

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Applications)
24239, 24245, 24246, 27386,)
and 27477,)
CITY OF MORRO BAY,)
Applicant,)
VIVIAN ROEMER AND JOHN JONES,)
COASTAL SAN LUIS RESOURCE)
CONSERVATION DISTRICT,)
CALIFORNIA COASTAL COMMISSION,)
NAGANO CO., DAVID WIXOM,)
RON KENNEDY,)
Protestants,)
CALIFORNIA DEPARTMENT OF FISH)
AND GAME, ADVOCATES FOR A)
BETTER COMMUNITY, CENTRAL)
COAST REGIONAL WATER QUALITY)
CONTROL BOARD, CALIFORNIA)
DEPARTMENT OF PARKS AND)
RECREATION, CALIFORNIA)
DEPARTMENT OF CORRECTIONS--)
CALIFORNIA MEN'S COLONY,)
FRIENDS OF THE ESTUARY,)
CALIFORNIA SPORTSFISHING)
PROTECTION ALLIANCE,)
Interested Parties.)
DECISION 1633
SOURCES: Chorro Creek
Subterranean Stream
tributary to
Morro Bay thence
Pacific Ocean and
Morro Creek
Subterranean Stream
tributary to
Morro Bay thence
Pacific Ocean
COUNTY: San Luis Obispo

DECISION APPROVING ISSUANCE OF PERMITS TO CITY OF MORRO BAY
SUBJECT TO SPECIFIED CONDITIONS



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CITING THE RECORD

When citing evidence in the hearing record, the following convention has been adopted:

Information derived from the hearing transcript:

T95I,12:1-15:17

┌───┐ ending page and line number (may be
┌───┐ omitted if a single line reference is cited).
┌───┐ beginning page and line number.
┌───┐ hearing transcript volume number.
┌───┐ identifying abbreviation of the information source.

Information derived from an exhibit:

STAFF 5, p. 4

┌───┐ page number; table, graph, or figure
┌───┐ number; or application number if a file is cited.
┌───┐ exhibit number.
┌───┐ identifying abbreviation of the information source.

Abbreviations of the information sources are:

T77 Hearing Transcript, 1977 Hearing
T87 Hearing Transcript, 1987 Hearing*
T95I Hearing Transcript, 1995 Hearing, Volume I
T95II Hearing Transcript, 1995 Hearing, Volume II

*Note: The transcript from the 1987 hearing contains instances where words, phrases or statements are unintelligible and the court reporter was unable to provide any clarification. This matter was taken into consideration when citing the record.

MORRO BAY . City of Morro Bay Exhibits
DFG Department of Fish and Game Exhibits
RJ Vivian Roemer and John Jones Exhibit
RCD Coastal San Luis Resource Conservation District
Exhibits
STAFF State Water Resources Control Board Staff Exhibits

Other abbreviations and shortened names used in this decision:

cfs cubic feet per second
gpm gallons per minute
afa acre-feet per annum
ppm parts per million
mg/l milligrams per liter
mgd million gallons per day
CEQA California Environmental Quality Act

CITING THE RECORD (Cont.)

EIR . . . Environmental Impact Report
MSL . . . Mean Sea Level
MDB&M . . . Mount Diablo Base and Meridian
City . . . City of Morro Bay
DFG . . . Department of Fish and Game
SWRCB . . . State Water Resources Control Board
Roemer/
 Jones . . . Vivian Roemer and John Jones
CCC . . . California Coastal Commission
RCD . . . Coastal San Luis Resource Conservation District
DWR . . . Department of Water Resources

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BY THE BOARD:

1.0 INTRODUCTION

The City of Morro Bay (City) having filed Applications 24239,
24245, and 27386 to appropriate unappropriated water from the

subterranean stream¹ of Chorro Creek and having filed Applications 24246 and 27477 to appropriate unappropriated water from the subterranean stream of Morro Creek; protests to these applications having been filed; hearings having been held by the State Water Resources Control Board (SWRCB) on January 12-13, 1977, April 15, 1987, and February 27-28, 1995; the applicants, protestants, and interested parties having appeared and presented evidence; the evidence in the record having been duly considered; the SWRCB finds as follows:

2.0 BACKGROUND

The City provides the water supply for the residents of the incorporated area of the City of Morro Bay. Since 1925, the City has obtained its municipal supply from wells which extract ground water from the alluvium of Chorro Creek and Morro Creek. The City filed the applications as a result of uncertainty regarding the legal classification of the ground water it extracts from the alluvium of both creeks. The City's position at the SWRCB's 1977 hearing was that the ground waters it extracts are subterranean streams flowing through known and definite channels. On December 16, 1982, the SWRCB adopted Decision 1589 which concluded that the water sought to be appropriated by the City was flowing in subterranean streams through known and definite channels. Therefore, the SWRCB has jurisdiction over the appropriation of this water pursuant to Water Code Section 1200.

