to continuing to work with all interested and willing parties involved in keeping the process moving toward a positive and successful conclusion. At the same time, MBCSD's fiduciary responsibility is to its ratepayers to provide the most environmentally friendly wastewater treatment system that will provide cost effective treatment for the next twenty years.

The joint hearing scheduled on March 24, is not simply a hearing for renewal of the 301(h) modified discharge permit for the MBCSD, it is also involves the approval of the Settlement Agreement for Issuance of Permits to and Upgrade of the Morro Bay – Cayucos Wastewater Treatment Plant (the Agreement). The Agreement stipulates that MBCSD will meet full secondary treatment standards by no

Item No. 9 Attachment No. 12
March 24, 2006 Meeting
Morro Bay/Cayucos WWTP

later than June 2015, per the milestones contained within the Schedule. The Schedule as outlined allows the local ratepayers and residents full public involvement and discussion on the environmental, social, technical and economic issues that other similar communities have been afforded. The Grand Jury concurred with this when they emphasized the need “for citizen input into the process.”¹

On February 3, the NRDC provided public comment on the *Joint Notice of Proposed Actions on Reissuance of Waste Discharge Requirements [NPDES Permit] to Discharge to the Pacific Ocean for the City of Morro Bay and Cayucos Sanitary District San Luis Obispo County*; Public Notice No. RB3-2006-0019, NPDES No. CA0047881. The lengthy NRDC comment document was submitted on the final day of the comment period. Given the low key, relatively minor prior involvement of the NRDC in the extensive public hearing and meeting process for the upgrade project implemented over the past three years, MBCSD was completely taken aback at the intensity of the NRDC comments. MBCSD cannot imagine what the NRDC hopes to accomplish by their eleventh hour posturing.

MBCSD requested and was granted permission to respond to NRDC’s comments in an email dated February 23, from Mr. Roger Briggs, the Executive Officer of the Central Coast RWQCB. MBCSD requested the opportunity to respond to the NRDC comments because of the NRDC’s scatter-shot approach to bringing up as many potential issues as possible in the hope that one will strike a chord with the Board or General Public. However, the vast majority of these issues are nowhere to be found in the long administrative record for the upgrade project and have not been otherwise raised, despite the many opportunities for NRDC to do so. This last-minute ambush strategy utilized by NRDC forces the Agency and MBCSD Staff to expend significant effort in responding to the comments, no matter how vague, misguided, or completely unfounded. MBCSD asserts that the NRDC severely misrepresented the data generated by MBSCD’s extremely comprehensive discharge monitoring program. For over two decades, the MBCSD communities have expended substantial amounts of money to develop credible and complete scientific databases, including, but not limited to the assessment of the potential for *T. gondii* contamination. Such expenditures of public funds for critical environmental science and data should not be disregarded in favor of unfounded speculation.

This response to the NRDC comments has consumed vast resources of the two small communities, particularly resources of staff time and effort that could be better utilized on the numerous activities required to complete the upgrade of the plant in the manner prescribed in the Schedule. MBCSD has attempted to respond to the lengthy document submitted by the NRDC, but due to the limited time allowed for this response, we have not attempted to refute every detailed comment contained within the document, but have merely attempted to address as many as feasible in the timeframe allowed and as warranted by their merit.

Our general responses to NRDC’s comments are provided below. More detailed responses are provided in three separate attachments covering different aspects of NRDC’s comments.

- Attachment A consists of a letter report from Marine Research Specialists, *Responses to Technical Comments from NRDC on the NPDES Permit to be Reissued to the MBCSD*.
- Attachment B consists of a letter report from Carollo Engineers, *Re-Issuance of the 301(h) Waiver, Response to Comments by CEA Engineers, P.C. dated February 1, 2006*.

¹ Grand Jury report: May 5, 2005 Grand Jury final report Cayucos Sanitary District and Morro bay Wastewater Treatment Plant

- Attachment C consists of a letter report from Carollo Engineers, *Re-issuance of the 301(h) Waiver, Response to Comments by NRDC dated February 2, 2006*.

General Comments:

MBCSD is concerned that the NRDC comments, fraught with numerous inaccuracies, unsubstantiated contentions, and repetitious jargon will detract and misdirect attention away from the credible and complete scientific databases under deliberation during the joint hearing for the renewal of the discharge permit. Per the email dated February 23, from Roger Briggs, the following MBCSD comments are limited only to "a response to the Natural Resource Defense Council's comments - that is," the issues raised in the NRDC comments. There should no new "issues" raised by MBCSD as they are contained in the NRDC submittal. Contrary to the erroneous, specious, and inaccurate comments submitted by the NRDC, the response prepared by MBCSD and its consultants demonstrates:

- The Reissuance of a 301(h) modified discharge permit is legal and appropriate.
- The MBCSD monitoring data and analyses are timely, comprehensive, and pertinent to the NPDES discharge permit.
- There is no evidence that wastewater constituents enter the Morro Bay Estuary in any ecologically meaningful amount.
- The MBCSD discharge does not pose a tangible human health risk.
- Monitoring data demonstrate the ability of the MBCSD discharge to comply with water-quality objectives
- Limited increases in population over the next decade will not tangibly affect the MBCSD's ability to comply with discharge requirements on TSS and BOD.
- There is no plausible link between the MBCSD discharge and the occurrence of *T. gondii* seropositivity in otters.
- There is no evidence supporting the claim that the area around the MBCSD discharge lacks a balanced, indigenous marine population.
- MBCSD has demonstrated full compliance with the Endangered Species Act and the Marine Mammal Protection Act.
- The Schedule represents an upgrade as soon as reasonably possible and is in the best interest of the local communities.
- The proposed Settlement Agreement is a document thoroughly negotiated, in good faith, with the best interests of all parties involved and is compliant with all applicable law.

Response to Legal and Procedural Comments:

Part 4 of the NRDC comment letter is fraught with misstatements, erroneous information and relies on citations to law that is not relevant or applicable to the proposed wastewater treatment plant upgrade.

First, it should noted that the respective JPA legislative bodies unanimously directed the upgrade timeline consultant to develop a conversion schedule that upgraded the wastewater treatment plant to full secondary treatment standards as fast as possible.² The conversion schedule contained in the Agreement is the schedule recommended by the consultant to comply with the "as fast as possible" action of the JPA parties. The record reveals that MBCSD spent a considerable amount of time debating this critical issue

² See Minutes of JPA Meeting of August, 2005. The specific wording of the motion is as follows: "The quickest way for the existing wastewater treatment plant to be brought to full secondary treatment, including required facility rehabilitation".

and that the ultimate action reflects a belief that the proposed conversion schedule does bring the wastewater treatment plant up to full secondary standards as fast as possible "taking into account the technological, operational and economic factors." The NRDC comment letter itself underscores the fact that the issue of upgrading as fast as possible was comprehensively discussed, extensively debated, and ultimately resolved with the adoption of the conversion schedule contained in the Agreement. The fact that during this debate various members of the Morro Bay City Council as well as Regional Board staff members may have commented that it was possible the conversion schedule could be shorter is of no particular moment. Ultimately, the unanimous decision by the JPA parties that a 9.5-year conversion schedule was necessary, based on substantial evidence in the record before them, is determinative.

With regard to this specific issue, none of the litigation cited by the NRDC dealt with the issue of a conversion schedule for a wastewater treatment plant to upgrade to full secondary treatment standards. Rather, each of the cases relied upon involved specific violations of existing permit conditions in the context of a consent decree. The "admissions" relied upon by NRDC are in fact portions of a lively debate over the issue. This underscores the fact that reasonable minds may differ as to what constitutes "as fast as possible" or "as fast as practicable". As further referenced herein, there have been several similar wastewater treatment plant upgrade projects in California coastal communities that have nine-plus year conversion schedules. Under the NRDC twisted logic, a nine-plus year timeline may be appropriate if the JPA members initiated litigation (preferably protracted litigation) as was the case with Goleta's ten-year timeline for full secondary treatment upgrade. In point of fact, the proposed conversion schedule is based upon the professional opinion of a well-qualified, highly experienced engineering firm that is very familiar with relevant regulations and process. The Carollo Report itself constitutes substantial evidence, and the "admissions" relied upon by NRDC are nothing more than comments taken out of context that were a part of the debate leading to the JPA parties' determination on the issue.

In support of the proposition that the conversion schedule is "illegal", NRDC relies on various statutes (page 57, footnote 320). It should be noted that NRDC recognizes itself that these sections do not apply directly to the Agreement (page 57, footnote 321). However, based on all available evidence in the record, the conversion schedule in the Agreement meets all legal requirements. Specifically, MBCSD determined that when technological, operational, or economic factors that affect the design, development, and implementation of the upgrade project are considered the nine and a half year conversion schedule meets all applicable requirements. The heart of the NRDC argument is that the time allotted for coordination between two governing bodies that own and operate the wastewater treatment plant is unnecessarily long. This is an operational issue that affects the development and implementation of the upgrade project. Contrary to NRDC's naked assertion that there will be only bi-monthly meetings between the JPA parties, the JPA parties intend to meet as often as is necessary to shepherd the upgrade project to completion within the conversion schedule. The Agreement does not address the number of JPA meetings, and, as with many other NRDC assertions, this issue is without merit.

In Part 5 of its tome, NRDC with no factual support, alleges that the Agreement is seriously flawed because it was not negotiated at arms length in that some of its provisions are "disadvantageous" to the Regional Board and the public. Of course, the Morro Bay City Council and Cayucos Sanitary District Board of Directors also serve the public and are, in fact, directly elected by the public they serve. These governing bodies necessarily have a duty to protect the public they serve and take that duty very seriously.

There is nothing unusual about the manner in which the Agreement came into being. As is almost always the case with complex legal agreements, the Agreement was preliminary negotiated by staff members of each respective agency based on specific direction given to them by the agency governing bodies. The negotiations spanned well over six (6) months and involved many teleconferences, meetings, and preliminary drafts. MBCSD concurs with the NRDC in its statement that the Regional Board should avoid giving "rubber stamp approval" to the Agreement. In this regard, in *US v. Chevron, Inc.*, cited by NRDC for this proposition, the court underscores the strong public policy favoring settlement agreements of this nature. The Chevron court states that "this deference is particularly strong where the (consent) decree has been negotiated by the Department of Justice on behalf of the agency like the EPA which is an expert in its field."³ Similarly, Regional Board staff are experts in the wastewater treatment plant permitting process. There is no evidence in the record that supports NRDC's bold assertion that the Agreement was not negotiated at arms length.

NRDC relies heavily on *US v. Telluride, Co.* 849F.Supp.1400 (D. Colo.1994), in its attack on the Agreement. The Telluride case involved proposed court approval of a consent decree settling pending litigation between a private ski resort company and the Federal government. Telluride, the private ski resort company, had admittedly illegally destroyed forty-four plus acres of recognized wetlands. The primary issue involved appropriate off site wetland mitigation and other penalties. The court refused to approve the consent decree because the record did not disclose the government's reasoned decision making process and disclosed no negotiations on the part of the government. The Telluride court was not addressing a voluntary wastewater treatment plant upgrade project; it was addressing a potential criminal violation of the Clean Water Act by a private party, and specifically, the monetary penalties, off site mitigation and restoration and the monitoring program associated with the potential criminal conduct. This is a far cry from this matter in which three governmental agencies negotiated in good faith for over six (6) months to arrive at an agreement for a voluntary wastewater treatment plant upgrade project. In fact, Regional Board staff members drafted the initial preliminary agreement, took part in meaningful negotiations over the course of six months and participated in public hearings and meeting which ultimately led to the approval of the Agreement by Morro Bay and Cayucos. Regional staff "pulled the laboring oar" in constructing the essential terms of the Agreement.

Setting aside the bogus criticism of the procedures that led to approval of the Agreement, the substantive issues identified as seriously flawed by the NRDC are in fact reasonable and appropriate.

The liquidated damages provision contained in the Agreement establishes an ultimate fine of one thousand dollars per day if the upgrade is not complete and the wastewater treatment plant is not operating at full secondary treatment standards. That amount is a reasonable estimation of actual damages that the public may suffer if the plant is not operating at full secondary standards at the conclusion of the conversion schedule.⁴

The force majeure clause is a boiler plate clause that is virtually identical to other force majeure clauses contained in other settlement agreements such as the Goleta case. It simply recognizes that MBCSD should not be penalized by events that are beyond their control. This provision is common place, fair and reasonable.

³ See *U.S. v. Chevron U.S.A, Inc.*, 380 F. Supp 2nd at 1111

⁴ Effluent usually consists entirely of wastewater that has received secondary treatment and solids removal rates have regularly met secondary treatment standards.

NRDC criticizes the “new evidence” definition contained in the Agreement and states that it “illegally sets a more restrictive standard than that set forth in the CWA.” First, the parties cannot agree to a more restrictive standard than required by law. The use of the term “clear and convincing evidence” is purely stylistic and does not relate to any specific evidentiary standard; it merely underscores the need to clearly identify evidence in the record that would show that more stringent discharge limits are necessary.

Lastly, NRDC contends that an out of court settlement agreement is difficult to enforce. MBCSD should not be penalized for entering into a voluntary Agreement without court involvement. The Agreement can, of course, be specifically enforced by a court if there were a breach⁵. While NRDC would prefer court supervision, there is clearly no legal requirement to do so.

In sum, claims by the NRDC that the Agreement is somehow “illegal” or “seriously flawed” are simply without merit.

Response to Collection System Comments:

The comment letter provided by NRDC makes numerous erroneous, misleading and unsupported statements concerning sewage spills from the collection systems of Morro Bay and Cayucos “*into Morro Bay and the Pacific Ocean.*”⁶ MBCSD takes exception to these disingenuous statements for several reasons.

First, the reference to the collection systems of Morro bay and Cayucos is not germane to the discussion of the renewal of the discharge permit for MBCSD. The issue of collection system management and sanitary sewer system overflows is currently being addressed by the SWRCB. The SWRCB is expected to adopt statewide Waste Discharge Requirements (WDRs) for all collection systems in California in March 2006. The statewide WDRs are designed to provide consistent regulation and management of all collection systems and to reduce the frequency and occurrence of SSOs.⁷ The statewide WDRs include extensive management guidelines and procedures including monitoring and reporting requirements.

Second, while MBCSD does acknowledge that there have been limited and sporadic spills over the past eight years, their performance record clearly demonstrates that the City and District have always operated with a commitment to proactive and responsible management of their respective collection systems. All spills, especially those to surface waters, have been promptly reported to the proper authorities, notices have been posted in a timely manner when required, and the spill as been immediately remediated. In Appendix F of the proposed WDRs, RWQCB staff acknowledges that the City and District staff promptly and appropriately address spills from the collection systems. They state, “*In general, the Dischargers responded to each sewage spill appropriately; the spill was quickly disinfected, proper authorities were notified, creeks and/or beaches were posted if necessary, and maintenance/replacement schedules were adjusted if necessary to prevent future problems.*”

Third, when spills have occurred, they have been sporadic, of limited volume, and occurred over brief periods of time (minutes or hours). They are completely unlike the non-point-source pollution generated by large rain events, which produces astronomical volumes of flow over an extended duration, lasting

⁵ Settlement Agreement, Section E.2.

⁶ NRDC at 12

⁷ Sanitary Sewer Overflows

hours if not days. The volume of particulate matter and pathogens released from documented collection system spills is infinitesimally small when compared with the non-point source pollution documented by the RWQCB and National Estuary Program. There is no evidence presented in the NRDC document to support the specious claim that “*sewage spills that may and likely do affect marine life.*”

The NRDC comment letter also incorrectly insinuates that these spills are “...*an obvious source of pathogens*”⁸ and that “*Untreated sewage from the Plant’s collection systems periodically spills into Morro Bay and the Ocean*” and is responsible for “*the available evidence related to the epicenter of Toxoplasma gondii-related disease in sea otters in Morro Bay*”⁹. There is simply no basis for this statement. As stated above, documented and reported spills over the past eight years, have been infrequent, limited in volume, and of very limited duration, especially when compared with the contaminant input from non-point sources.

Finally, NRDC’s lack of understanding of collection-system spills and non-point source contributions is demonstrated by the absurd statement that “*Moreover, total coliform limits were consistently exceeded at the Morro Creek surf zone monitoring station. Heightened bacteria levels at this station implicate input from the Plant’s collection system.*”¹⁰ First, the Morro Creek surf zone monitoring station was added in 1993 to document the time-varying influence of non-point-source coliform input from nearby creeks. Coliform densities in the creek’s outflow aid in the interpretation of surfzone bacteriological measurements by providing an index of non-point-source contamination in samples collected at the regularly sampled surfzone stations. Second, and more importantly, MBCSD staff is aware of only one spill to Morro Creek and that occurred from the treatment plant and not the collection system. It occurred on December 31, 2004, when Morro Creek overflowed its banks and flooded the influent channel of the treatment plant.¹¹ Sampling of Morro Creek performed at the time of the spill documented elevated coliform levels upstream of the location of the spill, indicating that the creek was already contaminated with non-point-source bacteria unrelated to the spill. The spill was of limited duration (45 minutes) and the wastewater released had previously undergone primary treatment. The particulate and pathogen loads caused by the release of primary treated wastewater to the creek were infinitesimally small when compared to the volume carried to the ocean by Morro Creek during this extreme rain event. Again, non-point source pollution has been well documented in all creeks throughout the watershed, including Morro Creek, over the past decade.

The City and District have always been sensitive to the quality of the local marine environment within Estero Bay, and have operated and maintained the WWTP with a commitment and dedication to protection of the local ecology and coastal resources. We are committed to continuing and enhancing the high levels of wastewater treatment at the WWTP with the goal of preserving the beneficial uses of the marine environment within Estero Bay. The Schedule to upgrade the plant demonstrates the communities’ continued commitment to preserving the quality of the local marine environment.

If you have any question or require any further information, please contact me at (805) 772 6272.

⁸ NRDC at 12

⁹ NRDC at 12

¹⁰ NRDC at 44

¹¹ A description of the events leading to the spill and the corrective actions instituted to prevent such an occurrence in the future are well documented in the spill report, monthly operations reports, and the 2004 Annual report

Sincerely,

A handwritten signature in black ink that reads "Bruce Keogh". The signature is written in a cursive, flowing style.

Bruce Keogh
Wastewater Division Manager

cc
Mr. Bob Hendrix
City of Morro Bay

Ms. Bonnie Connelly
Cayucos Sanitary District

Mr. Gary Sheth
USEPA

Mr. Roger Briggs
RWQCB

Dr. Douglas Coats
Marine research Specialists

Mr. David Beckman
NRDC

marine research specialists

3140 Telegraph Road, Suite A · Ventura, CA 93003 · (805) 644-1180

Mr. Bruce Keogh
Wastewater Division Manager
City of Morro Bay
955 Shasta Avenue
Morro Bay, CA 93442

3 March 2006

Reference: Responses to Technical Comments from NRDC^{1,2,3,4} on the NPDES Permit⁵ to be Reissued to the MBCSD⁶

Dear Mr. Keogh:

Pursuant to your request⁷, we have evaluated the technical merit of the referenced comments. This letter focuses on the scientific and technical aspects of comments related to potential environmental impacts from the MBCSD discharge, rather than those dealing with the legal and engineering aspects of the discharge permit. Based on our detailed review, we find no substantive scientific merit in the assertions made by NRDC,¹ CEA,² Heal the Bay,³ and Sierra Club.⁴ Their comments consist largely of unsupported speculation and do not countermand the conclusions contained in the MBCSD monitoring reports.⁸ Specifically, two decades of intensive and comprehensive monitoring has not found any deleterious environmental impacts associated with the discharge. Instead, the monitoring has demonstrated that the low-volume discharge of high-quality effluent rapidly disperses within an extremely limited area of the well-mixed open-ocean environment immediately surrounding the diffuser structure. There is no rational reason to believe that small incremental increases in flow over the next decade will cause a perceptible degradation in the marine environment.

QUALIFICATIONS

Marine Research Specialists (MRS) has been conducting the NPDES discharge monitoring program for the MBCSD for twelve years. Our qualifications depart from those of NRDC and their consultants. For example, CEA cites mostly engineering experience, Gold documents environmental advocacy, and NRDC staff are

¹ NRDC (Natural Resources Defense Council). 2006. *Time is of the Essence: The Legal and Technical Reasons Why EPA and the Regional Board Must Deny the 301(h) Waiver and Require Upgrade of the Morro Bay-Cayucos Sewage Plant "As Fast As Possible"*

² CEA (Carpenter Environmental Associates, Inc). 2006. *Re: Morro Bay 301(h) Waiver*

³ Gold, M. (Heal the Bay). 2006. *Re: Re-issuance of the 301(h) Waiver for the Morro Bay-Cayucos Sewage Plant*

⁴ Sierra Club. 2006. *RE: Reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit, Modified Under Section 301(h) of the Clean Water Act*. Via electronic mail to Mr. Matt Thompson, RWQCB, 2 February.

⁵ US Environmental Protection Agency Region Region 9 (USEPA) and the California Regional Water Quality Control Board, Central Coast Region (RWQCB). 2005. *Joint Notice of Proposed Actions on Reissuance of Waste Discharge Requirements [NPDES Permit] to Discharge to the Pacific Ocean for the City of Morro Bay and Cayucos Sanitary District San Luis Obispo County*. Public Notice No. RB3-2006-0019, NPDES No. CA0047881. 19 December.

⁶ The wastewater treatment plant jointly owned by the City of Morro Bay and the Cayucos Sanitary District (MBCSD)

⁷ Keogh, B. (personal communication). 2005. Telephone conversation between Mr. Bruce Keogh, MBCSD Wastewater Division Manager, and Dr. Douglas Coats, Senior Oceanographer, Marine Research Specialists (MRS) on 8 February 2006.

⁸ The most recent monitoring results are contained in the 2005 Annual Report, which is included herewith as an attachment.

largely focused on environmental litigation. None has specific experience in the evaluation of marine impacts, and this lack of experience is reflected in their inapposite comments.

MRS expertise lies in the quantitative assessment of marine impacts. Two MRS employees, Dr. Coats and Ms. Luke, are primarily responsible for the MBCSD monitoring program. For the past thirty years, Dr. Coats has specialized in the assessment of marine impacts based on analysis of multi-disciplinary data. He received his Ph.D. from Scripps Institution of Oceanography where his academic training focused on collection and interpretation of oceanographic data from virtually every aspect of marine science. Since that time, his quantitative assessments have resolved a variety of complex marine environmental issues by interrelating biological, chemical, and physical measurements. Many of his definitive assessments have been published in the peer-reviewed literature. Currently, he is the Program Manager for NOAA's assessment of long-term recovery of the intertidal habitat following the Exxon Valdez Oil Spill. More locally, he conducted a ten-month dye-tracking program within Estero Bay to monitor directional drilling associated with the installation of fiber-optic cables. The extensive drill-mud monitoring program was conducted on behalf of San Luis Obispo County, the California Coastal Commission, and the RWQCB. His experience specific to ocean wastewater discharges includes evaluations of NPDES monitoring data for the Los Angeles Clean Water Master Plan, the San Diego Metro Clean Water Project, Hyperion, East Bay Dischargers Authority, and the Massachusetts Water Resources Authority. He is the Program Manager for the MBCSD monitoring program.

Ms. Luke holds a BS degree in biological sciences from the University of California at Davis. Previously, she has worked as a freshwater ecologist for the Clear Lake Environmental Research Center, and spent a field season at the UC Davis Castle Lake Limnological Research Laboratory. She has also worked as a coastal program analyst for the California Coastal Commission evaluating development proposals for consistency with the California Coastal Act and other applicable local, state, and federal laws. She has spent the last several years as the co-program manager of the MBCSD monitoring program and is currently a senior marine biologist at MRS.

SUMMARY OF CONTENTS

1. MBCSD monitoring data, analyses, and reports are timely, comprehensive, and pertinent to the NPDES discharge permit.	5
a) High-quality monitoring observations encompass every aspect of the treatment process, receiving waters, and seafloor sediments. The lengthy record demonstrates a high power to detect potential impacts from the discharge	5
b) Since the discharge application was submitted, regular monitoring reports have continued to be submitted and reviewed	5
c) The submittal of the discharge application met all regulatory requirements for timeliness and completeness	6
d) Formal interagency consultations with USFWS are not required for all actions.	6
2. Wastewaters does not enter the Morro Bay Estuary in any ecologically meaningful amount	6
a) The 1985 dye-tracking study repeatedly cited by NRDC claims to have detected effluent diluted 50,000-fold entering Morro Bay, but the reported concentrations were far below detection levels	6
b) The far-field disposition of the plume is irrelevant because MBCSD effluent consistently meets bacteriological standards at the end of the treatment process, prior to discharge	7
c) The 100-fold dilution immediately after discharge virtually eliminates any perceptible effluent at distances beyond 50 ft as repeatedly confirmed by 28 quarterly water-quality surveys	7

d) The effluent concentration within the Estuary reported by the 1985 dye-tracking study was so extraordinarily dilute (50,000:1) that, even if accurate, it would not be of any conceivable environmental consequence.....	7
e) The 1985 dye-tracking study contained no credible evidence for a direct connection between the discharge and the Estuary. It failed to include control samples and standard statistical hypothesis testing. Its erroneous conclusions concerning the discharge's influence on the Estuary were subsequently disproven with genetic fingerprinting showing bacterial contamination within the Estuary largely results from creek inflow.	7
f) The MBCSD discharge does not commingle with other regional discharges because they are too distant, too small in volume, too intermittent, consist only of seawater, or discharge onshore.	8
3. The MBCSD discharge does not pose a tangible human health risk.....	8
a) Discharged effluent does not degrade beach water quality because it is thoroughly disinfected so that it regularly meets recreational water-contact standards prior to discharge	8
b) Rare instances of elevated beach coliform are associated with identifiable sources unrelated to the discharge.....	9
c) Outflow from Morro Creek was responsible for the brief period of poor beach report cards cited by NRDC.....	9
d) The MBCSD bacteriological monitoring data, and the analysis and review by the USEPA and RWQCB, are current, comprehensive, and irrefutably demonstrate that the discharge poses no potential health risk.	10
e) The discharge's depth and offshore distance provides substantial additional protection and the only other ocean discharges in California that are deeper or more distant produce far greater volumes of effluent.	10
f) Quarterly assessments of plume dispersion and transport repeatedly demonstrate that measurable concentrations of wastewater constituents are restricted to a highly localized area around the diffuser structure, and do not impinge on the shoreline.....	11
g) Mussel monitoring has demonstrated the absence of a wide range of bacterial pathogens within the MBCSD discharge.....	11
4. Monitoring data collected over the past two decades demonstrates that the MBCSD discharge has consistently met water-quality standards and will continue to do so for the next two permit terms.....	12
a) There is no scientific basis for the claim that discharge-related impacts to the marine environment will occur if the MBCSD continues to operate under a 301(h) modification.	12
b) The MBCSD's long and consistent record of compliance provides hard evidence that the discharge has and will continue to comply with the requirements of a 301(h)-modified permit.....	13
c) The rare exceptions to permit limitations have been brief and were attributable to identifiable causes unrelated to the overall efficacy of the treatment process.	13
d) Statistical (reasonable-potential) analyses quantitatively demonstrate that there is a high potential for future compliance with water-quality limits on chemical constituents.....	15

e) The well-designed monitoring program has a demonstrably high statistical power to detect minute changes in the marine environment. It has been conducted for two decades, allowing ample time for any potential impact from the discharge to be revealed. It is among the most expensive and comprehensive monitoring programs for any discharger of its size in California.....	15
f) There is no quantitative evidence that metals are accumulating around the outfall and affecting marine organisms as a result of the discharge.....	15
g) The rationale for chronic toxicity testing in lieu of acute bioassays is sound.....	17
5. Limited increases in population over the next decade will not tangibly affect the MBCSD's ability to comply with discharge requirements on TSS and BOD..	17
a) The vast majority of time, the entirety of the MBCSD flow receives secondary treatment and blending of primary- and secondary-treated wastewater is only rarely required during periods of particularly high flow.....	17
b) Previous projections of increases in flow, BOD, and TSS represent upper-bound estimates and modest projected reductions in groundwater infiltration will easily offset the small projected annual flow increases related to population growth.....	18
c) There is no evidence of a decline in plant performance after two decades of operation. All major effluent constituents have been consistently lower than the permitted maximums.....	18
6. There is no plausible link between the MBCSD discharge and the occurrence of <i>T. gondii</i> seropositivity in otters.....	18
a) The size of the MBCSD discharge is too limited to materially contribute to the observed <i>T. gondii</i> seropositivity in otters. Ascribing causality to weak spatial correlations is inappropriate given that the discharge occupies an extremely limited portion of Estero Bay. The likelihood of an otter encountering the plume and becoming infected is extremely low.....	18
b) Wastewater discharge is not a plausible source of <i>T. gondii</i> oocysts. Peer-reviewed studies strongly documented the high correlation of <i>T. gondii</i> occurrence with non-point-source freshwater flow from rivers and streams, and the lack of any correlation with sewage outfalls.....	19
c) Mussel tissue tests documented the general absence of detectable <i>T. gondii</i> oocyst densities in the MBCSD discharge. This combined with the small MBCSD discharge footprint, the regional lack of correlation between wastewater and seropositivity, and the low likelihood of oocyst input into the collection system, rule out the MBCSD discharge as a potential source for elevated Toxoplasmosis in otters near Estero Bay.....	19
7. There is no quantitative evidence supporting the claim that the area around the MBCSD discharge lacks a balanced indigenous marine population (BIP).	20
a) The MBCSD unequivocally demonstrates that a balanced population of sensitive filter-feeding organisms lives in clean sediments surrounding the outfall. Infauna are highly diagnostic of the status of indigenous populations as a whole, and are sensitive indicators of marine pollution because they have limited mobility and cannot easily escape exposure to contaminants in their immediate environment.....	20
b) The southern sea otter population is not in a state of decline. Census results confirm that the population is in a positive growth trend and the 2005 population is the second highest on record.....	20
c) The otter population within Estero Bay is near carrying capacity, and is therefore, not imbalanced.....	21

- d) Higher stranding numbers in the Estero Bay area are expected, and they do not contradict the presence of an otter BIP.....22
- e) The elevated stranding numbers near Estero Bay in 2003 and 2004 were unrelated to the discharge and to an evaluation of a BIP.....23
- f) The home ranges of sea otters vary and otters residing in and near Estero Bay do not necessarily stay within the area year-round. Their mobility makes them poor sentinels for evaluating impacts from point-source pollution as compared to sessile marine organisms, such as infauna and mussels.....25
- g) There are many causes of mortality in southern sea otters and *T. gondii* is not "...the single most important known cause".....25
- h) The presence of a BIP within the Morro Bay Estuary is not germane to an evaluation of the MBCSD discharge, which discharges to an extremely limited portion of Estero Bay. Any potential input from extremely dilute MBCSD discharge would be completely negligible compared to the freshwater pathogen sources that discharge directly into the Estuary26
- i) The presence of a threatened species in the region does not preclude the existence of a BIP.....26

RESPONSES TO SPECIFIC NRDC COMMENTS

1. MBCSD monitoring data, analyses, and reports are timely, comprehensive, and pertinent to the NPDES discharge permit. NRDC inappropriately characterizes the vast record of monitoring data as "inadequate," and "stale," and claims, therefore, that the discharge application is "incomplete."⁹

- a) Contrary to NRDC's bizarre characterization,¹⁰ data does not go "stale" as though it were day-old bread. In fact, the opposite is the case. Impact assessments, in particular, benefit from a long record of high quality observations because they provide crucial additional degrees-of-freedom that substantially improve the statistical power to detect marine impacts.¹¹ Spatiotemporal analyses of long-term trends are especially capable of definitively discerning subtle marine impacts when other techniques fall short. This type of analysis was applied to two decades of marine monitoring data in the most recent MBCSD Annual Monitoring Reports.¹² The findings of "no deleterious impacts" from the discharge were largely unchanged from the comprehensive analysis performed in the Technical Support Document (TSD), which was submitted with the NPDES discharge application.¹³
- b) It is also greatly misleading for NRDC to imply that there has been no review of the MBCSD discharge since the permit application in 2003.¹⁰ In fact, the MBCSD continues to submit monthly, quarterly, semiannual, and annual monitoring reports, which are matter of public record and are scrutinized by both EPA and RWQCB staff. NRDC also requested, obtained, and acknowledged the receipt of the 2004 Annual Monitoring Report, however, any mention of this report, or the results of the comprehensive analyses contained therein, is conspicuously absent from their comments.

⁹ NRDC, at 2 and Part 3A

¹⁰ NRDC, at 4, alleges that the MBCSD did not submit a "...complete application with current data and information..." and that the "...EPA's and the Regional Board's analyses, findings, and determinations are based on incomplete and stale information."

¹¹ Coats, D.A., E. Imamura, A.K. Fukuyama, J.R. Skalski, S. Kimura and J. Steinbeck. 2003. Sampling Effort in Assessments of Oil-Spill Impacts to Intertidal Organisms. NOAA Technical Memorandum NOS OR&R 12, August 2003.

¹² Marine Research Specialists (MRS). 2005. Offshore Monitoring and Reporting Program, 2004 Annual Report. Submitted February 2005 to the MBCSD; and MRS. 2006. Offshore Monitoring and Reporting Program, 2005 Annual Report. Submitted February 2006 to the MBCSD. Hereinafter "2004 and 2005 Annual Reports."

¹³ MRS. 2003. Supplement to the 2003 Renewal Application for Ocean Discharge under NPDES Permit No. CA0047881. Prepared for MBCSD. July. Hereinafter "Supplement."

Consequently, there is no basis for the NRDC statement that there is an "...incomplete record that fails to include any reported violations of effluent limitations for nearly three years." All monitoring data and reports have been submitted on a timely basis as required by the monitoring and reporting component of the NPDES discharge permit.

- c) Contrary to NRDC statements,¹⁰ the MBCSD application for the NPDES discharge permit was both timely and complete. As required, the application was submitted six months prior to the expiration of the existing permit. It included detailed comprehensive analyses of more than a decade of monitoring data and encompassed quantitative observations that were collected up to the time of the submission of the application. Careful review of this vast amount of data requires time, and the existing permit was administratively extended to allow for a comprehensive assessment by the applicable regulatory agencies.
- d) Finally, NRDC also asserts that the record is incomplete because "...various consultation requirements..." have not been met.¹⁴ NRDC subsequently cites only one consultation with the US Fish and Wildlife Service (USFWS) as being out of date. In fact, an update to previous consultations with the US Fish and Wildlife Service (USFWS) was requested by MBCSD at the time the discharge application was submitted in 2003. Because of prior commitments, USFWS personnel could not provide an updated consultation at the time of the application. However, according to the USFWS,¹⁵ formal interagency consultations with USFWS are not required under Section 7(a)(2) for all actions. Instead, each Federal agency is responsible for determining whether its action is likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat.

2. Wastewater constituents do not enter the Morro Bay Estuary in any ecologically meaningful amount. NRDC repeatedly states that effluent enters the Morro Bay Estuary, erroneously implying that significant concentrations of effluent regularly enter the Estuary.¹⁶ They use this misleading statement to imply that, as a result, "...the discharge...is highly correlated with the occurrence of...*T. gondii*," and "...the discharge...enters into estuaries where a balanced indigenous population does not exist."

- a) Contrary to their assertions, it is not "well accepted" that effluent "...regularly enters and mixes with fresh water in the Morro Bay estuary," in any ecologically meaningful amount. It is not "...undisputed that the...Plant discharges an average of 1.4 million gallons of freshwater wastewater into Morro Bay every day..."¹⁷ The MBCSD discharge is into Estero Bay, at a location well removed from the Morro Bay Estuary. NRDC base their assertions on a single dye-tracking study conducted on one day in 1985.¹⁸ However, this dated and limited study provided no credible evidence that perceptible concentrations of effluent constituents actually entered the Estuary. The only meaningful discharge-related dye measurements were collected within 500 yards of the diffuser where the effluent had yet to achieve a dilution more than about 5000:1. Subsequent reevaluation of this study's data demonstrates that all of other the dye measurements consisted of background fluorescence associated with patchy, naturally occurring phytoplankton.¹⁹ Effluent that was more dilute than 5000:1 contained dye

¹⁴ NRDC, at 2, 21, 53, and 54.

¹⁵ Kofron, C. 2006. Personal communication between C. Kofron (USFWS) and B. Keogh (MBCSD) on 1 March 2006.

¹⁶ NRDC, at 2, 10, 13 38-39

¹⁷ NRDC, at 36.

¹⁸ Northeast Technical Services Unit (NTSU). 1986. Ocean Outfall Study, Morro Bay, California, October, 1985. Submitted to Region IX Shellfish Specialist, Department of Health and Human Services, Public Health Service, Food and Drug Administration, Center for Food Safety and Applied Nutrition Shellfish Sanitation Branch. August 1986.

¹⁹ Extensive dye monitoring within southern Estero Bay over a 10-month period in 2001 found that 0.5 ppb is the practical limit for reliably detecting dye concentrations against the background of naturally occurring

concentrations below approximately 0.5 ppb, which is the effective dye-detection limit in the open ocean. Nevertheless, the study investigators claim to have detected dyed effluent within the Estuary, after being diluted 50,000 times, even though the associated dye concentrations are virtually impossible to detect. Nevertheless, even if you accept their claim, one part effluent in 50,000 parts estuary water is so dilute that it cannot conceivably be considered ecologically meaningful.