3.0 SUBSTANCE OF APPLICATIONS 24239, 24245, 24246, 27386, AND 27477 OF THE CITY

The City filed five applications to obtain valid water rights for its maximum historical use from the subterranean streams of Chorro Creek and Morro Creek.

¹ The term "underflow" is frequently used to refer to a subterranean stream flowing through known and definite channels. The City's applications were filed for the "underflow" of Chorro Creek and Morro Creek and the term "underflow" appears throughout the transcripts of the hearings. Consistent with the finding in Decision 1589 and Water Code Section 1200, the term "subterranean stream" will be used in this decision to refer to the ground water sought to be appropriated by the City.

Application 24239 was filed by the City on November 3, 1972 to directly divert 0.851 cubic foot per second (cfs) from the Chorro Creek subterranean stream with an annual limitation of 390 acre-feet per annum (afa). Application 24245 was filed on November 22, 1972 to directly divert 2.02 cfs from the Chorro Creek subterranean stream with an annual limitation of 535 afa. Application 27386 was filed on July 9, 1982 to directly divert 0.3 cfs from the Chorro Creek subterranean stream with an annual limitation of 217.5 afa. The total amount to be directly diverted from the Chorro Creek subterranean stream is 3.171 cfs with a total annual limitation of 1,142.5 afa.²

Application 24246 was filed by the City on November 22, 1972 to directly divert 1.07 cfs from the Morro Creek subterranean stream with an annual limitation of 490 afa. Application 27477 was filed on August 13, 1982 to directly divert 0.13 cfs from the Morro Creek subterranean stream with an annual limitation of 91 afa. The total amount to be directly diverted from the Morro Creek subterranean stream is 1.2 cfs with a total annual limitation of 581 afa.³

All of the City's applications are for year-round direct diversion for municipal use within the incorporated area of the City. The points of diversion on Chorro Creek (Applications 24239, 24245, and 27386) are City Wells 9, 9A, 10, 10A, 12, and 16 within the N $\frac{1}{2}$ of SE $\frac{1}{4}$, projected Section 32, T29S, R11E (the Ashurst well field), and City Wells 8⁴ and 11A within the NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 3, T30S, R11E, MDB&M (the Romero well field). The points of diversion on Morro Creek (Applications 24246 and 27477) are City Wells 1, 2, 3, 4, 5,⁵ 13, 14, and 15 within projected

² Corresponds to maximum use by the City in 1979.

³ Corresponds to maximum use by the City in 1972.

⁴ Well 8 has been abandoned by the City.

⁵ Well 5 has been abandoned by the City.

Section 25, T29S, R10E, MDB&M (the Kaiser well field). Figure 1 shows the location of the City's wells.

4.0 PROTESTS

4.1 Applications 24239 and 24245--Chorro Creek

Vivian Roemer and John Jones (Roemer/Jones) and the Domenghini Trust protested Applications 24239 and 24245 alleging injury to prior rights. Coastal San Luis Resource Conservation District (RCD) acquired the Domenghini Trust property and is the successor in interest to the protest filed by the Domenghini Trust. The RCD claims a riparian right to the surface stream and subterranean stream of Chorro Creek. Roemer/Jones claim riparian and pre-1914 appropriative rights to the surface stream and the subterranean stream of Chorro Creek. They have filed Statement of Water Diversion and Use Nos. 5295 and 5296 for these rights. Figure 1 shows the relative location of the protestants' and the City's points of diversion.

4.2 Applications 27386 and 27477--Chorro Creek and Morro Creek

The California Coastal Commission (CCC) filed protests to Applications 27386 and 27477 alleging that the proposed appropriations will have an adverse environmental impact, do not best conserve the public interest, and are contrary to law.

4.3 Application 24246--Morro Creek

The Nagano Company, David Wixom, and Ron Kennedy protested Application 24246 alleging injury to prior rights. They claim riparian rights to the surface stream and the subterranean stream of Morro Creek. None of these protestants has filed a Statement of Water Diversion and Use as required by Water Code Section 5100, et seq. for diversion of water under claim of riparian right.