- b) Regardless, the ultimate far-field disposition of the effluent plume is irrelevant since the bacteriological quality at the end of the treatment process, and prior to discharge into the ocean, is almost always substantially lower than shellfish harvesting and water contact standards.²⁰ In addition, an accurate evaluation of potential impacts from wastewater particulates should be conducted after they have been diluted at least 100-fold. This would make any potential bacterial pathogens within the effluent virtually non-existent by two orders of magnitude.
- c) Because of the rapid initial dilution that occurs shortly after discharge, it is highly unlikely that MBCSD effluent enters the Morro Bay Estuary or impinges on the adjacent shoreline in any meaningful concentrations. Even under unusually strong prevailing flow conditions, effluent is transported away from the outfall in an extremely diluted state. Quarterly water-quality monitoring surveys repeatedly demonstrate that the footprint of measurable amounts of wastewater is highly localized around the outfall. The highly limited spatial extent of the MBCSD discharge plume has been delineated with standard measurement techniques that have been applied during 28 quarterly water-quality surveys conducted over the past seven years of the current permit cycle. High-resolution water-quality measurements repeatedly demonstrate that the plume is diluted by several hundred-fold within 50 ft of the diffuser structure.²¹ These dilution factors are consistent with those determined by conservative plume modeling²² as well as the measurements near the outfall in the dye-tracking study cited by NRDC.¹⁸ Beyond that distance, even the most sensitive instrumentation is incapable of detecting wastewater constituents. Consequently, it is highly implausible that perceptible concentrations of wastewater constituents would traverse a distance of more than 9,000 ft (1.7 miles) and enter the Estuary, even if strong southerly currents happened to coincide with a flood tide.
- d) At the time of the 1985 dye-tracking study, the influence of matrix interference from planktonic chlorophyll was unknown. In the absence of control samples and without a standard statistical analysis of variance, background fluctuations in fluorescence were misinterpreted as dye concentrations. Additionally, none of the elevated dye concentrations, erroneous or otherwise, were continuously tracked directly from the discharge into the Estuary. Instead, the offshore dye-tracking tracking effort was concluded prematurely. On the following day, a fluorometer was deployed within the Estuary near the mouth of the harbor. Subsequently, extremely low levels of chlorophyll fluorescence were erroneously ascribed to the presence of effluent that had been diluted a phenomenal 50,000-times. Even if this fluorescence did represent the presence of wastewater constituents, at the measured concentrations effluent would be so extraordinarily dilute that it could not be of any conceivable environmental influence.
- e) The 1985 plume-tracking study was originally commissioned to determine whether effluent discharge was causing coliform contamination in shellfish growing areas of the Morro Bay Estuary. At the time of

chlorophyll fluorescence within the ambient ocean waters of the Bay. See Coats, D.A. 2003. Monitoring of Drilling Fluid Discharges to the Marine Environment of Estero Bay California during Construction of Directional Bores for the MCI/WorldCom Fiber-Optic Cable Installation Project. Final Report of Offshore Monitoring Results to the County of San Luis Obispo. MRS Technical Report MRS-252.

²⁰ Prior to discharge, the effluent achieves receiving-water bacterial standards more than 90% of the time according to the historical record of measurements during this permit cycle.

²¹ Supplement, at III-2, and Table 3.8 in 2004 and 2005 Annual Reports.

²² Lindstrom, K. 1998. Report on Evaluation of February 1998 Sampling Results: AERA Energy LLC (Aera) Produced Water Discharge Proposal. K.P. Lindstrom, Inc. P.O. Box 51008, Pacific Grove Ca. In association with Carollo Engineers, 4200 Truxtun Ave, Suite 200, Bakersfield, CA 93309.

the survey, the MBCSD discharge was not disinfected prior to discharge. However, the bacterial measurements that were collected offshore as part of plume-tracking study were heavily confounded by non-point source contamination from onshore. These sources heavily confounded the interpretation of spatial trends everywhere, except for very close to the diffuser structure. At the time of the study, the influence of these other contamination sources, such as Morro Creek, was not widely recognized. As a result, many observations were misinterpreted as being discharge-related. Although the study contained no credible evidence for a direct connection between the discharge and the Estuary, shellfish contamination was incorrectly ascribed to the discharge. However, after disinfection of effluent was instituted, shellfish contamination continued within the Estuary unabated. Recent microbial source tracking studies using genetic fingerprinting have identified the principal origins of bacterial contamination within the Estuary as emanating from the discharge of Los Osos and Chorro Creeks.²³

- f) The MBCSD discharge does not tangibly combine with the discharges from “*at least five other NPDES-permitted sources*,” as stated by NRDC.²⁴ The five sources cited by NRDC are too far from the MBCSD discharge to commingle in any material manner. The intermittent discharge of small volumes of treated groundwater (0.21 MGD) from Chevron Estero Marine Terminal are too distant (8,000 ft) from the MBCSD discharge to conceivable combine tangibly with the wastewater constituents within the MBCSD discharge, which are restricted to a distance of approximated 50 ft from the discharge location. The Morro Bay Desalination Plant and the Morro Bay Power Plant discharges, which are not currently discharging, consist purely of saltwater without contaminants. The other two discharges noted by NRDC are onshore surface water discharges.

3. The MBCSD discharge does not pose a tangible human health risk. The two-decade long record of intensive monitoring data demonstrates that the discharge has no perceptible impact on recreational activities within Estero Bay. The fact that all of the MBCSD effluent is thoroughly disinfected irrefutably eliminates the discharge as the potential source of elevated beach coliform. Moreover, the 28 quarterly water-quality surveys conducted during the current permit cycle have repeatedly demonstrated that perceptible concentrations of extremely dilute wastewater constituents are restricted to a highly localized region around the diffuser structure. Drogue drifter deployments demonstrated that not even very dilute quantities of wastewater constituents impinge on the shoreline. Compared to this quantitative evidence, contentions by NRDC²⁵ and Gold²⁶ regarding significant health risks are neither factually based nor accurate.

- a) **Discharged effluent does not degrade beach water quality.** The MBCSD effluent is thoroughly disinfected and it cannot conceivably be considered to contribute to any perceived degradation in shoreline water quality. In point of fact, ninety-six percent of the time, the MBCSD effluent quality meets recreational water-contact standards²⁷ immediately upon discharge from the outfall. After accounting for the minimum initial dilution that occurs within 50 ft of the discharge, coliform densities measured in all effluent samples easily meet the more stringent bacterial standard imposed for shellfish

²³ Kitts, C., M.A. Moline, A. Schaffner, M. Samadpour, K. McNeill, and S. Duffield. 2002. *Identifying the Sources of Escherichia coli Contamination to the Shellfish Growing Areas of the Morro Bay Estuary*, Final Report 3/29/2002.

²⁴ NRDC, at footnote 207 on page 40.

²⁵ NRDC, at 2, 39, 41, and 42.

²⁶ Gold, at 2, 3, and 4.

²⁷ Here, the instantaneous measurements of total coliform density within 3,318 effluent samples collected since 1993 were conservatively compared with the 30-day mean fecal coliform limit of 200 MPN/100 ml that applies to water-contact recreation per the COP.

harvesting areas.²⁸ Consequently, the discharge cannot possibly be tangibly contributing to the elevated coliform concentrations that are occasionally observed along the adjacent coastline, which is located more than 2,700 ft from the discharge.

The demonstrated effectiveness of the MBCSD disinfection process renders any further analysis moot with respect to assessments of potential discharge-induced impacts on human health. There is simply no nexus between absence of bacterial levels in the discharge and bacterial levels measured at the shoreline. Consequently, discussions concerning plume trajectories or variations in surfzone bacteria are irrelevant. Nevertheless, NRDC and Gold devote considerable attention to these topics in their comments, so they are addressed below.

- b) **Rare instances of elevated beach coliform densities are associated with identifiable sources unrelated to the discharge.** The MBCSD surfzone monitoring program consists of frequent sampling within a dense station pattern along Morro Strand State Beach. The spatial and temporal sampling rate significantly exceeds that of the Heal-the-Bay report card cited by Gold.²⁹ The majority of the 3,500 MBCSD surfzone coliform measurements recorded over the current permit cycle reflect densities at or below the detection limit of 2 MPN/100 ml. A relatively small fraction of samples (about 10%) had coliform densities exceeding the shellfish harvesting standard. The vast majority of these elevated beach samples were associated with clearly identifiable non-point source contamination that was uncorrelated with periods of elevated effluent coliform levels. As described by extensive analysis of the data,³⁰ the elevated beach coliform events are typically associated with non-fecal coliform, rainfall events, measurements at distant reference stations, identifiable shoreline organic debris, or outflow from Morro Creek, which is recognized as a source of coliform contamination.
- c) **Morro Creek was responsible for the brief period of poor beach report cards.** The most significant source of coliform contamination along Morro Strand State Beach is Morro Creek outflow. Its non-point source contributions are of particular interest insofar as explaining elevated shoreline coliform events cited by Gold in his beach report cards. His cursory review of the report cards and his unfamiliarity with the area led to his misguided speculation that "...influences beyond storm water discharge...could include the Plant's effluent."³¹ As discussed above, the vast monitoring record unequivocally demonstrates that effluent disinfection, dilution, and the discharge's offshore distance preclude any tangible wastewater contribution to shoreline bacteria. Gold bases his speculation on a review of only 78 grades³² given in the past three years to a shoreline location at the projection of Atascadero Road. As evidence of the MBCSD's influence, he notes that this location received relatively poor report cards of surfzone bacterial levels in the 2004-2005 season compared to prior years. Although this sampling location is adjacent to the treatment plant, it is located 3,000 ft to the south of the portion of the shoreline adjacent to the offshore discharge point. Consequently, it is not as diagnostic of potential discharge-related impacts as surfzone samples collected as part of the MBCSD monitoring at a location directly shoreward of the discharge point.

In any regard, there is a simple explanation for the temporary reduction in water quality found in the Atascadero Road report cards during the winter months of 2005. Namely, during 2004, the mouth of Morro Creek migrated northward, and was directly adjacent to the sampling site in 2005 (Figure 1). All of the "F's" at this beach location occurred between 11 January 2005 and 28 March 2005, when the

²⁸ The shellfish harvesting standard specifies that the median total coliform density shall not exceed 70 MPN/100 ml. This standard is met 92% of the time by the effluent prior to discharge and 100% of the time after initial dilution.

²⁹ Gold, at 2, 3, and 4.

³⁰ See for example, the 2005 Annual Monitoring Report, at Section 3.3.4.

³¹ Gold, at 2.

³² Compare this with the 3,500 surfzone coliform measurements analyzed by the MBCSD, USEPA, and RWQCB over the past seven years.

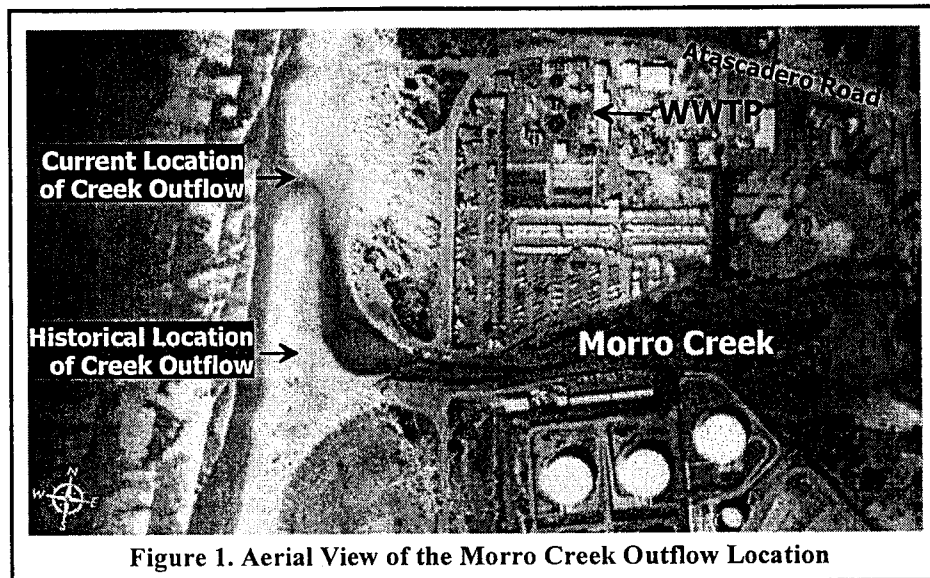


Figure 1. Aerial View of the Morro Creek Outflow Location

area was experiencing heavy rainfall from a series of storms that produced high creek flows. During that same period, effluent coliform levels never exceeded the water-contact bacterial standard and therefore, could not have contributed to the “failing” report-cards.

- d) **The bacteriological monitoring data collected by the MBCSD, and the analysis and review by the USEPA and RWQCB, are current, comprehensive, and irrefutably demonstrate that the discharge poses no potential health risk.** As described above, the long record of consistently low bacterial densities in disinfected effluent demonstrates the absence of a discharge-related health risk along the shoreline, without even considering the equally extensive record of surfzone measurements. Both of these bacteriological data sets are submitted on a monthly basis to both the USEPA and RWQCB. An extensive analysis of these data sets was performed as recently as last month, as part of the 2005 Annual Report. In light of these facts, there is no basis for the NRDC and Gold statements that the data “...are insufficient to support their conclusions that the Plant’s discharge poses no potential health risk...,” that the analysis fails “...to account for recent data that undercuts the fundamental conclusion that the Plant is not degrading beach water quality...,” or that the analysis does not “...adequately evaluate current bacteria data at beaches adjacent to the outfall.” Insofar as monitoring protocols, MBCSD surfzone samples are collected from the shoreline by hand, without wading or swimming out into the surfzone, so they are equivalent to a “...sample at ankle depth.”³³
- e) **The discharge’s depth and offshore distance provides substantial additional protection.** NRDC³⁴ and Gold³⁵ grossly distort the facts when they compare the MBCSD outfall “...only half a mile offshore at a depth of less than 20 meters ...” with “...most southern California outfalls [that] are 3 to 5 miles offshore in 60 meters depth...” (emphasis added). In fact, the inventory of ocean dischargers cited by NRDC³⁶ show that few discharges are deeper or more distant than the MBCSD discharge, and that all of those dischargers produce a far greater volume of effluent. Of the seventeen ocean dischargers in southern California, only three have diffusers at depths of 60 m or greater. Each of these three have discharge volumes more than 100-times larger than that of the MBCSD discharge. Additionally, only

³³ Gold, at 3.

³⁴ NRDC, at 41

³⁵ Gold, at 2 incorrectly states that “...outfalls for most plants in southern California are much further. [sic] offshore...and at least 60 meters in depth.”

³⁶ NRDC, at Note 218: Heal the Ocean. 2005 Discharge Inventory for the State of California.

four of the seventeen southern California dischargers have diffusers located more than 3 miles from shore.

Furthermore, in discussing the discharge locations recommended by the World Health Organization (WHO),³⁷ NRDC is guilty of quote mining by failing to add the qualifying statement that “*In establishing safe depths and distance from shore, consideration must be given to local ocean conditions and the amount of sewage discharged*” (emphasis added). Thus, a more relevant and accurate ranking of the MBCSD discharge shows that it is located farther offshore, and is the second deepest of the sixteen California discharges with volumes less than 4.8 MGD. Finally, the WHO assessment factors³⁸ demonstrate that the MBCSD discharge has a very low potential human health risk for exposure to sewage because of 1) an effective outfall, 2) disinfection of all effluent, 3) secondary treatment of nearly all of the effluent, and 4) the low discharge volume arising from a small population.

- f) **Quarterly assessments of plume dispersion and transport repeatedly demonstrate that measurable concentrations of wastewater constituents are restricted to a highly localized area around the diffuser structure, and do not impinge on the shoreline.** Based on his extraordinarily cursory review, Gold contends that there is no “...*monitoring information that would allow them to determine if the Plant’s effluent plume comes back to shore..., [in] particular, ...[a] recent plume tracking study...that accounts for varying conditions season, current, swell height, and temperature....There is no indication that monitoring occurs under varying tidal conditions.*”³⁹ Unfortunately, Gold either was not given,⁴⁰ or choose not to read the public monitoring record covering the current permit cycle. Otherwise, he would have known that the MBCSD regularly conducts plume-tracking studies as part of their quarterly water-quality surveys.

In fact, detailed plume delineation studies have been conducted on 28 separate occasions during the past seven years. As documented in the quarterly water-quality surveys, the annual reports, and the supplement, these studies encompass the full range of current, wave height, tide, temperature (stratification), and seasonal conditions. The studies included trajectory analyses of satellite-tracked drogued drifters that are released at the center of the diffuser structure. In all 28 surveys, highly sensitive instrumentation detected, delineated, and tracked extremely dilute wastewater constituents surrounding the diffuser structure. All of these measurements demonstrate that perceptible discharge-related water-quality anomalies are largely restricted to a distance of 50 ft from the diffuser. There has never been any indication that the plume impinged on the adjacent shoreline, which is more than 2,700 ft from the discharge point. On the contrary, current velocities determined from drifter trajectories as summarized in the supplement⁴¹ demonstrate that flow was preferentially directed along-shore. Current velocity is directed toward shore only 6% of the time, and then, only for a brief period with very low speed.

- g) **Mussel monitoring has demonstrated an absence of a wide range of bacterial pathogens within the MBCSD discharge.** Contrary to assertions by Gold,⁴² the MBCSD has analyzed bacterial tissue burdens in both indigenous⁴³ and outplanted⁴⁴ mussels. Resident mussels collected upcoast and downcoast of the discharge, as well as at distant reference stations, were analyzed for fecal coliform bacteria by the San Luis Obispo Health Department Laboratory. There were a few instances when

³⁷ Heal the Ocean. 2005. Discharge Inventory for the State of California, at 4.

³⁸ Ib. at Appendix C: Potential human health risks arising from exposure to sewage WHO, 2000.

³⁹ Gold, at 3.

⁴⁰ As described at 1.b), NRDC was provided with a copy of the 2004 Annual Monitoring Report.

⁴¹ Supplement, at Figure 7.

⁴² Gold, at 3: “...*no data was provided on bacterial densities in mussels...mussels should have been analyzed for fecal indicators.*”

⁴³ MRS. 1995. Offshore Monitoring and Reporting Program, 1994 Annual Report. Submitted February 1995 to the MBCSD, at Section 3.2.10 Coliform Bacteria - Shellfish Monitoring.

⁴⁴ 2004 Annual Report, at Section 2.2.11.

tissue burdens exceeded acceptance levels for commercial sale. These samples were collected shortly after rainfall events, and the control samples collected at the reference sites also contained elevated densities on these occasions. Conversely, effluent coliform densities were uniformly low for an extended period prior to when the mussels were collected with elevated tissue burdens.

Caged mussels were also deployed on the outfall buoys marking the MBCSD diffuser structure during the early dry season, late dry season, early wet season, and late wet season of 2003 and 2004. The mussels were allowed to filter-feed for a minimum of 30 days after outplanting. Thirty mussels were retrieved from each deployment and tests were negative for a wide suite of bacterial pathogens including: *Campylobacter*, *Clostridium perfringens*, *Plesiomonas shigelloides*, *Salmonella*, and *Vibrio* spp. (*cholerae*, *parahaemolyticus*, etc.). These quantitative observations strongly contradict speculation by NRDC and CEA that suspended solids within the MBCSD wastestream "...interfere with disinfection by shielding pathogenic organisms from the disinfectant."⁴⁵

4. Monitoring data demonstrate the ability of the MBCSD discharge to comply with water-quality objectives. Despite repeated assertions to the contrary by NRDC and CEA, the massive amount of monitoring data collected over the past two decades demonstrates that the MBCSD discharge has consistently met water-quality standards. Statistical projections demonstrate that it will continue to do so for the next two permit terms. Furthermore, the intensive monitoring program is more than capable of detecting any potentially significant impacts to water quality should they arise during that time.

a) **There is no evidence that discharge-related impacts to the marine environment will occur if the MBCSD continues to operate under a 301(h) modification.** There is no scientific basis for the CEA statement that "*Providing less than secondary treatment results in adverse water-quality impacts when compared with full secondary treatment.*" It is not true of discharges in the open-ocean environment in general, and is particularly untrue of the low-volume MBCSD discharge, where solids concentrations are already close to secondary standards. Discharge limitations derived from secondary treatment standards are technology based, and do not always reflect the potential for environmental impacts. Simply because a technology is capable of achieving a particular removal rate does not mean that imposing a technology-based requirement would be more protective of the environment. In fact, Section 301(h) of the Clean Water Act (CWA) was first proposed largely because of scientific testimony⁴⁶ that challenged the environmental efficacy of imposing purely technology-based limits on open-ocean dischargers. Many studies conducted in the decades since the first Section 301(h)-modified permits were issued, have confirmed the veracity of the original testimony.⁴⁷

⁴⁵ CEA, at 2 and 3, and NRDC, at 1 and 45.

⁴⁶ Isaacs, J.D. 1978. *Testimony of Prof. John D. Isaacs, Director, Institute of Marine Resources, University of California, San Diego*. Pp 36-44 In: Modification of secondary treatment requirements for discharges into marine waters. Hearings before the Subcommittee on Water Resources of the Committee on Public Works and Transportation, House of Representatives, Ninety-fifth Congress, Second Session, May 24 and 25, 1978. U.S. Government Printing Office, Washington D.C.

⁴⁷ For example: Mearns, A.J. 1980. *Effects of municipal discharges on open coastal ecosystems*. Marine Environmental Pollution, 2:25-66; National Academy of Sciences. 1993. *Managing Wastewater in Coastal Urban Areas*. National Research Council; Tegner et al. 1995. *Effects of a sewage spill on a kelp forest community: catastrophe or disturbance?* Marine Environmental Research, 40(2), 181-224; Diener et al. 1995. *Infaunal patterns in the vicinity of a small coastal wastewater outfall and the lack of infaunal community response to secondary treatment*. Bulletin Southern California Academy of Sciences. 94(1):5-20; Diener, et al. 1995. *Spatial and temporal patterns of the infaunal community near a major ocean outfall in southern California*. Marine Pollution Bulletin. 30:861-878; Dorsey et al. 1995. *Changes in assemblages of infaunal organisms around wastewater outfalls in Santa Monica Bay, California*. Bulletin of the Southern California Academy of Sciences, 94(1), 5-20; Girgg, et al. 1995. *Environmental protection misapplied: alleged versus documented impacts of a deep ocean sewage outfall in Hawaii*. Ambio 24(2), 125-128; Loehr, L.C. 1986. *The exclusion of science in major treatment decisions in the state of Washington*. Marine Pollution Bulletin, 17(11);

Given this scientific documentation, it is disingenuous for NRDC and CEA to suggest that the MBCSD discharge cannot meet water-quality standards because a full-secondary treatment requirement is not immediately imposed on the discharge. This is especially true considering that there is no tangible direct evidence that the current discharge is impairing the environment based on a monitoring program "...among the most comprehensive of all municipal ocean discharges of less than 5 MGD in California."⁴⁸ Water-quality measurements collected during quarterly water-quality surveys repeatedly demonstrate that the energetic marine environment within Estero Bay rapidly and easily assimilates the MBCSD particulates within a few meters of the discharge.

- b) **The discharge has and will continue to comply with the requirements of a 301(h)-modified permit.** Based on an exhaustive independent review of the vast array of monitoring data, the USEPA determined that the MBCSD discharge met each of the nine criteria set forth in Section 301(h) of the CWA. Based on their thorough evaluation, the EPA regional administrator tentatively decided that the MBCSD should be granted a discharge permit that modifies the TSS and BOD requirements as provided in the Federal Regulations. This determination was made not once, but on two prior occasions, and the RWQCB and the California Coastal Commission concurred that the discharge complies with the State of California's water-quality standards each time. Their conclusions were based on the long and consistent record of compliance associated with the MBCSD discharge. An unforeseen failure in a mechanical component occasionally occurs that results in a brief exception to permit limits, but those occasions are brief and extremely rare. During the current permit cycle, exceptions to the permit generally constitute less than 0.5% of the samples collected.

Nevertheless, based on these rare, brief, out-of-compliance events, NRDC speculates that the MBCSD "...cannot demonstrate that the modified discharge will meet the requirements for compliance with water quality standards."⁴⁸ This is simply not true. Not only does the discharge regularly and consistently meet water quality standards, but there is no evidence of any decline in the effectiveness of the treatment process over the two decades of well-documented operational history. In fact, treatment performance in 2005 was among the highest on record, and out of the thousands of measurements collected that year, there was not a single exception to permit limits.⁴⁹

- c) **The rare exceptions to permit limitations have been brief and were attributable to identifiable causes unrelated to the overall efficacy of the treatment process.** NRDC emphasizes a few isolated exceptions to effluent limitations that have occurred in the long record of MBCSD monitoring. The origins of these rare exceptions are well documented. Their isolated nature and relationship to external events clearly indicate that they were unrelated to the overall ability of the treatment process to "...comply with specific water quality standards."⁵⁰

TSS: For example, NRDC cites three TSS measurements that slightly exceeded an instantaneous limit over a brief period of time. All three exceedances were related to the same isolated event. Considering that there were 2,200 other TSS measurements that were all in compliance during the current permit period, these three elevated levels hardly seem to represent "...a record of TSS violations...that clearly show the facility has not consistently met applicable water quality standards" as claimed by NRDC.⁵¹

Coliform: Similarly, NRDC cites two brief occasions when temporary malfunctions in pumps feeding the chlorine auto analyzer resulted in elevated median effluent coliform densities. Potential future

Loehr and Brooks. 1995. *Judge scraps EPA-ordered sewage requirements for San Diego*. Marine Pollution Bulletin, 30(5), 354-355; Chapman, et al. 1996. *A triad study of sediment quality associated with a major, relatively untreated marine sewage discharge*. Marine Pollution Bulletin 32(1), 47-67; and Chen, et al. 1974. *Trace metals in wastewater effluents*. Journal Water Pollution Control Federation, 46(12), 2663-2678.

⁴⁸ NRDC at 39, Part 3C

⁴⁹ 2005, at the Executive Summary

⁵⁰ NRDC, at Part 3C, Section C.

⁵¹ NRDC, at 42 and 43.

instances of elevated effluent coliform were eliminated after sampling pumps were rebuilt and alarm systems were installed. NRDC grossly mischaracterizes these two brief mechanical problems as a "...malfunctioning, inadequate treatment process... [that is] ...incapable of consistently disinfecting the effluent to meet the limits."⁵² This is an unreasonable assertion considering that 2,900 other measurements collected through 2005 were in strict compliance with the limits. Furthermore, NRDC's section heading incorrectly implies that there were violations of effluent limits related to other pathogens, but they fail to specify what those violations were. This is because there were none.⁵³

Chlorine: NRDC also cites a few instances of elevated effluent chlorine that were also caused by initial difficulties with the sampling device that paces the chlorination/dechlorination process. The sample-supply line was subsequently redesigned to improve flow and a more rigorous maintenance program was initiated. These changes eliminated the sampling problem and the related chlorine violations have not occurred since. Nevertheless, NRDC claims that the mechanical problems were somehow related to the increased presence of solids in the chlorine contact chamber and that "*Given these violations, EPA and the Regional Board staff's finding that the Plant is in compliance with the chlorine residual limitation is unsupported.*"⁵⁴ However, this claim completely ignores the 2,900 other chlorine measurements that were found to be in compliance during the course of the current permit.

Dioxin: NRDC⁵⁵ goes on to incorrectly state that "...the Plant's data reveals a series of violations..." for dioxin, when in fact, only one highly suspect measurement of dioxin exceeded the permit limit. The July-2002 measurement in question exceeded the permit limit by an extremely small amount that was not reliably quantified. Few laboratories "...can perform these analyses at the very low levels of detection necessary to determine if these compounds are present at concentrations of potential health significance."⁵⁶ Laboratory contamination at these extremely small concentrations is commonplace and adds great uncertainty to the reported results. In fact, the initial analysis of the July-2002 effluent sample erroneously reported a much higher dioxin concentration due to high dioxin concentrations in the certified "pure" water used to dilute the effluent sample.

In addition, contrary to the statements by NRDC and CEA, the presence of detectable dioxin concentrations in other effluent samples is irrelevant to an evaluation of plant compliance and performance. Dioxin is regularly detected in effluent samples because it is pervasive in the environment through deposition of air emissions onto the soil surface and subsequent erosion and run-off.⁵⁷ Only a few of the least toxic and most common of the 210 dioxin congeners are typically found in effluent samples. Their presence at very low, but detectable levels in the effluent is expected, and they are not indicative of "...a more systematic problem" as stated by CEA.⁵⁸ CEA does not provide any quantitative support or scientific basis for his assertions that dioxin "...is readily adsorbed onto TSS...", its "...source...is the commercial laundry...", or that "...the current treatment...results in higher discharges..." The latter unfounded claim is restated by NRDC⁵⁹ "...that the Plant's current discharge of blended effluent results in higher discharges of dioxin than would effluent that was fully treated." How can this be true when the current discharge effectively meets secondary treatment standards for TSS the vast majority of time? The answer is that this unfounded assertion is simply not true.

⁵² NRDC, at 43.

⁵³ NRDC, at 3C.C.2. "*Violations of Total Coliform and Other Pathogens*"

⁵⁴ NRDC, at 46.

⁵⁵ NRDC, at 47.

⁵⁶ State Water Resources Control Board (SWRCB). 1999. California Ocean Plan 1999-2002 Triennial Review Workplan. [<http://www.swrcb.ca.gov/plnspols/oplans/9902atwrkp/sectc.doc>], at C-27

⁵⁷ USEPA. 2004. NAS Review Draft of EPA's Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds.

⁵⁸ CEA, at 3.

⁵⁹ NRDC, at 47.

Metals: NRDC⁵⁹ makes the same incorrect statement for trace metals, namely, that "...the Plant's data also shows a series of violations." The only difference in their misstatement for metals is that there has never been even one exception to the permit limitation on metals. In fact, out of the 325 metal analyses reported since 1993, there has never been a single concentration that even approached the permit limit. Again, the presence of "...detectable levels..." of metals in the effluent samples is meaningless because they are naturally occurring substances in the environment. Consequently, detectable concentrations are expected to routinely occur in effluent samples, and their presence does not represent a contaminant source as implied by NRDC. Finally, as described in 4.f) below, NRDC completely mischaracterize data on bulk-metal concentrations within Estero Bay sediments as showing "...that levels of chromium, nickel, copper, and arsenic will likely accumulate in the near future above levels considered harmful to biota." The concentrations of these metals in bulk sediments are naturally high in the region but are unrelated to the discharge. Moreover, dissolved concentrations are not significantly elevated, so the bulk concentrations have little potential for biological impact regardless of how they compare with effects thresholds.

- d) **Statistical analyses demonstrate that there is a high potential for future compliance with water-quality limits on chemical constituents.** Quantitative analyses of a decade of MBCSD effluent measurements have definitively demonstrated that the MBCSD discharge has a uniformly high compliance potential.⁶⁰ This Reasonable Potential Analysis (RPA) used the methodology currently recommended by the SWRCB for determining the need for effluent limitations in NPDES discharge permits. The RPA provides a conservative quantitative basis for evaluating each contaminant's potential for non-compliance with the COP. The RPA demonstrates that the potential for compliance is high for 60 of the 73 chemical constituents currently monitored on a semi-annual basis. The other thirteen compounds have never been detected in effluent samples except for an isolated measurement of DDT that was due to laboratory error. The RPA demonstrates that NRDC⁶¹ incorrectly claims that "*the Draft Permit fails to meet the conditions set forth in 40 C.F.R. § 122.44(d) for all pollutants that...have a reasonable potential to cause... a violation of any State water quality standard.*"
- e) **The well-designed monitoring program is capable of detecting minute changes in the marine environment.** The MBCSD ocean monitoring program is specifically designed to provide early warning of impairment to marine habitat or recreational use. It is among the most expensive and comprehensive monitoring programs for any discharger of its size in California. The monitoring protocols are continuously refined and the sampling design has a demonstrably high statistical power to detect changes in the marine environment.¹¹ The monitoring program has been conducted for two decades, allowing ample time for any potential impact from the discharge to be revealed. Since its inception, hundreds of thousands of measurements have been collected and analyzed to assess water and sediment quality surrounding the outfall, and on the adjacent shoreline. This vast array of measurements unequivocally demonstrates that recreational uses and habitat are not adversely affected by the MBCSD discharge. The monitoring requirements were developed in coordination with USEPA and RWQCB staff to specifically comply with federal 301(h) regulations and COP requirements. The sampling, analytical, and statistical techniques are commonly used in ocean monitoring programs throughout the nation, and they are regularly used in southern California to monitor the effects of large municipal dischargers on the ocean's ecosystems.
- f) **There is no quantitative evidence that metals are accumulating around the outfall and affecting marine organisms.** CEA incorrectly implies that because "*Metals have been measured in the sediments near the outfall at levels exceeding the ERL and ERM for nickel and approaching the ERL*

⁶⁰ MBCSD. 2004. Letter from Mr. Bruce Keogh, Wastewater Division Manager, MBCSD to Mr. Matt Thompson, RWQCB. Subject: *Submittal of quantitative documentation in support of reductions in the monitoring frequency for chemical contaminants with the MBCSD effluent.* 19 July.

⁶¹ NRDC, at 40.

for chromium...[that] "10% of the benthic organisms are expected to be adversely affected [by chromium, and]... 50%...are expected to be adversely affected [by nickel]."⁶²

First, CEA exhibits an incredible statistical naiveté in stating that the ERL/ERM benchmarks reflect the percentage "...of the benthic organisms...expected to be adversely affected." This is analogous to flagrantly misinterpreting a 10% chance of rain to mean that 10% of the area will receive rain, when the correct interpretation is that rain occurs 10% of the time when similar atmospheric conditions have prevailed in the past. This may seem like a subtle distinction, but it is a fundamental precept for the correct interpretation of statistical probabilities.

Second, the concentrations of these two metals are naturally elevated in the mineralogy throughout the central coast, not just "near the outfall." Naturally occurring chromite is introduced into Central Coast waters by fluvial transport of eroded ultrabasic minerals found in the Franciscan formation. The Franciscan formation outcrops along the headlands north of Point Estero and in the Santa Ynez Mountains. The concentrations of these two metals within sediments bear no relation to the discharge. There is no concentration gradient related to outfall proximity so there is no "...accumulation of toxic metals around its discharge pipe..."⁶³ and the mass emissions of these metals in the MBCSD discharge are too small to account for the observed sediment concentrations surrounding the outfall.⁶⁴ In fact, nickel has never been detected in the MBCSD effluent, and when chromium has occasionally been detected, it has been at concentrations more than 45 times lower than the permit limit.⁶⁵ Consequently, "Implementation of full secondary treatment..." could not possibly result in any tangible reduction in the Plant's "...contribution to the nickel and chromium accumulation in the sediments near the outfall."⁶⁶

Third, the biological effects thresholds (ERL/ERM) for these two metals are highly uncertain compared to thresholds determined for other contaminants. This uncertainty is documented by the NOAA investigators⁶⁷ who established the thresholds, and is not the "...the argument of the ...Plant..." as asserted by CEA. For example, the developers of the thresholds state that the incidence of effects in the toxicological studies used to establish the levels for chromium were "...greatly influenced and exaggerated by data from multiple tests conducted in only two field surveys." Similarly, nickel concentrations exhibit a very weak relationship to the incidence of effects in the database used to establish the nickel threshold. The uncertainty in the thresholds of biological effects for these two metals arises because their bioavailability varies greatly for a given bulk sediment concentration.

Fourth and last, analysis of porewater samples within Estero Bay demonstrates that the naturally occurring elevated chromium and nickel concentrations in bulk sediment samples arise from metal that is bound into the mineral matrix of sand grains, where it has little influence on indigenous marine organisms.⁶⁸ Dissolved chromium concentrations within Estero Bay porewaters were comparable to

⁶² CEA, at 3, and particularly, Footnote 4.

⁶³ NRDC, at 1.

⁶⁴ 2005 Annual Report, at Section 4.2.2.

⁶⁵ Supplement, at Table 3. This is a very conservative comparison between the highest measured total chromium concentration and the six-month median concentration for hexavalent chromium. According to CEA, at 4, "Any hexavalent chromium...would be rapidly reduced to trivalent chromium," so a more reasonable comparison would be with the limit on trivalent chromium, which is 4 million times higher than the highest measured total chromium concentration.

⁶⁶ CEA, at 3.

⁶⁷ Long, E.R., and L.G. Morgan. 1991. The potential for biological effects of sediment-sorbed contaminants tested in the National Status and Trends Program. U.S. Dept. Commerce, Nat. Oceanic Atmos. Admin., Off. Oceanogr. Mar. Assess., Rockville, MD. NOAA Tech. Mem. NOS OMA 52 175 pp. plus appendices; and Long, E.R., D.D. MacDonald, S.L. Smith and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Environmental Management* 19(1):81-97.

⁶⁸ 2005 Annual Report, at 4-33 and 4-34, Section 4.2.3.

background concentrations in clean coastal seawater from other areas. Both dissolved chromium and nickel concentrations were far below the most-stringent saltwater criteria promulgated by the USEPA.