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FIGURE 1

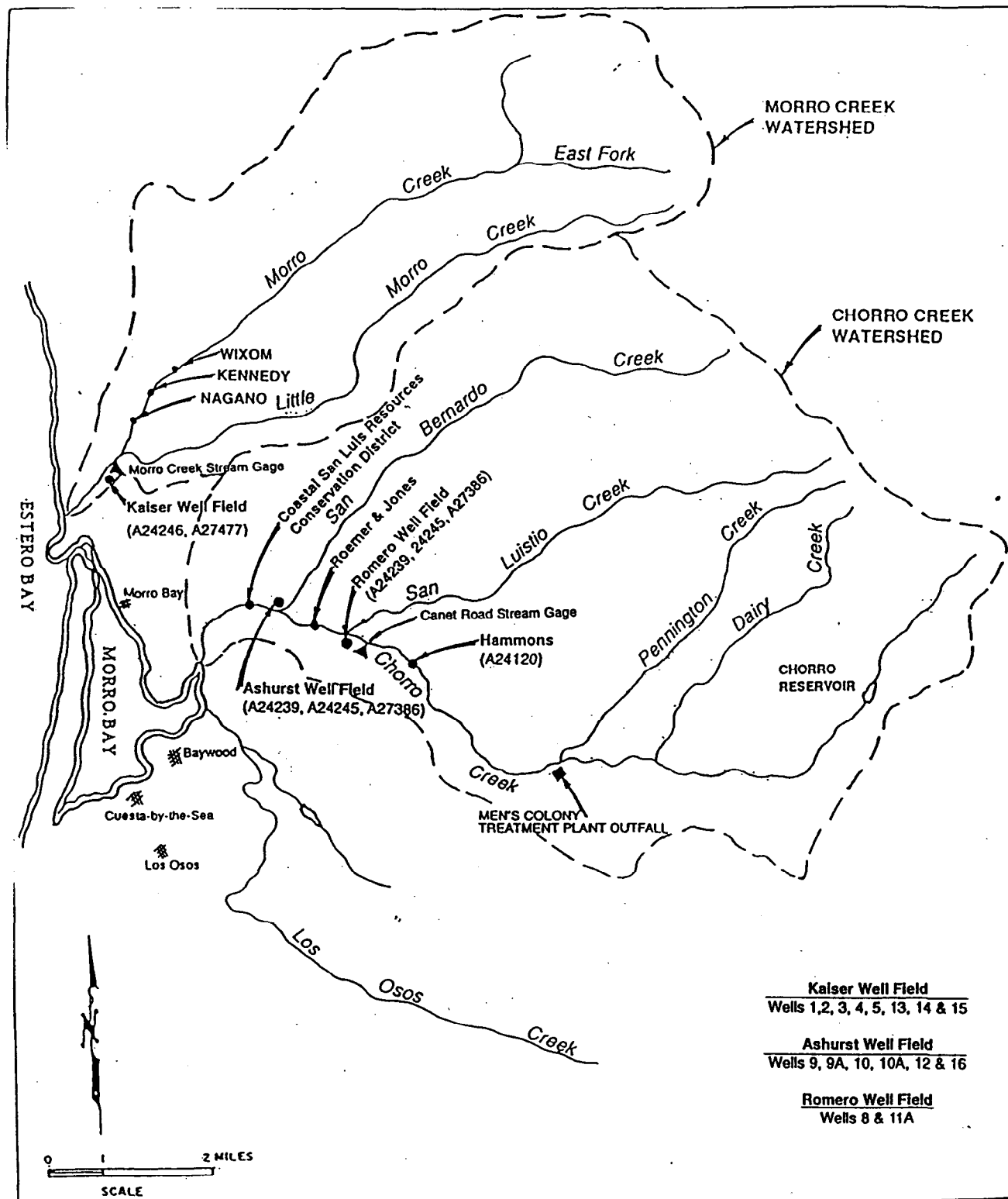


FIGURE 1.
CHORRO CREEK AND MORRO CREEK WATERSHEDS

Dwg. no. 3427-Bi

5.0 HEARING ISSUES

The Notice of Hearing for the 1977 hearing did not specify any key issues. The Notice of Hearing for the 1987 hearing specified the following issues:

- "1. Is unappropriated water available in the amount and seasons requested under Applications 24120,⁶ 24239, 24245, 24246, 27386, and 27477?
- "2. Will the proposed appropriations cause injury to the prior rights of other lawful diverters of water?
- "3. Will the proposed appropriations adversely affect riparian habitat and fish and wildlife resources of Chorro and Morro Creeks?
- "4. Will the proposed appropriations affect public trust resources?
- "5. Are the proposed appropriations in the public interest?"

The Notice of Hearing for the 1995 hearing contained the following issues:

- "1. What is the quantitative impact of the City's ground water extractions from the Chorro Creek and Morro Creek subterranean streams on the surface flow rate and duration in Chorro Creek and Morro Creek? What is the significance of this impact?
- "2. What is the status of the riparian habitat, the steelhead fishery, other fish and wildlife resources, rare and endangered species, or any other public trust resources in Chorro Creek, Morro Creek, and Morro Bay which are dependent on surface flows in Chorro and Morro Creeks? Have any of these public trust resources been adversely affected by the City's past extractions from

⁶ Application 24120 is in the name of John Q. Hammons. This application was included in the 1977 and 1987 hearings, but not the 1995 hearing. On January 13, 1995, Mr. Hammons withdrew Application 24120 from consideration at the 1995 hearing. Mr. Hammons advised the SWRCB that he would either file a petition for change with respect to Application 24120 or he would withdraw the application. The SWRCB will give no further consideration to Application 24120 in its present form.