- g) **The rationale for chronic toxicity testing in lieu of acute bioassays is sound.** The California State Water Resources Control Board⁶⁹ and the USEPA⁷⁰ have thoroughly examined this issue and have found that chronic testing is more appropriate for discharges with dilutions factors close to 100:1.⁷¹ They further state that “*Where other factors are equal, chronic testing may be preferable since interim results taken from chronic test provide data on acute toxicity as well.*” This SWRCB finding directly contradicts the CEA statement “*...that acute and chronic toxicity testing measure different things.*”⁷² Even more disconcerting is the blatant CEA statement that the “*...Plant argues it should not have to do acute toxicity testing because it might fail the toxicity test....*” This is patently false. No such statement was ever made or implied.

NRDC completely misinterprets its own consultant concerning “*...acute toxicity caused by chlorine....*”⁷³ when the entire CEA discussion⁷⁴ of chlorine pertains to its disinfection efficacy, not its toxicity within effluent. They further cite “*...other unambiguous violations of applicable standards....*” as evidence that the discharge cannot satisfy 301(h) standards, but fail to elaborate and specify what those might be.

5. **Limited increases in population over the next decade will not tangibly affect the MBCSD’s ability to comply with discharge requirements on TSS and BOD.** NRDC’s statement⁷⁵ that “*...the Plant is highly likely to process additional volumes of effluent in the next five years, a fact which will exacerbate...the rate of effective disinfection and water quality standards compliance*” is neither factually based nor pertinent. In a similar vein, the Sierra Club states that the discharge permit should be denied because “*The volume of wastewater treated by the plant is sure to increase over the next five years,*” although they do not explain why this is a reason to deny the permit. Conversely, Section 301(h) does not explicitly restrict flow rates or the fraction of primary treated effluent. Instead, it limits increases in BOD and TSS concentrations and loadings above the discharge specified in the permit. In that regard, it is noteworthy that when the current discharge permit was issued, the allowed limit on TSS and BOD mass-emissions was reduced 12.7%. Nevertheless, TSS and BOD concentrations and emissions are projected to remain well within these more-restrictive limits throughout at least the next two permit cycles.

- a) **The vast majority of time, the entirety of the MBCSD flow receives secondary treatment.** In light of this fact, the NRDC statement⁷⁶ that the “*...flow rate is currently at levels that allow some of the flow to be treated to secondary treatment levels....*” is misleading because it downplays the fraction of flow that actually receives secondary treatment. In fact, effluent usually consists entirely of wastewater that has received secondary treatment. Blending of primary- and secondary-treated wastewater is only required during periods of particularly high flow, such as during rainstorms and some holidays. During 2005, the blending valve was open only 7.5% of the time.⁷⁷ Optimizing the treatment process in this manner has resulted in steadily increasing solids removal rates, from 86% in 2002 to 93.3% in 2005.⁷⁸

⁶⁹ SWRCB. 2000. Division of Water Quality. Draft Final Functional Equivalent Document Amendment of the Water Quality Control Plan for Ocean Waters of California. COP. September 1, at 14.

⁷⁰ USEPA 1991. Technical Support Document for Water Quality-based Toxics Control. USEPA, Office of Water. EPA/505/2-90-001.

⁷¹ The MBCSD minimum initial dilution has been determined to be 133:1.

⁷² CEA, at 4.

⁷³ NRDC, at 1.

⁷⁴ CEA, at 2 and 3.

⁷⁵ NRDC, at 6.

⁷⁶ NRDC, at 43.

⁷⁷ 2005 Annual Report, at 2-1.

⁷⁸ 2005 Annual Report, at Table 5.1 on page 5-2.

These quantitative measures of plant performance negate the NRDC⁷⁹ statement that the "...*Plant's assertion that removal rates will remain stable over the next five years is inaccurate.*" In fact, TSS removal rates have actually markedly improved in the three years since the "*Plant's assertion*" was made using 2002 data.

- b) **Previous projections of increases in flow, BOD, and TSS represent upper-bound estimates.** The TSD analysis clearly stated that the projected increases over upcoming permit cycles were upper-bound estimates because a number of conservative assumptions were included in the analysis. For example, projected flows were not adjusted for the observed decline in per-capita water usage. Additionally, MBCSD is actively identifying and eliminating sources of groundwater infiltration into the collection system. Based on the flow-source analysis conducted in 2005, infiltration contributes at least 0.2 MGD to the overall flow.⁸⁰ Even eliminating a modest amount of infiltration could easily offset projected annual flow increases (0.01 MGD) related to population growth. This will forestall projected increases in the proportion of flow that would need to be bypassed around the secondary treatment process, and stable BOD and TSS emissions could be maintained for many years as a result.
- c) **There is no evidence of a decline in plant performance.** On the contrary, the most recent monitoring documented exceptionally high operational performance by the treatment plant. Over the two decades of modern plant operations, all the major effluent constituents, including TSS, BOD, and oil and grease (O&G) have had consistently lower concentrations and mass emissions than the permitted maximums. However, in the last three years, the annual averages of several key diagnostics of treatment performance were some of the best reported in nearly two decades of monitoring. In 2005, the suspended solids concentration within effluent was the second lowest on record, while the solids removal rate was the highest on record. Combined with the low total flows, the plant's solids-removal process resulted in the lowest annual mass emission of suspended solids recorded since monitoring began in 1986. Similarly, the average effluent O&G and BOD concentrations in 2005 were much lower than average, despite higher-than-average influent concentrations.
6. **There is no plausible link between the MBCSD discharge and the occurrence of *T. gondii* seropositivity in otters.** The NRDC repeatedly implies that the MBCSD discharge is somehow responsible for the higher occurrence of *T. gondii* seropositivity found in otters in the Estero Bay region as compared with other areas of the coastline. The NRDC hinges its entire case on the fact that the highly localized MBCSD discharge happens to fall within a large coastline segment containing elevated *T. gondii* seropositivity. Not only is it inappropriate to ascribe causality to geographic coincidence, but it ignores the substantial scientific evidence indicating that there is no plausible nexus between the discharge, the otters, and the presence of *T. gondii* oocysts.
- a) **The MBCSD discharge is too limited to contribute to the observed *T. gondii* seropositivity in otters, and thus the spatial correlation is weak.** The NRDC⁸¹ provides an extremely misleading aerial photograph showing the geographic center of the region of elevated *T. gondii* seropositivity, a region which spans all of Estero Bay. The geographic center of this large region happens to be in close proximity to the outfall. This spatial comparison is meaningless because of the large difference in the areas associated with these occurrences. The actual Estero-Bay area of elevated *T. gondii* seropositivity, on which NRDC base their claims, extends a total of 20 km extending from Caycos south to Hazard Canyon. This area is huge (30 km²) when huge compared to the footprint of the MBCSD discharge (0.003 km²).⁸² Given the large difference in areas, there is a very low likelihood that otters within Estero Bay would randomly encounter the effluent plume. In addition, there is no evidence that otters

⁷⁹ NRDC, at 45, citing a statement in the TSD

⁸⁰ 2005 Annual Report, Table 2.6 at Page 2-24.

⁸¹ NRDC, at 35. The area of elevated *T. gondii* seropositivity within Estero Bay is 1.5 km by 20 km.

⁸² 2005 Annual Report, at 3-15.

preferentially forage near or remain in the vicinity of the outfall for extended periods.⁸³ Thus, even if the discharge contained high concentrations of *T. gondii* oocysts, the likelihood of an otter becoming infected would be extremely unlikely.

- b) **Wastewater discharge is not a plausible source of *T. gondii* oocysts.** The seminal otter toxoplasmosis study⁸⁴ found strong evidence that the occurrence of *T. gondii* was highly correlated with non-point source freshwater flow, namely, rivers and streams, and not with proximity to sewage outfalls. Specifically, “seropositivity to *T. gondii* was not significantly associated with human population density ($P=0.293$), or proximity to sewage outfalls ($P=0.955$) but was highly correlated with freshwater flow ($P<0.001$).” The size of the associated error probabilities, or “*P*-values,” demonstrates an unusually high degree of confidence in the correlation with freshwater outflow, and a corresponding lack of correlation with wastewater discharge. Conrad et al (2005) concur with this assessment when they state that “the most likely source of infection is by infectious, environmentally resistant oocysts that are shed in the feces of felids and transported via freshwater runoff into the marine ecosystem.”⁸⁵

Clearly, the freshwater flow pathway implicated in recent studies is a plausible source for *T. gondii* input to the Morro Bay Estuary considering the number and feral nature of feline carriers likely to reside within the 48,000 acre watershed that feeds the estuary. In contrast, the MBCSD wastewater is not a plausible source, especially considering the life history of *T. gondii* oocysts.⁸⁶ Viable *T. gondii* organisms are excreted in cat feces for only two to three weeks, and most healthy cats shed oocysts only during a single, brief, acute infection stage. A survey of cats at humane shelters demonstrated that 50% of the cats were infected with toxoplasmosis, but of these, only about 1% were actually passing oocysts. These oocysts only remain infective for two to three days. There was also some speculation that disposal of used cat litter into the collection system could represent a source of the oocysts. However, this pathway is extremely unlikely given that the introduction of cat feces contaminated with *T. gondii* oocysts into the collection system would be extraordinarily rare and highly intermittent

- c) **Mussel tissue tests documented a general absence of *T. gondii* within the MBCSD discharge.** Thirty caged mussels deployed near the MBCSD diffuser structure on four separate occasions tested negative for the presence of *T. gondii* oocysts. Measuring *T. gondii* concentrations in mussel tissue is a particularly appropriate test because these filter-feeding shellfish amplify and integrate intermittent contaminant input over time, and because ingestion of mussel tissue by otters is one of the pathways identified for *T. gondii* exposure. Repeated sampling over a one-year period provided a fairly complete exposure to MBCSD effluent. NRDC⁸⁷ attempts to downplay the significance of these results simply because the assay had a detection limit. All valid quantitative tests, especially measurements of chemical concentrations, have a detection limit. This does not mean that these tests “...are limited and the study is incomplete.” Also, it was not a “single” study as repeatedly characterized by the NRDC. It was a comprehensive survey that included four separate long-duration deployments covering all seasons within a one-year period. These site-specific quantitative results, which show a general absence of detectable oocyst densities in the MBCSD discharge, combined with the small MBCSD discharge footprint, the regional lack of correlation between wastewater and seropositivity, and the low likelihood

⁸³ Beneficial-use observations recorded as part of the MBCSD water-quality monitoring surveys occasionally note the presence of otters during transit from Morro Bay, and within the survey region near the outfall, but otter observations at the outfall are no more common than in other parts of Estero Bay, and far less common than otter observations within the Morro Bay Estuary.

⁸⁴ Miller et al. 2002. Coastal freshwater runoff is a risk factor for *Toxoplasma gondii* infection of southern sea otters (*Enhydra lutris nereis*), 32 International Journal for Parasitology 997, 997-98.

⁸⁵ Conrad et al. 2005. *Transmission of Toxoplasma: Clues from the study of sea otters as sentinels of Toxoplasma gondii flow into the marine environment.* International Journal for Parasitology 35(2005) 1155-1168. at 1155.

⁸⁶ http://www.biosci.ohio-state.edu/~parasite/more_toxoplasma.html

⁸⁷ NRDC, at 12.

of oocyst input into the collection system, rule out the MBCSD discharge as a potential source for elevated *Toxoplasmosis* in otters near Estero Bay.

7. **There is no quantitative evidence supporting the claim that the area around the MBCSD discharge lacks a balanced indigenous marine population (BIP).** The massive amount of MBCSD monitoring data and associated analyses demonstrates that a healthy BIP flourishes around the discharge. In contrast, NRDC provides no substantive quantitative evidence that the marine population near the outfall is not in balance, even after accounting for the regional dynamics of otter populations.

a) **A balanced population of sensitive filter-feeding organisms live in clean sediments surrounding the outfall.** Infauna living within the sediments surrounding the outfall are highly diagnostic of the status of indigenous populations as a whole, and are sensitive indicators of marine pollution. They have limited mobility and cannot easily escape exposure to contaminants in their immediate environment. They have well-defined responses to contaminant exposure and are located close to the seafloor source of the discharge. They are a major food source for more-mobile epifaunal and pelagic marine organisms, such as crabs, finfish, and marine mammals. Finally, many infauna are filter feeders that bioaccumulate contaminants when standard chemical assays of water samples are unable to detect low-level concentrations. Over 142,000 infaunal specimens have been collected near the outfall during the two-decade monitoring program. Highly sensitive spatiotemporal analysis of these data exhibits no evidence of benthic degradation and quantitatively demonstrates that a healthy indigenous infaunal community with a uniformly high diversity resides near the outfall.⁸⁸

b) **The southern sea otter population is not in a state of decline.** The repetitious assertions by NRDC⁸⁹ grossly misrepresent otter demographics by claiming that "*The southern sea otter...is a threatened marine mammal species whose population is in decline*", and "*Recently... the sea otter has suffered a steady and grave decline.*" Although the population has, indeed, undergone several periods of decline on its road to recovery,⁹⁰ since 1999, the southern sea otter population has grown substantially, and it is not currently considered to be in decline (Figure 2).⁹¹ Following the conclusion of the spring 2004 otter census, U.S. Geological Survey (USGS) biologist Brian Hatfield confirmed that the southern sea otter "*is now in a positive growth trend.*"⁹² In fact, during 2004, the otter population reached a record high of 2,825 individuals, while the spring 2005 survey, led by scientists at the USGS, tallied a total of 2,735 otters.⁹³ Although the 2005 data show a 3.2% decrease from the 2004 high, the population remains at the second highest level on record since the inception of quantitative semi-annual surveys in 1983.

Additionally, NRDC's observation that the current statewide population "*has not grown significantly since 1994.*"⁹⁴ purposefully omits the decline that they previously were so adamant to draw attention to,⁹⁵ in order to minimize the true extent of the population growth that has subsequently occurred. Although the statewide otter population has increased approximately 14% since 1994, it has increased by more than double that (30%) since 1999, when the population had shrunk to a low of 2090 individuals.⁹⁶

⁸⁸ 2005 Annual Report, at Chapter 4.

⁸⁹ NRDC, at 6,8, 19 (footnote), 26-27, 34, and 56.

⁹⁰ Documented declines in the statewide otter population occurred from the late 1970s to the early 1980s, as well as from 1995-1999.

⁹¹ Brian Hatfield, USGS biologist with WERC, personal communication concerning current status of southern sea otter population, 17 February 2006.

⁹² The Otter Project: USGS Otter Survey Results, Spring 2004, Accessed online, February 2006, at:

<http://www.otterproject.org/site/pp.asp?c=8pIKIYMIG&b=28114>

⁹³ The Otter Project: USGS Otter Survey Results, Spring 2004, 2005.

⁹⁴ NRDC, at 8, 27.

⁹⁵ The decline in question, from 1995-1999, is characterized as a "modest decline" in the Final Revised Recovery Plan Recovery Plan, (at D-10).

⁹⁶ The Otter Project. USGS Spring and Fall Census Reports for 1997-2005.

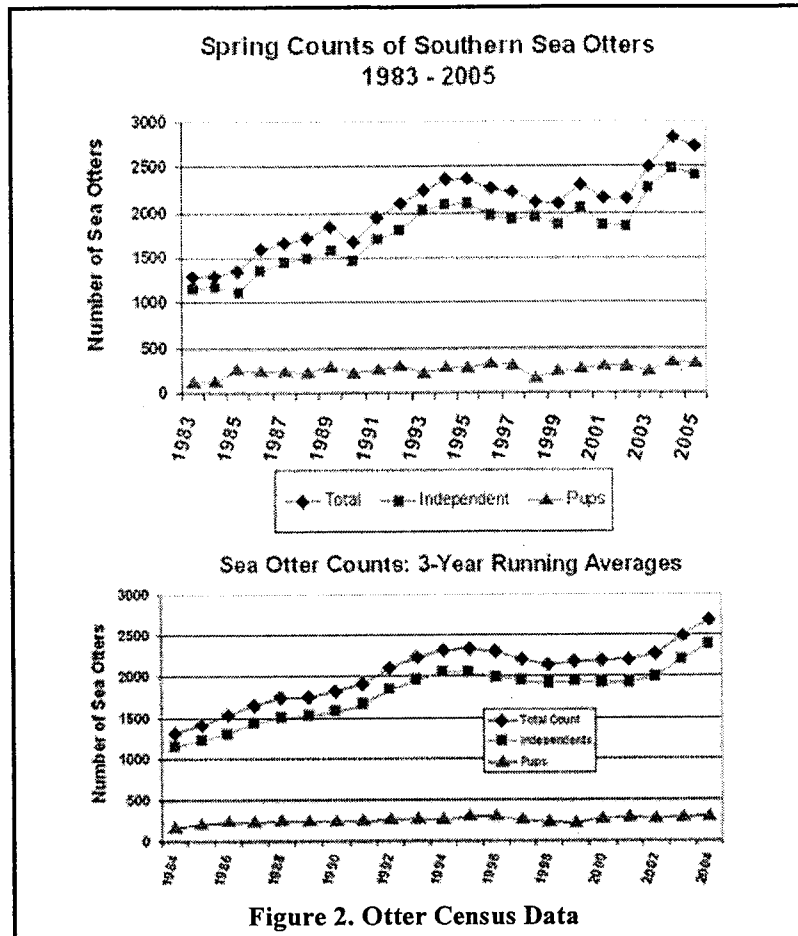


Figure 2. Otter Census Data

Finally, as it is recognized that little insight into overall population trends can be inferred from a single year's count, the USFWS, in their Southern Sea Otter Recovery Plan, recommend using 3-year running averages to assess overall population trends. This reduces the influence of potentially anomalous counts in a single given year.⁹⁷ Following these guidelines, the latest 3-year running average of the three most recent spring counts is up 8% over the previous average.⁹⁸ Although the 2005 census indicated a slight dip in the total otter counts compared to 2004, the results of the spring 2006 survey, which will begin in May, will shed further light on the status of the population and any potential changes in current trends.

- c) **The otter population within Estero Bay is potentially near carrying capacity, and is therefore, not imbalanced.** The Revised Recovery Plan recognizes the importance of basing assessments of the southern otter population on "...maximal levels relative to what the environment will support..."⁹⁹ Similarly, the Marine Mammal Protection Act states that the goal for managing marine mammals should be to obtain an optimum sustainable population (OSP) "keeping in mind the carrying capacity of the habitat."¹⁰⁰ Carrying capacity is the number of individuals that the resources of a habitat can support. Per the USFWS Recovery Plan, an OSP for the southern sea otter is "likely a level equal to 50

⁹⁷ USFWS Final Revised Recovery Plan for the Southern Sea Otter (*Enhydra lutris*) 2003.

⁹⁸ The Otter Project. USGS Spring 2005 News Release: *California Sea Otters -- 2005 Survey Numbers Dip But Overall Population Trend Remains Up (July 2005)*.

⁹⁹ Final Recovery Plan, at 43.

¹⁰⁰ The Marine Mammal Protection Act of 1972 (as amended through 1997), Sec 2. Findings and Declaration of Policy 16 U.S.C. 1361, at 6.

to 80 percent of its current carrying capacity”, or “approximately 8,400 animals for the entire California coast.”¹⁰¹ This figure is based on estimated historic population levels of 16,000 to 20,000 sea otters along the California coast.¹⁰² At 2,735 individuals, the current total population of the southern otter¹⁰³ is at slightly less than 20% of the carrying capacity of 15,941 individuals.¹⁰⁴ Therefore, the southern otter as a whole has not reached an OSP along the central coast.

However, the distribution of otters, as well as habitat carrying capacities, is far from uniform along the central California coast. Otter densities and the associated carrying capacities of various habitats are dependent on a variety of factors, including differences in substrate and availability of prey refuges, with greater densities occurring in rocky-bottom habitats as compared to soft bottom habitats.¹⁰⁵ As such, the estimated carrying capacity for the sandy substrate region encompassing Estero and Morro Bay is significantly lower than that for the rocky areas and kelp beds to the immediate north and south.¹⁰⁶

Using population data from 1996, maximum otter densities for sandy habitats are about 1.13 otters/km². This results in an estimated carrying capacity for the region of coastline between Cayucos and Hazard Canyon of approximately 89 otters.¹⁰⁷ However, census surveys have tallied more well over 100 independent individuals in this same region during both the spring and fall surveys for each of the last three years.¹⁰⁸ Even with an upward adjustment of maximum habitat densities to account for overall population increases since 1996, it is clear that the nearshore area from Cayucos to Morro Bay is near its carrying capacity for otters.¹⁰⁹ Furthermore, a population is thought to be at equilibrium with existing resources if the number of animals is not increasing and if environmental disturbances are not limiting further growth.¹¹⁰ Thus while factors such as infectious disease play a role in sea otter mortality, they do not appear to be limiting the growth of the population in the Estero Bay region. Instead, the population is near equilibrium levels typical of the carrying capacity of sandy substrate areas.

- d) Higher stranding numbers in the Estero Bay area are expected, and they do not contradict the presence of an otter BIP.** USGS stranding numbers are highly dependent on factors unrelated to the actual mortality event, including 1) the potential for the carcass to be deposited within the study area, 2) the length of time the carcass persists on the shoreline once deposited, and 3) the likelihood that someone will see and report the stranding. Each of these factors serves to increase strandings reported in the region of Estero Bay compared to other locales.

The likelihood of carcass deposition is increased along the Estero Bay shoreline due to meteorological conditions and otter demographics. A study into patterns of carcass deposition conducted from 1980-1986 at Pt. Piedras Blancas indicates that “*several factors regulate the deposition of a carcass on*

¹⁰¹ *Id.*, at E-7 (Response to Comment 21).

¹⁰² Laidre, K., R. Jameson, D. DeMaster, 2001. *An estimation of carrying capacity for sea otters along the California Coast*. Marine Mammal Science 17(2):294-309., at 305 (citing CDFG, 1976) California Department of Fish and Game. 1976. *A proposal for sea otter protection and research, and request for return of management to the state of California*. Unpublished 270 pp. Available from California Department of Fish and Game, Sacramento, Western Environmental Research Center, United States Geological Survey

¹⁰³ The Otter Project, USGS spring 2005 otter survey summary USGS Spring 2005 News Release: *California Sea Otters -- 2005 Survey Numbers Dip But Overall Population Trend Remains Up* (July 2005)

¹⁰⁴ The estimated statewide carrying capacity for the southern sea otter at 15,941 individuals, is consistent with the lower bound estimate of pre-exploitation abundance.

¹⁰⁵ *The Sea Otter* (Riedman and Estes 1990).

¹⁰⁶ Laidre et al 2001, at 300.

¹⁰⁷ *Id.*, at 301.

¹⁰⁸ The Otter Project, USGS spring otter surveys, 2003-2005.

¹⁰⁹ Laidre et al, 2001, at 307.

¹¹⁰ Estes, J.A. 1990. Growth and equilibrium in sea otter populations. *Journal of Animal Ecology* 59:385-401.

shore," including oceanographic and weather conditions, the abundance of live animals in proximity to the study area, and local physiography and beach orientation.¹¹¹ The long stretches of sandy, windswept, westward-facing beaches of Estero Bay are natural areas of deposition for floating debris carried southeastward by the prevailing winds. Otters that meet their demise along the high-population rocky shoreline to the northwest, within the southern portion of the San Simeon to Cayucos survey area, are likely to be deposited in the Estero Bay region due to the prevailing northwesterly winds. Once deposited, factors such as burial, scavenging, wave action, carcass size and stranding location may affect the persistence of a carcass.¹¹¹ Additionally, the longer a carcass persists, the more likely it is to be encountered by a human and subsequently reported. Otter carcasses washed up onto the wide sandy beaches surrounding Estero Bay are also likely to remain intact for longer periods than those that wash up on the adjacent rocky shorelines.

Because of these and other factors, the probability of reporting and recovery a stranded animal is inherently higher near Estero Bay than elsewhere along the coast. In its 2003 stranding summary, CDFG acknowledges that "*The probability of recovering stranded sea otters is greater in the Monterey Bay and Estero Bay regions than it is in most other areas in central California...*"¹¹² Three additional reasons for higher recovery rates along Estero Bay's beaches are the 1) increased visibility of carcasses, 2) accessibility of coastline, and 3) proximity to a substantial year-round human population. The otter's dark shading against the uniform background of light sand makes a stranding along Morro Strand State Beach or the Morro sandspit easily visible from a distance. Moreover, strandings along these beaches are more likely to be observed by beachgoers. Their ease of accessibility and proximity to urban population centers (Cayucos, Morro Bay, and Los Osos), as well as their status as regional points of interest (state beaches and state park lands), naturally results in higher visitation to these beaches than to most others along the central California coast. In contrast, few otter carcasses are recovered along the nearly 100 miles of coastline stretching from Cambria to Big Sur. Not only are there comparatively few people near the shoreline to potentially spot and report a stranded animal or carcass, but the rugged nature of the coastline limits both line-of-site for observing a stranding, and the ability to get close enough to positively identify a carcass.

Additionally, in the published stranding summaries reported by DCFG, the area of coastline between Cayucos and Hazard Canyon actually accounts for strandings along a larger area of coastline/habitat than other areas. The otter stranding network headed by CDFG assigns stranding locations based on 0.5-km increments along a smoothed California coastline (actually the 30 m isobath). However, this smoothed coastline does not account for the several miles of coastline within the 2,300 acres of open water within the Morro Bay Estuary at high tide.¹¹³ Otters found stranded at any point within Morro Bay Estuary are automatically assigned to the 0.5 km position along the coast that coincides with the 30 m contour at the mouth of the Morro Bay. This results in an artifactual clustering of strandings at the mouth of the bay.

- e) **The elevated stranding numbers noted by NRDC¹¹⁴ for 2003 and 2004 do not demonstrate that a BIP is not present in the area surrounding the outfall.** Increases in stranding numbers in the region from Cayucos to Hazard Canyon are cited by NRDC as evidence that a BIP does not exist near the outfall. However, NRDC fails to recognize that the total strandings recorded for both 2003 and 2004

¹¹¹ Bodkin, J. L., and R. J. Jameson. 1991. Patterns of seabird and marine mammal carcass deposition along the central California coast, 1980-1986. *Canadian Journal of Zoology* 69:1149-1155. at 1153

¹¹² The Otter Project, USGS 2003 spring otter survey press release
<http://www.otterproject.org/site/pp.asp?c=8pIKIYMIG&b=1066903>

¹¹³ Haltiner, J. 1988. *Sediment Processes in Morro Bay, California*. Prepared by Philip Williams & Associates, Ltd. for the Coastal San Luis Resource Conservation District (CSLRCD) and the California State Coastal Conservancy (CSCC).

¹¹⁴ NRDC, at 29.

(63 and 77 respectively) do not accurately reflect mortality rates within this same area.¹¹⁵ Additionally, NRDC does not acknowledge that the population in this region is close to its carrying capacity; a population near its carrying capacity, is certainly not indicative of imminent extinction as claimed by NRDC.¹¹⁶

In addition, there are identifiable explanations for the increased strandings during 2003 and 2004 that are entirely unrelated to a BIP assessment or the MBCSD discharge. In his spring 2003 news release, USGS scientist Jim Estes indicates that the heightened mortality during 2003 may be related to the recent dramatic increase in the otter population as a whole.¹¹⁷ He stated that “*The greatly elevated number of sea otters in Monterey Bay, and to a lesser extent in Estero Bay... may also help explain the record high number of strandings this year...*”¹¹⁸ USGS personnel stated that “*Early storms and large waves during winter of 2002-2003 greatly reduced kelp canopies -- which otters use for resting and foraging -- in several exposed outer-coast areas...*” Additionally, USGS addressed the tendency for stranded otters to be preferentially recovered within the Estero Bay region.¹¹²

Insofar as 2004 stranding data, NRDC includes a table, which overdramatically highlights the 77 strandings recorded between Cayucos and Hazard Canyon over the course of the year. However, NRDC fails to mention that a single, highly unusual, stranding event in April 2004 accounted for almost half of these strandings.¹¹⁹ During the month of April a total of 68 otters were found stranded statewide,¹²⁰ with 34 of these being in the area near Morro Bay. This number of strandings was unusual because it was over 3 times higher than the 10-year average. CDFG performed autopsies on 12 to 14 of the freshly deceased otters, and determined that almost all were infected with *Sarcocystis neurona*, a protozoan parasite, unrelated to *Toxoplasma gondii*.

S. neurona causes damage to the brain and other tissues in otters, and is responsible for equine protozoal myeloencephalitis in horses. It is commonly fatal in otters.¹¹⁹ *S. neurona* is probably transmitted directly to otters through spoorocysts from opossum feces, because otters are not known to eat any of the known intermediates, such as birds. Because opossums are the only known reservoir (definitive host) for this parasite, it is thought that the 2004 stranding event was related to spring runoff events.¹²¹ In the wake of the April 2004 event, sea otter mortality declined to more normal levels. Additionally, stranding data for 2005 did not demonstrate a repeat of the 2004 *S. neurona* event, and declined slightly from the 2004 high of 273 otters.¹²²

¹¹⁵ The total stranding numbers for these two years represent almost half of the total population tallied for this same area during the spring surveys for both 2003 and 2004 (approximately 100 and 150 otters respectively). If the total numbers of strandings recorded for this section of coast all were caused by mortality within this same section of coast, one would arrive at the highly implausible conclusion that mortality for this area was around 50 percent. Rather, as discussed previously, many factors affect carcass deposition and eventual recovery; an otter carcass recovered from one section of coastline did not necessarily become ill or die there.

¹¹⁶ NRDC, at 26. “...it is well accepted that the otter population is likely to become “extinct” in the ‘foreseeable future’ in the vicinity of the outfall—Estero Bay—as well as throughout its limited 300-mile range.”

¹¹⁷ The spring 2003 survey noted a significant increase in both independents and otter pups over 2002 counts. The Otter Project. USGS spring otter survey, 2003.

¹¹⁸ USGS, WERC, 2003. News Release: California Sea Otter Numbers are Up for the 2003 Census. Accessed online, February 2006, at: <http://www.werc.usgs.gov/news/2003-06-06.html>

¹¹⁹ CDFG. 2004. News Release: Scientists Determine April Sea Otter Deaths were associated with Brain Parasite, *Sarcocystis neurona*. Accessed online, February 2006, at: <http://www.dfg.ca.gov/news/news04/04048.html>

¹²⁰ Personal communication, Melissa Miller, February 20, 2006 concerning the details of the April 2004 *S. neurona* outbreak and stranding event.

¹²¹ Personal communication, Melissa Miller, February 20, 2006

¹²² Personal communication, Brian Hatfield, February 27, 2006 concerning 2005 otter stranding data.

- f) **The home ranges of sea otters vary; otters residing in and near Estero Bay do not necessarily stay within the area year-round as stated by NRDC.**¹²³ Contrary to NRDC claims, more thorough readers of Riedman and Estes would notice that although sea otters may regularly stay within a small home range of approximately 1-2 km of coastline¹²⁴, they also make occasional long distance trips that take them well away from their normal haunts. This is because sea otter home ranges consist of several heavily used areas connected by travel corridors and that the ranges themselves vary in size depending on the location and quality of the range, as well as the sex and age of the otter. However, a general pattern observed in California for all age or sex classes was that individuals tended to remain in one area for extended periods with occasional sudden long-distance movements, which occurred year-round.¹²⁵

Nevertheless, the fact that otters occasionally travel substantial distances makes them poor sentinels for evaluating impacts from point-source pollution. Specifically, it is impossible to determine where or when the sentinel marine organisms were impacted by exposure to pollution.¹²⁶ Because of this, sessile marine organisms, such as infauna and mussels, form the mainstay of monitoring programs around outfalls. Motile organisms, such as epifauna, fish, and mammals are simply not as diagnostic of potential impacts from a localized discharge.

Otter travel can be extensive and rapid. For example, adult male otters use two distinct home ranges connected by a migration corridor that can be traveled in a brief period of time as they traverse between female areas near the center of the range and male groups at the periphery of the range. These seasonal movements have been found to be as much as 60 to 100 km or more.¹²⁷ Additionally, males that live near the center of the range may journey farther than those already residing near the edges of the population. Like males, females are also capable of traveling long distances, and tagged females have been known to make round-trip journeys of up to 280 km.¹²⁷ However, compared to males, females have generally been found to make less extreme movements, and to travel intermediate distances. In California 7 of 13 adult females and 6 of 9 juvenile females moved maximum distances of >20 km.¹²⁷ Overall, however, though females generally have smaller lifetime ranges than males, they exhibit home ranges 1.5-2 times larger than resident males during the breeding season.¹²⁷

- g) **There are many causes of mortality in southern sea otters and *T. gondii* is not "...the single most important known cause", as erroneously implied by NRDC statements.** This is yet another case of NRDC inappropriately expanding on an otherwise legitimate quote from scientific literature. For example, NRDC begins by correctly citing the USFWS Final Revised Recover Plan for the Southern Sea Otter which states that "*Infectious disease is the single most important known cause of mortality among sea otters.*"¹²⁸ However, NRDC then inappropriately embellishes this statement by attaching the specious claim, "*particularly encephalitis caused by the parasite *Toxoplasma gondii* (or "*T. gondii*").*" The Recovery Plan for the otter does not make that distinction. On the contrary, *T. gondii* is mentioned only once in the entire document, when it is listed together with a suite of other diseases.¹²⁹ The only infectious disease specifically mentioned in further detail within the Recovery Plan is acanthocephalan infection.¹³⁰

¹²³ NRDC, at 7.

¹²⁴ The Sea Otter, at 54-55

¹²⁵ *Id.*, at 54.

¹²⁶ Miller et al 2004. *An unusual genotype of Toxoplasma gondii is common in California sea otters and is a cause of mortality*, International Journal of Parasitology 34(2004) 275-284; at 283.

¹²⁷ *Id.*, at 55

¹²⁸ Final Revised Recovery Plan, at viii

¹²⁹ Final Revised Recovery Plan, at 41 contains the following brief mention of *T. gondii*: "*Diseases, including acanthocephalan peritonitis, encephalitis, (caused by the protozoan Toxoplasma gondii, which completes its life cycle in cats and can occur in cat feces), coccidiomycosis, and various bacterial infections...*"

¹³⁰ Final Revised Recovery Plan, at 7-9.

Without doubt, infectious diseases, including *T. gondii* infection, are currently contributing to mortality in sea otters. As cited by NRDC¹³¹, *T. gondii* was found to be the primary cause of death in 16.2% of the 105 otter carcasses surveyed between 1998 and 2001 in a study on patterns of mortality in sea otters.¹³² However, further reading in the same study, finds the following statement: "*Similar in proportionate mortality to T. gondii encephalitis, infection with acanthocephalan parasites was a primary cause of death in 16.2% of otters examined...*" (emphasis added). The study determined that "*encephalitis due to T. gondii was one of the two leading causes of mortality identified in otters during the time period studied*" (1998-2001), and clearly identifies *T. gondii* and acanthocephalan infection as being similar in their contributions to mortality, including sharing the same percentage of primary mortality attributable to each cause.¹³³ However, the misplaced emphasis on *T. gondii* in the statement by NRDC, and the omission of the conclusion that both causes contributed to mortality in approximately the same amounts, seeks to deliberately mislead the reader. Here, NRDC selectively spliced quotations together to imply a conclusion that it is clearly not supported by the scientific data.

- h) **The presence of a BIP within the Morro Bay Estuary is not germane to an evaluation of the MBCSD discharge within Estero Bay.** Contrary to the NRDC statements, an assessment of a BIP within the Morro Bay Estuary in addition to Estero Bay is not germane to an evaluation of the discharge.¹³⁴ They claim that "...it is undisputed that the...Plant discharges an average of 1.4 million gallons of freshwater wastewater into Morro Bay every day..."¹⁷ This is ridiculous. The discharge is into Estero Bay, not the Morro Bay Estuary. Furthermore, as described in Response 2 on Page 6 of this letter, the plume-tracking study cited by NRDC to support their claims¹³⁵ did not demonstrate that MBCSD effluent actually enters the Morro Bay Estuary. Even if the findings of this seriously flawed tracking study were correct, wastewater incursions into the Estuary would be extremely rare and so phenomenally dilute (50,000:1) that there could be no conceivable impact on estuarine biota. Nevertheless, any potential *T. gondii* input into the estuary from the MBCSD discharge would be completely negligible compared to the freshwater pathogen sources that discharge directly into the estuary.²³
- i) **The presence of a threatened species does not preclude the existence of a BIP.** NRDC¹³⁶ incorrectly asserts "...the otters' threatened listing functions as per se evidence that a balanced indigenous population of marine life is not present." They base their assertion on an incorrect definition of "threatened species" under the Endangered Species Act (ESA). The ESA defines an "endangered" species as one that is "in danger of extinction throughout all or a significant portion of its range", while a *threatened* species is one that is likely to become endangered (due to a small base population, habitat destruction, etc.) within the foreseeable future, but is not currently facing extirpation¹³⁷. NRDC's statement¹³⁸ that the otter was listed "because it is likely to become endangered (i.e. extinct)" (emphasis added) is highly inaccurate as it suggests that endangered is synonymous with extinct.

The otter was originally listed as a "threatened" species under the ESA because of its "small population size, its limited distribution, and potential risk to its habitat and population from oil spills."¹³⁹ At the time of its listing, concerns existed that a single oil spill could wipe out much of the population given

¹³¹ NRDC, at 9, 29.

¹³² Kreuder D. et al. 2003. *Patterns of Mortality in southern sea otters (Enhydra lutris nereis) from 1998-2001* Journal of Wildlife Diseases 495 (2003), at 499.