Chorro Creek and Morro Creek subterranean streams? If so, can these adverse effects be mitigated? If so, how?

- "3. What specific surface flows are needed in Chorro Creek and Morro Creek, at specific times of the year and at specific locations, in order to provide adequate protection to identified public trust resources in Chorro Creek, Morro Creek, and Morro Bay which are dependent on flows in Chorro and Morro Creeks? What specific information, data and expertise were used to derive and support these surface flow recommendations?
- "4. Will the proposed appropriations cause injury to the prior rights of other lawful diverters of water?
- "5. Is unappropriated water available in the amount and seasons requested under Applications 24239, 24245, 24246, 27386, and 27477?
- "6. Are the proposed appropriations in the public interest?"

6.0 APPLICABLE LAW

To issue a permit, the SWRCB must find that unappropriated water is available to supply the applicant. (Water Code Section 1375(d).) Unappropriated water includes water that has not been either previously appropriated or diverted for riparian use. (Water Code Section 1202.)

When determining the amount of water available for appropriation and when it is in the public interest, the SWRCB must take into account the water required for preservation and enhancement of fish and wildlife resources and protection of water quality. (Water Code Sections 1243 and 1243.5.) The SWRCB must include conditions to develop, conserve, and utilize in the public interest the water sought to be appropriated. (Water Code Section 1253.) Jurisdiction may be reserved to impose additional conditions when sufficient information is not available to finally determine the terms and conditions which will reasonably protect vested rights without resulting in waste of water or

which will best develop, conserve, and utilize in the public interest the water sought to be appropriated. (Water Code Section 1394.)

7.0 PHYSICAL SETTING

7.1 Description of Chorro Creek and Morro Creek Watersheds

Chorro Creek is about 17 miles in length and drains approximately 44 square miles on the west side of the Santa Lucia Mountain Range.⁷ Chorro Creek originates on the upper slopes of the range, in the eastern portion of the watershed, and flows southerly then westerly to Morro Bay. The major tributaries to Chorro Creek, all of which originate on the upper slopes of the Santa Lucia Mountains, are Dairy, Pennington, San Luisito, and San Bernardo Creeks. Watershed elevation ranges from sea level to over 2,700 feet above mean sea level (MSL) at the headwaters of Chorro Creek and its tributaries.

Sometime after 1945, approximately 3,500 feet of the lower portion of the Chorro Creek surface channel was relocated to control flooding. The channel was moved from the middle of the valley to the south side of the valley adjacent to the steep hillside which forms the valley wall. Levees were constructed to maintain the new channel configuration and reduce flood damage. (RCD 2, pp. 1, 21, Figure 3.)

Morro Creek is about 15 miles in length and drains approximately 27 square miles. It also originates on the upper slopes of the Santa Lucia Mountains and generally flows in a southwesterly direction. Watershed elevation ranges from sea level to over 2,400 feet above MSL at the headwaters. Little Morro Creek joins Morro Creek just before it crosses the coastal plain where it discharges to the ocean. During the late 1930's and early 1940's, the channel of Morro Creek was relocated for the construction of a revetment and Pacific Gas & Electric Company

⁷ The important geographical features of the Chorro Creek and Morro Creek watersheds are shown in Figure 1.

powerplant. Morro Creek originally drained into Morro Bay but now drains into the Pacific Ocean. (T95I,162:9-23.) The Morro Creek subterranean stream discharges into Morro Bay. (T95I,37:3-16; MORRO BAY 44.)

Average annual precipitation varies from 16 to 30 inches in the Chorro Creek watershed and from 16 to 35 inches in the Morro Creek watershed. About 90 percent of the annual precipitation normally occurs during the months of November through April.

7.2 Surface Water Resources

The natural flow of Chorro Creek, which consists of rainfall runoff and spring-fed flow, is modified by Chorro Reservoir, which is located approximately 2½ miles downstream from the headwaters, and by discharge from the California Men's Colony wastewater treatment plant. In addition to natural inflow, Chorro Reservoir is used to store water imported from Whale Rock Reservoir which is located in the Old Creek watershed about four miles north of the City of Morro Bay.

The flow in Morro Creek consists of rainfall runoff and a small volume of spring-fed flow. There are no dams of any significance within the Morro Creek watershed and no industrial or municipal wastewater is released into the creek.

7.3 Ground Water Resources

The principal aquifers in the Chorro Creek and Morro Creek watersheds are Holocene age alluviums. The alluviums of both creeks consist of the sediments deposited by the creeks on their streambeds and floodplains. The Franciscan Formation, which bounds the alluviums of both creeks on the sides and bottom, is non-water bearing relative to the alluvium.

The alluvium of Chorro Creek has a maximum thickness of approximately 70 feet while the alluvium of Morro Creek has a maximum thickness of approximately 80 feet. Wells drilled in the

alluviums of both creeks generally pump water from coarse-grained deposits near the bottom of the alluviums.