¹³³ *Id.* at 499.

¹³⁴ NRDC, at 20: "...staff have failed to fully analyze the issue of whether a "balanced indigenous population" of marine life exists in Estero Bay and Morro Bay," emphasis added.

¹³⁵ Anthony et al. 1986. Morro Bay Bacterial Study 1986-1987.

¹³⁶ NRDC, at 26.

¹³⁷ Endangered Species Act of 1973, Section 3.

¹³⁸ NRDC, at 26

¹³⁹ <http://www.epa.gov/fedrgstr/EPA-IMPACT/2004/February/Day-06/i2558.htm>

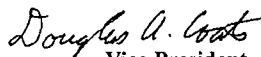
Mr. B. Keogh
3 March 2006

Page 27 of 27

its small size and localized distribution. Since 1977, however, the population has more than doubled in size, and the distribution of the otter population has expanded to both the north and south. In summary, although the otter population still has a long way to go in order to attain OSP and historical population levels, it is not currently facing extinction as erroneously implied by NRDC. Therefore, the *threatened* listing of the otter is not "*dispositive*" of the existence of a BIP in the region surrounding the outfall as asserted by NRDC, nor does its *threatened* status "*function as per se evidence*" that a BIP is not present in the area.

Please contact the undersigned if you have questions regarding these responses.

Sincerely,


Vice President

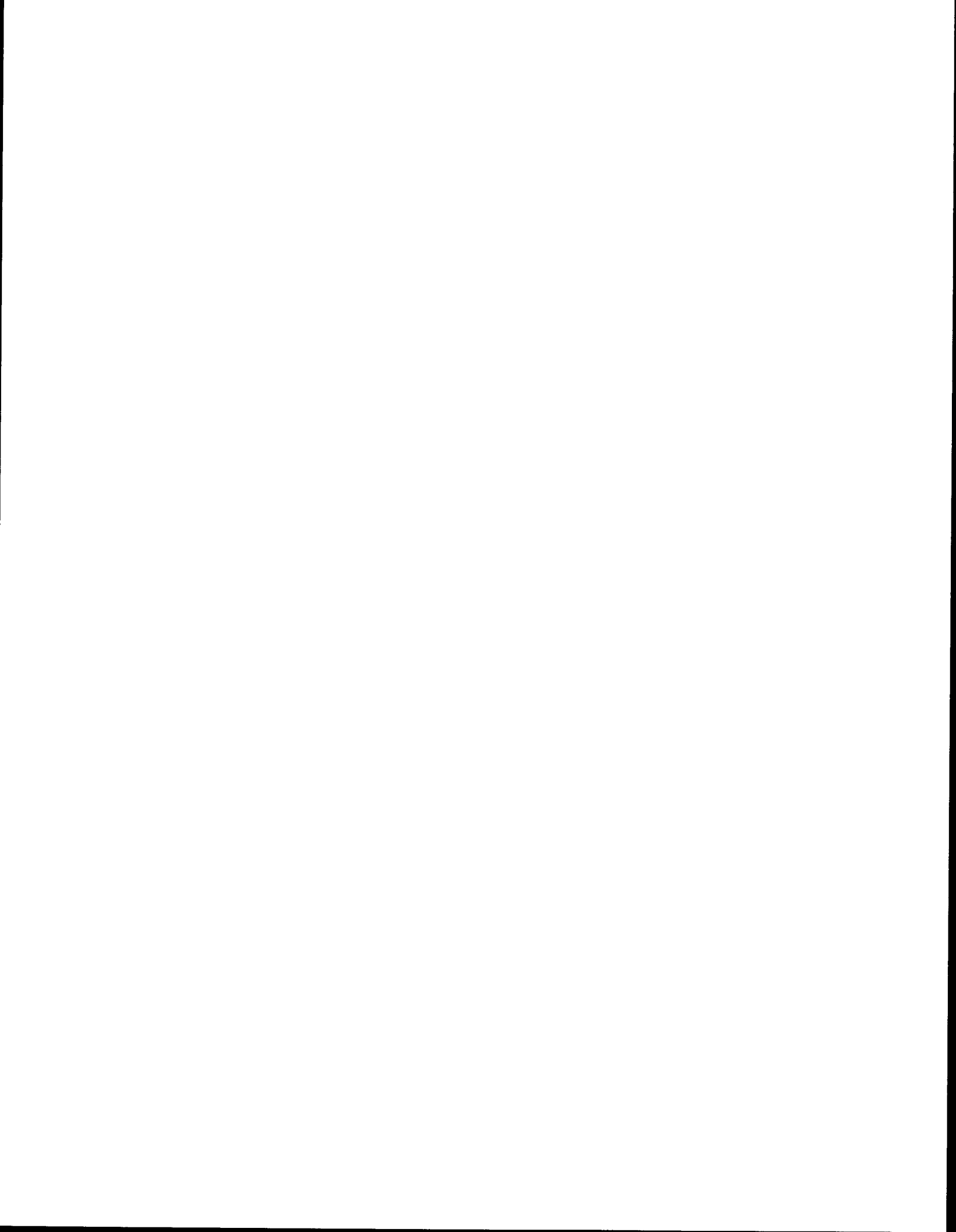
MARINE RESEARCH SPECIALISTS

Dr. Douglas A. Coats

2006.03.03 16:18:33 -08'00'

Douglas A. Coats, Ph.D.
Program Manager

Attachments: Curriculum Vitae - Coats
2005 MBCSD Annual Report



EDUCATION

B.S.	Physics, California State Polytechnic University	1975
M.S.	Oceanography, Scripps Institution of Oceanography	1979
Ph.D.	Oceanography, Scripps Institution of Oceanography	1982

SUMMARY OF EXPERIENCE

Dr. Coats is a marine scientist with over 30 years of experience. After acquiring formal academic training in all aspects of chemical, physical, geological, and biological oceanography at Scripps Institution of Oceanography, he focused on resolving complex environmental issues related to coastal development. He is known for establishing industry-wide (API) design procedures as a result of wave-propagation studies that he directed at the California Institute of Technology. He authored over 20 reports specifying site-specific environmental design criteria offshore California, Japan, Alaska, Norway, and Australia. In addition, he has acted as an expert witness at California Coastal Commission Hearings and as a scientific advisor and member of the steering committee for the Royal Norwegian Council for Scientific and Industrial Research in Oslo, Norway.

As Senior Oceanographer at Marine Research Specialists, Dr. Coats has been the Principal Investigator responsible for measurement and interpretation of coastal marine processes in a number of large, high profile, multi-disciplinary programs. For example, the MMS-sponsored California Monitoring Program was conducted to assess potential impacts of Oil and Gas activities offshore Pt. Conception. By assimilating measurements from nearly every aspect of the program in a resuspension and trajectory model, Dr. Coats accurately determined suspended sediment loads as well as their drilling-derived components. Results were verified with the field data, which included measurements of daily drilling-mud emissions from platforms, sediment trap volumes, surficial sediment chemistry, and current velocities.

Shortly thereafter, Dr. Coats was the Principal Investigator responsible for the analysis of all benthic data collected in a large multi-year field program to monitor municipal discharges in Massachusetts Bay for the Water Resources Authority. Analyses of baseline physical, chemical and biological data in surficial sediments led to his formulation of testable hypotheses concerning potential impacts from large particulate loads discharged from a municipal outfall in the Bay. His analyses included modeling of the projected contaminant increases in surficial sediments due to the transport of effluent particulates. From the projected contaminant loading, he estimated the localized biological impacts by applying recently-developed biostatistical analyses. He also performed a quantitative investigation of hard-substrate features from photoimages collected by ROV along seven miles of tracklines. Other discharge-related experience included an environmental assessment of waste discharge into the coastal waters in the southern California Bight. In addition, Dr. Coats generated technical memoranda on regulatory compliance of the Los Angeles Clean Water Program Master Plan to NEPA, CEQA and the Clean Water Act. These included assessments of regional water quality, marine biology, and endangered species. He also prepared environmental documents characterizing projected water quality at several candidate outfall sites in conjunction with the San Diego Metropolitan Clean Water Project and assessed NPDES monitoring data collected in San Francisco Bay as part of the East Bay Dischargers Authority.

More recently, Dr. Coats has prepared numerous marine biology and marine water quality sections for major environmental impact assessments, reports, and studies. High profile projects on which Dr. Coats

has previously worked on include the Carpinteria Field Redevelopment (California State Lands Commission), Tranquillon Ridge Oil Development (Santa Barbara County), Guadalupe Oil Field Remediation (San Luis Obispo County), Abandonment and Unocal Avila Beach Cleanup (San Luis Obispo County), A Survey of Prominent Anchor Scars and the Level of Disturbance to Hard-Substrate Communities in the Point Arguello Region (Chevron). Most of the marine assessments dealt with controversial projects such as oil spill remediation activities, coastal development, point-source discharges, offshore fiber-optic cable installation, and the development of offshore oil fields. All of the projects required definitive analyses of available biological and water-quality data in order to support conclusions as to the significance of potential impacts. In a number of cases, Dr. Coats also conducted offshore surveys to fill in existing data gaps. He was responsible for developing quantitative significance criteria and mitigation measures based on regulatory limits that have become the standard in subsequent EIRs. The significance criteria he developed for coastal remediation and construction projects has been adopted verbatim by county, state, and federal agencies for other projects under their purview.

In San Luis Obispo County, Dr. Coats was the Principal Investigator for marine water quality in the environmental evaluations conducted as part of oil spill remediation activities at Avila Beach and Guadalupe, California. This work was conducted on behalf of local agencies and the Regional Water Quality Control Board. He examined projected water quality impacts and their influence on marine fauna of the region and was responsible for preparing the oceanographic sections on these two complex and controversial EIRs. In addition, he contributed to EIR sections dealing with marine biological resources and prepared detailed analyses of dispersion and chronic effects of long-term marine contamination. As part of the environmental assessment, Dr. Coats conducted field surveys of the intertidal and estuarine environments at both locations. Finally, because both sites are adjacent to wetland regions, he was responsible for evaluating models of tidal inlets as they pertain to wetland and estuary management.

Dr. Coats has additional experience in the assessment of marine impacts along the central California coast where he was the Principal Investigator for marine resources in the environmental evaluation conducted as part of the installation of fiber-optic cables offshore San Luis Obispo County. For this EIR, he conducted a number of offshore surveys to augment historical data. He also specified quantitative significance criteria to assess impacts and developed mitigation measures that became the standard for all subsequent EIRs related to numerous other cable installations proposed for this section of the central California coast. Dr. Coats additionally developed offshore monitoring techniques to identify and limit the release of drilling mud and other contaminants into the marine environment during directional drilling. These techniques are now required during directional drilling of all fiber-optic cable conduits offshore California.

Dr. Coats is currently the Program Manager of an ongoing study on the recovery of intertidal environment in the wake of the Exxon Valdez oil spill in Prince William Sound, Alaska. This ongoing study, conducted under the auspices of NOAA, is now entering its 10th year. Dr. Coats has been responsible for the application of innovative statistical techniques to the long-term environmental data acquired in this study in order to quantitatively measure recovery of all aspects of the biological and physical environment. In addition to his authorship of a number of NOAA reports, over the years his collaborative research efforts have culminated in the publication of several articles in the peer-reviewed scientific literature.

Finally, Dr. Coats has been the marine environmental consultant to the City of Morro Bay since 1993. He is primarily responsible for National Pollutant Discharge Elimination System (NPDES) monitoring associated with the City's 301(h)-modified effluent discharge into the open coastal waters of Estero Bay. In this capacity, Dr. Coats has collected, analyzed, and interpreted a plethora of oceanographic data

during the regular chemical, biological, and physical surveys conducted on the receiving waters, benthic sediments, effluent, sludge, and treatment plant processes. As a result he has assimilated more than two decades of monitoring data in investigations and analyses of potential impacts from the discharge.

PUBLICATIONS

- Fukuyama, A.K., D. Coats, and G. Shigenaka. 2006. Impacts and Long-Term Recovery of Infaunal Intertidal Organisms after the Exxon Valdez Oil Spill. Submitted to Ecological Applications.
- Skalski, J.R., J.J. Millsbaugh, C. Cooper, and D.A. Coats. 2006. A Statistical Test and Sample Size Calculations for Differences in Ecological Community Composition Based on Analysis of Distance (ANODIS). Submitted to the Journal of Agricultural, Biological and Environmental Statistics.
- Coats, D.A., and G. Shigenaka. 2005. Sampling Needed to Assess Intertidal Impacts: Lessons Learned from 11 Years of Monitoring in Prince William Sound. Proceedings of the International Oil-Spill Conference, Miami, Florida. A75:3.
- Coats, D.A., E. Imamura, A.K. Fukuyama, J.R. Skalski, S. Kimura and J. Steinbeck. 2003. Monitoring of Biological Recovery of Prince William Sound Intertidal Sites Impacted by the Exxon Valdez Oil Spill: Sampling Effort in Assessments of Oil-Spill Impacts to Intertidal Organisms. Edited By: G. Shigenaka and R. Hoff. NOAA Technical Memorandum NOS OR&R 12, August 2003.
- Skalski, J.R., D.A. Coats, and A.K. Fukuyama. 2001. Criteria for Oil Spill Recovery: A Case Study of the Intertidal Community of Prince William Sound, Alaska, following the Exxon Valdez Oil Spill. Environmental Management, Vol. 28, No. 1, pp 9-18.
- Shigenaka, G., D.A. Coats, A.K. Fukuyama, P.O. Roberts. 1999. Effects and trends in littleneck clams (*Protothaca staminea*) impacted by the Exxon Valdez oil spill. Proceedings of the 1999 International Oil Spill Conference. Paper ID #326.
- Coats, D. A., E. Imamura, A. K. Fukuyama, J. R. Skalski, S. Kimura, and J. Steinbeck. 1999. Monitoring of biological recovery of Prince William Sound intertidal sites impacted by the Exxon Valdez oil spill. NOAA Technical Memorandum NOS OR&R 1, Final report. Prepared for Hazardous Materials Response and Assessment Division, Seattle: NOAA. 73 pp. + Appendices.
- Coats, D.A. 1994. Deposition of Drilling Particulates Offshore Point Conception, California, Marine Environmental Research. Vol. 37(1994): 95-127.
- Hyland, J., D. Hardin, M. Steinhauer, D. Coats, R. Green, and J. Neff, 1994. Environmental Impact of Offshore Oil Development on the Outer Continental Shelf and Slope off Point Arguello, California, Marine Environmental Research. Vol. 37(1994): 195-229.
- Coats, D.A., M.A. Savoie, and D.D. Hardin. 1991. Poleward flow on the Point Conception Continental Shelf and its Relation to the Distribution of Oil-drilling Particulates and Biological Impacts, EOS Trans. AGU, Vol. 72(44): 254.
- Sherwood, C.R., D.A. Coats, and B. Walls, 1989. Suspended Sediment Transport on the California Continental Shelf: Measurements and Comparison with Model Predictions, Oceans '89 Proceedings.
- Coats, D.A. and H. Kanamori, 1984. Simulation of Strong Motion from the 1964 Alaskan Earthquake, Seismological Society of America, Vol. 55(1).

- Coats, D.A. and H. Kanamori, 1984. Semi-Empirically Derived Long Period Ground Motions, Proceedings of the Eighth World Conference on Earthquake Engineering, Vol. 2.
- Coats, D.A., 1983. The Absolute Flow Field in the South Pacific Ocean, Deep-Sea Research, Vol. 30(10A).
- Coats, D.A., 1982. The Abyssal Circulation in the Southwest Pacific Basin, Trans. American Geophysical Union, Vol. 63.
- Coats, D.A., 1981. An Estimate of Absolute Geostrophic Velocity from the Density Field in the Northeastern Pacific Ocean, Journal of Geophysical Research, 86(C9).
- Coats, D.A., 1980. Large-scale Density Structure in the Northeastern Pacific Ocean and its Relation to Potential Vorticity, Trans. American Geophysical Union, Vol. 61.
- Bush, R.T., D.J. Digiambattista, and D.A. Coats, 1976. Coriolis Deflection on the Rotating Platform, American Journal of Physics, Vol. 44(9).



Carollo Engineers, Inc.
1000 North Ingram Avenue
Fresno, California 93711

March 1, 2006
7087A01

City of Morro Bay
Department of Public Services
955 Shasta Ave
Morro Bay, CA 93442

Attention: Mr. Bruce Keogh, Wastewater Division Manager

Subject: Re-issuance of the 301(h) Waiver, Response to Comments by CEA Engineers,
P.C. dated February 1, 2006

Dear Mr. Keogh:

Carollo Engineers, P.C. in response to the comments submitted by Carpenter Environmental Associates, Inc. (CEA) provides the following comments. Specifically, Carollo will address the issues of the time line and the project costing. Other comments are also included for reference and/or comment by others. Carollo finds that CEA has provided information of interest, but that the information is mostly a broad-brush discussion of wastewater treatment and potential impacts and does not specifically address the impacts at Morro Bay/Cayucos. Further, although the time lines suggested by CEA could be met in an ideal situation, it is clear that the 9-1/2 year Conversion Schedule proposed by the RWQCB is well within the range of time lines that actually occur in California and specifically California Coastal Communities. To shorten the time line would limit local users full public involvement and discussion on the environmental, social, and economic issues that other similar communities have been afforded.

EVALUATION OF SECONDARY TREATMENT UPGRADE SCHEDULE (pages 4 through 8)

In the first three paragraphs, CEA states that the time lines can be completed in 4-1/2 years or a less demanding 6-1/2 years "plus time for the Regional Water Quality Control Board (RWQCB) to review the facilities plan." Carollo points out that the 9-1/2 year plan presented in the RWQCB Conversion Schedule includes time for RWQCB review. It is reasonable to add at least six months to the CEA schedules for reviews. The NRDC challenge to the current first step for conversion substantiates the probability that RWQCB reviews will require more than a normal review period. Therefore, CEA's time lines are, at a minimum, 5- and 7-year time lines. As Carollo interprets the NRDC/CEA discussion, the question becomes whether there is a need to accelerate the schedule by 2-1/2 years. Without a documented environmental excursion attributable to the discharge, the answer seems to be 'NO'. Our comments on the remainder of this section follow.

Mr. Bruce Keogh, Wastewater Division Manager
City of Morro Bay
Department of Public Services
February 28, 2006
Page 2

Report Staff Issues (pages 5 and 6)

In first paragraph under this heading, CEA makes the argument that there is nothing unusual or complex about the engineering on this project and therefore the time line should be shorter. They add that even Carollo has completed similar projects in shorter time lines. Carollo reiterates that the 9-1/2 year time reflects a reasonable time line for resolution of environmental, social, and economic issues and is supported by similar project schedules near Morro Bay Cayucos unlike the generic references made by CEA.