7.4 Seawater Intrusion

In the coastal areas of both the Chorro and Morro Creek alluvial aquifers, water quality has been degraded by seawater intrusion. Seawater intrusion occurs when ground water pumping lowers the water level in the coastal part of an aquifer to sea level or below, creating a hydraulic gradient from the ocean to the aquifer. Under these conditions, seawater will infiltrate the aquifer to replace the ground water that is pumped out. Several wells have been abandoned along the coastal margin of Morro and Chorro Creeks because the quality of ground water was degraded by the intrusion of seawater.

The City's Chorro Creek wells are far enough inland that seawater intrusion has not impacted the quality of extracted well water. (T77,82:17-19.) In 1970, the intruded portion of the alluvium was one mile downstream of the City's Ashurst well field. (STAFF 9, Figure 8.)

7.5 Environmental Resources

There are several different habitat types present along both creeks from the headwaters to Morro Bay and the Pacific Ocean. The upper reaches of both creeks flow through grassland and oak woodland communities. The middle reaches of both creeks flow through grass or chaparral covered hills with extensive agricultural use. Beginning near the mouth of Chorro Creek and continuing downstream into Morro Bay is the Morro Bay brackish/saltwater marsh. This marsh is an estuary composed of three distinct wetlands habitat associations: brackish water marsh, pickleweed marsh, and mudflats. The Morro Bay watershed area (including Chorro and Morro Creeks) supports many species of mammals, birds, reptiles, amphibians, fish, and plants, including threatened and endangered species.

8.0 CHORRO CREEK APPLICATIONS

8.1 Stream Depletion Effects of the City's Extractions

Determining the depletion effects of City pumping on Chorro Creek surface flow is key to determining the City's impact on fish, riparian vegetation, wildlife habitat, and other public trust resources of Chorro Creek. The City provided evidence on this issue at the 1977, 1987, and 1995 hearings.

At the 1977 hearing, the City's expert witness, Dr. John Mann, testified that City pumping affects the rate and duration of surface flow in Chorro Creek near the Romero well field.

(T77,71:11-20, 75:2-8.) Dr. Mann's conclusion was based on his personal observation of Chorro Creek on December 28, 1976.

Dr. Mann was unable to quantify the stream depletion effects of the City's wells.

At the 1987 hearing, the City's witness, Mr. Frank Wein, Director of Services for the Brandman Firm, testified that an impermeable clay layer hydraulically separates the City's wells from Chorro Creek and that the City's pumping has no depletion effect on surface flow. (T87,87:25-89:3, 91:7-11, 95:20-97:5.) The Brandman Firm prepared the Environmental Impact Report (EIR) for the City on the water rights project covered by the pending applications. Mr. Wein's testimony was based on a hydrogeologic report included in the EIR (STAFF 10, Appendix B) prepared by Converse Consultants, a subconsultant to the Brandman Firm. The authors of the Converse report did not testify at the 1987 hearing. Mr. Wein does not qualify as an expert in hydrogeology and his testimony is contradicted by evidence presented by the City in both the 1977 and 1995 hearings.

In written testimony prepared for the 1995 hearing, the City's hydrogeologist, Mr. Timothy Cleath, stated that:

"[t]here is a direct reduction of stream flow of about 0.1 cfs in Chorro Creek adjacent to the City of Morro Bay Romero well field resulting from pumping the City's Well #11A at 0.53 cfs." (MORRO BAY 40, p. 5.)

Mr. Cleath's conclusion on the Romero well field effect is based on an initial stream depletion study he conducted in December 1994. In that study, Chorro Creek stream flow was measured in flumes upstream and downstream of Well 11A. Stream flow measurements were taken while Well 11A was pumping and while the well was idle to determine the depletion effect of the well on Chorro Creek. Mr. Cleath anticipates finishing the depletion study of Well 11A by the end of 1995. (T95I,168:5-17.)

Mr. David Paradies of Friends of the Estuary also took streamflow measurements of Chorro Creek during the same period that Mr. Cleath conducted his study. A description of Mr. Paradies' study and his data are found in Department of Fish and Game (DFG) Exhibit 9.⁸ Relying on Mr. Paradies' stream depletion data, Mr. Charles Marshall of DFG testified that the flow in Chorro Creek dropped by 0.412 cfs and 0.406 cfs when Well 11A was pumping on December 22 and 23, 1995 respectively. (DFG 6, p. 2.) These flow reductions are higher than the flow reduction of 0.1 cfs calculated by Mr. Cleath.