The first example is the nine-year City of Pismo Beach project. Pismo Beach needed to make a decision to replace or rehabilitate it's wastewater treatment plant. The engineering issues were straightforward. The social and economic issues were perceived to be substantial by the City Council and ratepayers. The City issued an engineering studies Request for Proposals late in 1998. A final design notice to proceed was issued on November 27, 2000. The project was 90 percent constructed as of February 28, 2006. It is anticipated that Pismo Beach will achieve full compliance utilizing the new facilities by September 2006. Considering that the internal negotiations leading up to the beginning of the engineering studies took no less than one year, the Pismo Beach project will have stretched out nine years. This demonstrates that the Morro Bay Cayucos project time line is within normal time parameters for communities of similar size and treatment complexity in the California Central Coast area.

Carollo can cite many other community efforts as examples of nine year plus time lines. The community of Los Osos is a community immediately adjacent to Morro Bay Cayucos that has taken decades to address environmental, social, and economic issues, and has not yet made progress toward construction of a wastewater treatment plant.

A brief search of projects in California coastal communities showed nine plus year project intervals for Half Moon Bay, Watsonville, and Los Osos. Attachment 1 to this letter provides the information on these cities. We also found references for a New York facility and a facility near San Diego, areas where CEA attributes their consulting services, which also have nine plus year project schedules (Attachment 1).

In paragraphs two and three, CEA comments that the issue of secondary treatment should be separated from tertiary treatment physically and financially. This is conventional engineering wherein the two processes are not interwoven. At Morro Bay Cayucos, Carollo has had extensive discussions on the benefits of Membrane Bioreactors (MBRs) wherein the secondary and tertiary processes are combined. This may provide long-term economy and more importantly provide substantial savings in valuable land utilization. The MBR process provides a higher quality effluent than traditional tertiary treatment and requires much less land area. In the absence of any documented environmental excursions attributable to the Morro Bay Cayucos discharge, the local users must be afforded the necessary time to evaluate the method of achieving tertiary treatment.

In paragraphs four and five, CEA discusses the lack of local commitment, the lack of consequences, and reference to unforeseen circumstances that impact the schedule. The outcome of the discussions with the RWQCB is the agreed Conversion Schedule that

Mr. Bruce Keogh, Wastewater Division Manager
City of Morro Bay
Department of Public Services
February 28, 2006
Page 3

provides for a higher level of responsibility on the part of Morro Bay Cayucos. Morro Bay Cayucos is moving in the right direction with a higher level of responsibility to perform.

Carollo Schedule (pages 6, 7, and 8)

Paragraphs one and two criticize Morro Bay Cayucos for delays and suggest what 'could-have-been'. This does not seem to be the appropriate role of a technical consultant. The facts are that Morro Bay Cayucos is now committing to the 9-1/2 year schedule, the schedule will be embedded in an agreement with the regulatory agency, and Morro Bay Cayucos is already improving on the schedule by requesting engineering proposals ahead of schedule. In Carollo's opinion, the system is working.

Paragraphs three, four, and five describe how several months can be shaved from each time line segment and how segments can be overlapped. As Carollo has described in our paragraphs above for other communities in the vicinity of Morro Bay Cayucos, shaving time away from the Conversion Schedule will likely curtail the users opportunity to provide full comment on the environmental, social, and economic issues that other similar communities have been afforded.

CEA's Schedule (page 7 and 8)

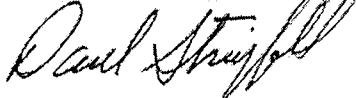
The paragraph and table in this section summarize CEA's shortened schedules. CEA list a 6.6-year schedule as a 'more relaxed' schedule 'plus time for RWQCB facilities plan review.' As indicated above, this is essentially a 7-year schedule compared to the Conversion Schedule proposed by the RWQCB.

The conclusion by CEA is that this "reflects typical engineering and project planning approaches in the (engineering) field". Carollo has provided references for several communities in the immediate area and nationwide (including New York and the San Diego area where CEA represents clients) which have taken nine and more years to complete similar projects. Therefore, it is reasonable to conclude that the 9-1/2 year Conversion Schedule provides Morro Bay Cayucos users appropriate time for environmental, social, and economic review that other similar communities have been afforded.

Please contact me if you have any questions or comments.

Sincerely,

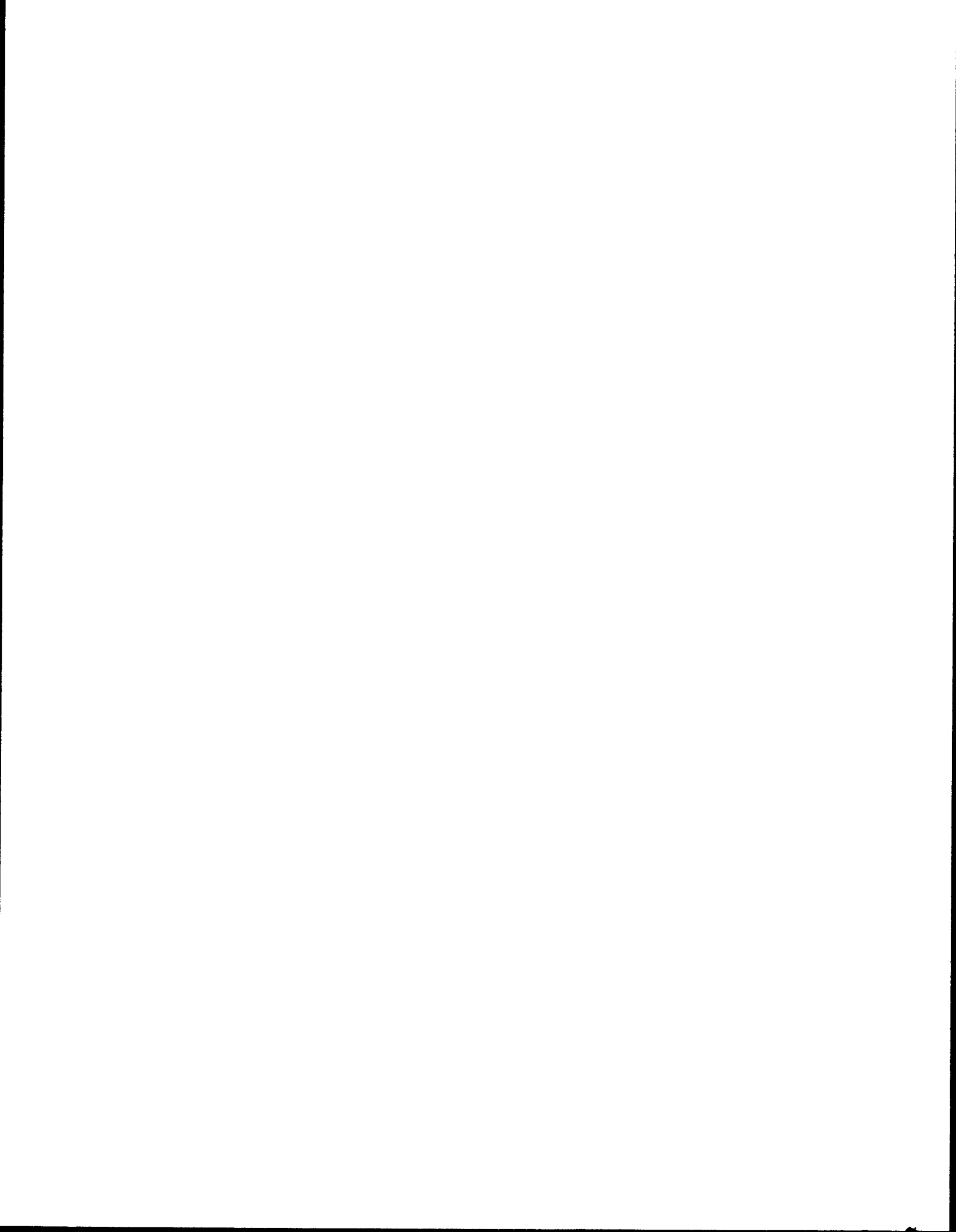
CAROLLO ENGINEERS, P.C.



David L. Stringfield, P.E.

DLS:cjp

Attachment 1, Wastewater Treatment Projects: 9+ year duration



ATTACHMENT 1

CITY OF MORRO BAY CAYUCOS SANITARY DISTRICT

Wastewater Treatment Projects: 9+ year duration

Location: Half Moon Bay, CA

Project: Expansion of Secondary Treatment

Information Source: Personal communication with Mike Britten, Carollo Engineers

Task	Date of Completion
Proposal	1989
Pre-design, Design, Evaluation	1993
Permitting and Financing	1995
Construction	1998

Location: Watsonville, CA

Project: Implementation of Recycled Water Facility

Information Source: Personal communication with Rick Chan, Carollo Engineers

Task	Date of Completion
Initial Studies and Pilot Testing	1999
Planning	April 2002
Pre-designs	April 2004
Permitting and Financing	In progress
Construction	Summer 2008 (predicted)

Note: There have been funding disputes, which have delayed the completion of designs and beginning of construction.

Location: Los Osos, CA

Project: Installation of Community-Wide Wastewater System

Information Source: Regional Water Quality Control Board

Task	Date of Completion
Initial Planning	1984
Permitting	1991-2004
Final Project Report	2001
Design and Redesign	2004
Construction	????

Note: The installation of the Los Osos Wastewater System has been delayed due to several years of litigation by sewer opponents including CAWS (Citizens for Affordable Wastewater Systems), TAPPS (Taxpayers Against Percolation Ponds), and Concerned Citizens of Los Osos.

Location: Imperial Beach, CA (South Bay International Wastewater Treatment Plant)

Project: Design and construction of wastewater treatment plant with secondary level treatment and ocean outfall.

Information Source: USBIWC Public Meeting Presentation, August, 2005

Task	Date of Completion
Congress authorized funds for WWTP	1989
ROD Identified Activated Sludge Secondary Treatment	1994
ROD Identified Ponds as Secondary Treatment	1999
Award Design and Construction	Dec. 2005 (predicted)
Construction	Aug. 2008 (predicted)

Note: Lawsuits were filed by the Sierra Club and Surfrider Foundation for failure to consider ponds rather than activated sludge for secondary treatment. In the interim, the plant operates at advanced primary treatment levels.

Location: Newtown Creek, NY

Project: Newtown Creek Water Pollution Control Plant Expansion and Upgrade

Information Source: <http://www.water-technology.net/projects/newtown/>

Task	Date of Completion
Begin construction	2003
End plant construction	2008 (predicted)
End final construction	2013 (predicted)

Note: Newtown Creek plant is a 53-acre facility. Estimated contract value of \$493 million to upgrade to compliance to the Clean Water Act. Expansion from 317 mgd to 396 mgd.



10/10/05 10:00 AM
10/10/05 10:00 AM
10/10/05 10:00 AM

March 2, 2006
7087A01

City of Morro Bay
Department of Public Services
955 Shasta Ave
Morro Bay, CA 93442

Attention: Mr. Bruce Keogh, Wastewater Division Manager

Subject: Re-issuance of the 301(h) Waiver, Response to Comments by NRDC dated
February 2, 2006

Dear Mr. Keogh:

Carollo Engineers, P.C. in response to the comments submitted by the Natural Resources Defense Council (NRDC) provides the following comments. Specifically, Carollo will address the issues of the time line and the project costing. Other comments are also included for reference and/or comment by others. Carollo has responded separately to comments submitted by CEA Engineers, P.C. and makes reference to those comments where useful. As we stated in the CEA response letter, although the time lines suggested by CEA and the NRDC could be met in an ideal situation, it is clear that the 9-1/2 year Conversion Schedule proposed by the RWQCB is well within the range of time lines that actually occur in California and specifically California Coastal Communities. To shorten the time line would limit local users full public involvement and discussion on the environmental, social, and economic issues that other similar communities have been afforded.

Page 44, 3. Future Violation Resulting From the Plant's Outdated Design

NRDC cites the expected flow increases from the current 1.14 MGD to 1.2 MGD by 2009 and then 1.23 MGD by 2014 as an indication that removal rates will not remain stable over the next five years. Carollo remains confident that the addition of 90,000 gallons per day to the current 1,114,000 gallons per day over the next five years will have little or no appreciable impact on the final effluent quality and that the removal rates will remain stable over this period and throughout the 9-1/2 year time line presented. With this small increase in flow, it is our experience that the plant staff will not notice an appreciable change in influent characteristics or a measurable changed response by the treatment processes. Therefore, the plant will continue to operate essentially as it has operated in the recent past. This small flow increase can essentially be spread evenly over all the treatment facilities allowing continued treatment at the current removal levels.

Carollo is also confident that the current excellent attention being provided by the staff to the operation and maintenance of the existing facilities will assure continued treatment at the current treatment levels. The plant is aging and does need the appropriate level of attention to reflect it's age. However, the plant is in no way falling apart and falling into the ocean. The

Mr. Bruce Keogh, Wastewater Division Manager
City of Morro Bay
Department of Public Services
March 2, 2006
Page 2

plant is reliable and can continue to provide the current level of treatment for the full 9-1/2 years recommended in the Conversion Schedule.

Page 57: Part 4 Why the 9.5 Year Upgrade Time Line is Illegal.

A. The Conversion Schedule Must Complete Upgrades as Fast as Possible.

As we stated in the CEA response letter, although the time lines suggested by CEA and the NRDC could be met in an ideal situation, it is clear that the 9-1/2 year Conversion Schedule proposed by the RWQCB is well within the range of time lines that actually occur in California and specifically California Coastal Communities. To shorten the time line would limit local users full public involvement and discussion on the environmental, social, and economic issues that other similar communities have been afforded. The 9-1/2 year schedule should be interpreted as meeting the "as short as possible" and "as soon as possible" references in California and Federal regulations. Further, as discussed below, it is not more cost-effective to upgrade the Plant sooner rather than later as NRDC implies.

Page 59: C. Evidence in Record Does not Support the Contention that the 9.5 Year Timeline Achieves Compliance as Fast as Possible.

As a point of clarification, the second bullet on page 60 indicates that the Watsonville, CA project would be completed in 7 years. The project is currently projected to take no less than nine years. Fortunately, to our knowledge, Watsonville is not under a settlement agreement wherein they would be facing litigation due to unavoidable delays.

The second paragraph on page 60 discusses David Stringfield's (Carollo Engineers) comment on an 8-1/2 schedule and that plant staff rejected the schedule. It should be clarified that David Stringfield recommended the 9-1/2 year schedule as the appropriate schedule but with the shorter schedule as an alternative. Mr. Stringfield is concerned that the shorter schedule essentially puts Morro Bay Cayucos at risk of violating the time line. If that is not what is on the tape, that was the message.

Page 61: 2. The Time Schedule Pads the Time Needed in the Planning Process

In this section, NRDC refers to text from public meetings and written correspondence often out of full context. The implication from the references is that a shorter schedule never was considered and that the recommended schedule was not justified. This simply is not the case.

Section (a) on page 61 discusses the opportunity to parallel critical project tasks. Paralleling tasks is possible and common. In fact, it is expected that paralleling will occur at Morro Bay Cayucos as the project progresses. A commitment has been made to improve on the 9-1/2 year schedule where and when possible. Paralleling will be one tool to accelerate the schedule. However, to assume paralleling from the outset requires elimination of time from a critical component and places a restriction on the project time line. Further, NRDC quotes David Stringfield as saying JPA members could come to agreements quicker. Mr. Stringfield's comment simply means that if this occurs, then the JPA will have fulfilled their commitment to shorten the process as promised. To shorten the time line in anticipation of

Mr. Bruce Keogh, Wastewater Division Manager
City of Morro Bay
Department of Public Services
March 2, 2006
Page 3

smooth sailing would potentially limit local users full public involvement and discussion on the environmental, social, and economic issues that other similar communities have been afforded. Furthermore, the shortened schedule would put Morro Bay Cayucos at risk of permit violations if there are delays.

Section (b), starting on page 61, comments on coordination and planning periods. NRDC comments that the 3-1/2 year time line for planning is too long and unsupported. They then imply an "Abuse of Discretion" on the part of Carollo Engineers to which Carollo Engineers takes offense. Carollo stands by their 9-1/2 year recommended planning period and have provided the references to several recent projects along the California Coast where more than nine years have been required to complete the entire process (letter to Morro Bay dated March 1, 2006, Response to CEA Engineers/Dr. Bell comments).

In that response, Carollo cites the cities/communities of Half Moon Bay, Watsonville, Los Osos, and Imperial Beach. Add to that Goleta which NRDC wants to discount as somehow unique and hence not applicable. We hope it is clear to all that Carollo's point is that each project is unique and our observation is that California Coastal communities take longer than average to work through their unique issues. The time line we have recommended is within the time line range we have experienced for coastal communities similar to Morro Bay Cayucos.

Page 63: 3. Other Rationale for 9.5 year Timeline are Unsubstantiated.

In this section, NRDC continues their contention that the time line is too long, that the project is not complex and that the tertiary facilities considerations can be separated from the secondary facilities considerations. Carollo has addressed these issues in our response to CEA's comments. To summarize, the time line is appropriate, the project is reasonably complex considering the tight site constraints, and there is an opportunity to use evolving membrane technology to produce a secondary/tertiary effluent. Morro Bay Cayucos needs the time to properly consider and evaluate these issues and opportunities.

Page 64: D. Delaying Upgrade is Not Cost Effective.

NRDC has again taken Carollo's comments out of context in their review of the costing. First, the purported \$100,000 monitoring savings has a present value of somewhere in the neighborhood of \$1.4 million over a 20 to 30 year payback period. The value associated with a 5-year acceleration is approximately \$450,000. This certainly is not enough to warrant acceleration of a project that is likely to cost \$15 million to \$30 million. Second, Carollo did not mean to imply that fixing the rates at today's cost was recommended as might be implied in NRDC's comments. This is certainly not the best financial approach. It was a simple statement of fact useful for comparison purposes.

Third, the discussion on grants being lost is not factual. To Carollo's understanding, this project was never likely to receive Proposition 40 or 50 monies. It did not, and still does not, meet the criteria needed to qualify as high priority (statements in front of the public meetings by others to the contrary). Lastly, any apparent reductions in costing by Carollo in our meetings are primarily associated with more detailed cost estimates, not the value-of-money

Mr. Bruce Keogh, Wastewater Division Manager
City of Morro Bay
Department of Public Services
March 2, 2006
Page 4

savings. Carollo, and the engineering community as a whole, know that the longer the community uses an existing facility, the lower the costs to local users (in the absence of grants).

Please contact me if you have any questions or comments.

Sincerely,

CAROLLO ENGINEERS, P.C.

A handwritten signature in black ink, appearing to read "David L. Stringfield". The signature is fluid and cursive, written over the printed name below it.

David L. Stringfield, P.E.

DLS:cjp