Mr. Cleath's calculations are entitled to more weight than Mr. Marshall's because Mr. Cleath accounted for factors other than pumpage from Well 11A that could have affected stream flow increases and decreases during the study. Mr. Cleath placed his measuring flumes in locations where most of the depletion impacts of pumping Well 11A would be detected, but not so far from the well as to be impacted by regional pumping impacts not directly attributable to Well 11A. (T95I,89:22-90:5, 167:9-11.) Additionally, he accounted for stream flow changes due to changing effluent release rates at the Men's Colony treatment plant and due to a rainfall spike that occurred during the test. (MORRO BAY 40, pp. 4-5; T95I,90:6-11, 168:18-169:13.) Whether Mr. Marshall accounted for these factors in his calculations is unknown.

⁸ Mr. Paradies did not testify at the hearing. His qualifications are unknown.

In his written testimony, Mr. Cleath stated that direct reduction in stream flow may also occur near the Ashurst well field but no tests have been performed to validate or invalidate this possibility. (MORRO BAY 40, p. 5.) Mr. Cleath testified that two physical factors would minimize any stream depletion effect caused by pumping the Ashurst well field. First, the surface channel of Chorro Creek was relocated from the center of the valley floor to the extreme southern side of the valley floor in the vicinity of the Ashurst well field. Mr. Cleath testified that the surface stream may no longer overlie the alluvial aquifer, or may overlie a very shallow portion of the aquifer. This configuration would limit the recharge potential from the stream to the aquifer. (T95I,50:5-51:4, 56:20-57:6.)

According to Mr. Cleath, the second physical factor affecting stream depletion in the Ashurst well field is the presence of thick clays in the alluvium between the surface stream channel and the lower portion of the alluvium from which the wells produce. (T95I,56:9-19.) Because of their relatively low hydraulic conductivity, clay layers generally impede the vertical percolation of ground water in an aquifer. Mr. Cleath stated that the first wells drilled in the immediate proximity of the Ashurst well field were artesian wells, meaning that ground water flowed out of the wells at land surface due to naturally occurring pressure in the aquifer. The historic artesian conditions are evidence of the confining clay layers. (T95I,93:1-15.) Because of declines in water levels, artesian conditions no longer exist in this area. (T95I,171:3-8.)

Mr. Cleath concluded that because of the relocation of Chorro Creek and the presence of clay beds in the alluvium of the lower Chorro Creek Valley, the Ashurst well field will have less of an impact on surface flow in Chorro Creek than the upstream Romero well field. (T95I,57:17-22.) However, Mr. Cleath was unable to provide a precise location of the clay beds and could not definitively state that the vertical percolation of surface water

into the aquifer was impeded in the Ashurst well field area. (T95I,92:12-16, 93:18-22, 118:25-119:3, 122:5-123:3, 180:18-181:2.)

Mr. William Boucher, Public Works Director of the City of Morro Bay, testified that preparation of a stream depletion study of the Ashurst well field is being considered by the City, but that such a study could not be done until alternate water supplies are available. Conducting the study would involve shutting down the Ashurst well field. Presently, the City cannot shut down the wells in the Ashurst field for the required time period of the study and still produce adequate water supplies. (T95I,173:21-174-2.) Mr. Boucher testified that the earliest the City could conduct stream depletion studies of the Ashurst well field would be in October 1996 when State Water Project supplies become available and summer-time peak demand is over. (T95I,173:21-174:7.)

The SWRCB finds Mr. Cleath's testimony to be persuasive. The SWRCB finds that pumping the Ashurst and Romero well fields depletes surface flow in Chorro Creek. Well 11A depletes surface flows by about 0.1 cfs. The evidence is not conclusive regarding the quantitative stream depletion effects caused by pumping the Ashurst well field.

8.2 Injury to Prior Rights

The Domenghini Trust and Roemer/Jones protested Applications 24239 and 24245 on the basis of injury to prior rights. The RCD purchased the Domenghini property in the 1980's and is the successor in interest to the Domenghini Trust. Both protestants claim riparian rights to the surface stream and subterranean stream in the Chorro Creek watercourse. Roemer/Jones also claims a pre-1914 appropriative right.

At the 1977 hearing, Mr. John Jones testified that surface water supplies were not adequate on the Roemer/Jones Ranch in 1972 and

1976 because the creek dried up by May 1 and May 5, respectively, for those years. (T77,213:9-25.) Other witnesses described the phenomenon of the creek drying up between Canet Road and Chorro Creek Road in the reach that extends through the Roemer/Jones property. (T77,11:18-12:2, 46:10-16.) The protestants attributed the flow loss to the City's pumping. As discussed in Section 8.1 above, the City testified at the 1995 hearing that the Romero well field, located upstream of the Roemer/Jones Ranch, has a direct depletion effect of about 0.1 cfs and that the depletion effect of the Ashurst well field is unknown.

Mr. Jones also testified that ground water supplies on the Roemer/Jones ranch were less than normal in the dry years of 1972 and 1976. Mr. Jones testified that in 1972 his pumps "sucked air", and in 1976, one well was completely dry by July. As a result of the 1972 shortage, power requirements were higher and substantially less acreage was irrigated. In 1976, 50 acres of corn were abandoned. (T77,214:14-19, 216:16-217:7.)

In a letter to the SWRCB dated January 20, 1995 (STAFF 1a), Mr. and Mrs. Jones reaffirmed their protest of the City's applications. The letter states that the Joneses irrigate about 250 acres. Using mostly drip irrigation systems, the Joneses estimated that they use 250 acre-feet of water per year.

Mr. Luis Domenghini testified that in 1972 and 1976 he had no real water problems because the water supply was carefully managed. (T77,270:12-15.) Mr. Domenghini supplied well water to the City and the golf course at Morro Bay State Park when shortages were experienced in 1952, 1955, and 1972.

(T77,272:13-273:1.) Mr. Domenghini testified that he has never had an "abnormal pumping schedule" as a result of surface flow ceasing in Chorro Creek. (T77,275:11-18.)

The Domenghini property was purchased by the RCD in the late 1980's. The RCD leases the property back to the Domenghini

family which grows lettuce, snow peas, garbanzo beans, oat hay, and broccoli. At the time of the 1995 hearing, about 45 acres were being farmed. Recent flooding had limited the area under cultivation. The RCD's witness, Mr. Scott Robbins, stated the number of plantings in a single year depends on annual rainfall. For 1995, he estimated that the upper part of the property would be planted 2.5 times. (T95II,113:6-114:5.) According to Mr. Robbins, between 90 and 100 acres of land have been irrigated historically. (T95II,111:7-9.)

Dr. John Mann, testifying at the 1977 hearing for the City, stated that City pumping will affect the Roemer/Jones and Domenghini wells. He stated that the impact will occur predominantly following winters of low runoff. (T77,50:10-51:2.)

At the 1977 hearing, Domenghini Trust and Roemer/Jones requested that the SWRCB adopt water level standards for the City's wells and for any wells in the vicinity of the City's wells. (T77,281:5-283:5.) A water level standard is a designated elevation above which the static ground water level in a well in the Chorro Creek alluvium must be maintained before the City may divert. The purpose of the proposed standards is to prevent shortages of water to the riparian diverters as happened in 1972 and 1976, and to protect the water supply for additional riparian development. (T77,294:19-22.) Implementing a water level standard would essentially reserve for the protestants all the water in storage in the alluvium below the designated elevation. For the Ashurst well field, a static water level standard of 10 feet above sea level is proposed. For the Romero well field, a static water level standard of 55 feet above sea level is proposed. (T77,281:5-25; RJ 4.)

Although protection from impacts due to City pumping on the protestants' diversion and use of water is appropriate, a static water level maintenance standard is not an appropriate solution to the problem of protecting prior rights because the riparian

demand may change over time while the standard does not. Therefore, a static water level maintenance standard may result in less than full utilization of the available water supply at times when riparian demand is low, and inadequate protection of riparian rights if demand increases over time.

The evidence establishes a cause and effect relationship between City pumping and injury to prior right holders. The City testified that its pumping will impact Domenghini Trust (now RCD) and Roemer/Jones in dry years and that the City's Well 11A depletes Chorro Creek by 0.1 cfs. The City has the burden of proof to show that its diversions do not injure prior right holders. Therefore, any permits issued pursuant to the City's Chorro Creek applications should be conditioned to protect riparian and pre-1914 appropriative diverters such that the City must curtail pumping or provide water to protestants RCD and Roemer/Jones, or their successors in interest, at times when the water levels in the protestants' wells reach depths that render the wells unusable. If this condition occurs, the protestants should be required to bear the estimated costs which they would have incurred to pump water from the affected wells. All other costs should be borne by the City.

Although not a protestant to the City's applications, Gary and Joyce Williams claim a riparian right to the Chorro Creek subterranean stream and claim they will be injured by City pumping from the Romero well field. The City Council of the City of Morro Bay agreed to a permit condition proposed by the Williamses in which the City will supply water to the Williamses when City pumping renders the Williams' well unusable. (STAFF 1a, letter from David R. Hunt to the SWRCB dated February 23, 1995.) The City and the Williamses request that the condition be included in any permit which may be issued by the SWRCB. As the City has agreed to protect the Williamses water supply from impacts due to City pumping, the Williamses should be named with

Roemer/Jones and the RCD in a permit condition to protect prior rights.

The condition to protect prior right holders should be in effect only when the methods of diversion and use of water by the prior right holders are reasonable pursuant to Article X, Section 2 of the California Constitution. The reasonableness issue was not noticed for any of the three hearings, thus, the methods of diversion and use of water of RCD, Roemer/Jones, and the Williamses are assumed to be reasonable in the absence of any evidence to the contrary. If the City wishes to challenge the reasonableness of diversion and use of water by any prior right holder, a complaint may be filed with the SWRCB.

A further limitation on riparian diverters is that they are entitled only to the naturally occurring surface flow and subterranean stream flow of Chorro Creek. Riparians are not entitled to divert and use surface flow and subterranean stream flow that originated as stored water or was imported into the Chorro Creek watershed from another watershed. During the dry period of the year, surface flow in Chorro Creek downstream of the Men's Colony wastewater treatment plant is significantly augmented by treated effluent discharged from the plant.

(T77,8:14-25, 25:18-26:8, 34:14-21; DFG 1.) Section 8.1 found that surface flow in Chorro Creek infiltrates to the subterranean stream; therefore, the subterranean stream is augmented to some unknown degree by treated effluent discharged from the plant. To the extent that this effluent originated as imported water from Whale Rock Reservoir and stored water from the Chorro Creek watershed, it cannot be legally diverted under claim of riparian right.

A portion of the discharged effluent, however, originated as a direct diversion from Chorro Creek. Springs above Chorro Reservoir provide surface inflow to the reservoir on a year-round basis. A portion of this natural inflow to the reservoir is

bypassed at the Chorro Reservoir dam and a portion is appropriated under direct diversion rights authorized in License 7844 for use at the Men's Colony. The portion of the natural inflow that is appropriated by direct diversion for use at the Men's Colony and returned to Chorro Creek as effluent at the treatment plant outfall could be considered as natural flow available for riparian diversion and use. Although the SWRCB recognizes that there may be a natural flow component in the effluent discharged by the treatment plant, the scope of this decision does not extend to quantifying the natural flow component.

To protect prior rights, the SWRCB finds that the following term should be included in any permit issued by the SWRCB to the City for its Chorro Creek applications:

- At such time as permittee is diverting water authorized under this permit and the water level in one or more of the wells operated on the Coastal San Luis Resource Conservation District property, the Roemer/Jones property, the Gary and Joyce Williams property, or their successors in interest, for valid riparian and/or pre-1914 appropriative uses of water from the Chorro Creek subterranean stream, reaches a depth which renders the well or wells unusable, permittee shall either:
 - a. Stop its diversion until conditions are such that the well or wells is/are again usable, or
 - b. Deliver water to the riparian/pre-1914 appropriative place of use served by the well or wells.

The riparian/pre-1914 appropriative diverter shall bear the estimated costs which would have been incurred to pump water from the affected well or wells. In the absence of an agreement between the permittee and the other parties

relative to pumping costs, the costs shall be based on an average amount per acre-foot for pumping water from the affected well or wells during the month in question over the prior three years. Permittee shall pay the cost of installing and maintaining any water conveyance facilities needed to deliver water to the riparian/pre-1914 appropriative place of use.

The SWRCB reserves jurisdiction to modify this permit term based on findings that the methods of diversion and/or uses of water of the riparian and pre-1914 appropriative diverters identified in this term are wasteful or unreasonable pursuant to Article X, Section 2 of the California Constitution. Any modification of this term will occur only after notice to interested parties and opportunity for hearing.

8.3 Seawater Intrusion

According to Department of Water Resources (DWR) Bulletin No. 63-6 (STAFF 9, p. 44-51), several wells were abandoned along the coastal margin of Morro and Chorro Creeks because the quality of ground water was degraded by the intrusion of seawater. Because of the proximity of the Ashurst well field to the intruded portion of the Chorro Creek alluvial aquifer, City pumping may directly contribute to water level decline near the intrusion front and to its advance. Further, City pumping in conjunction with other withdrawals of ground water may cumulatively decrease the amount of fresh ground water outflow from the basin and contribute to seawater intrusion. However, no evidence was presented at any of the hearings to show that seawater intrusion into the Chorro Creek alluvial aquifer has worsened since the 1960's or that any additional wells have been abandoned due to seawater intrusion.

The Morro Bay State Park golf course well (32M1), located near the mouth of Chorro Creek, has been contaminated by seawater intrusion and was reported as such by DWR in 1972 (STAFF 9,

p. 50). According to Mr. Cleath, the City's hydrogeology expert, the chloride concentration in the well fluctuates seasonally and annually depending on precipitation. Although chloride concentrations in the well have been elevated, the well water is still used for irrigation of the golf course. In Mr. Cleath's opinion, the chloride concentration fluctuations in the golf course well do not indicate the existence of a permanent intrusion problem. (T95I,173:6-20.)

Domenghini Trust and Roemer/Jones requested that the SWRCB adopt chloride concentration standards for ground water from the City's wells and for ground water from any wells in the vicinity of the City's points of diversion. (T77,281:12-25; RJ 4.) If the proposed standards are exceeded, the protestants want the City to cease pumping until the standards are once again achieved. (T77,282:19-283:5.)

In 1977, the City's Director of Public Works, Mr. Douglas Stuart, testified that the Ashurst well field on Chorro Creek had chloride concentrations in the 80 to 120 parts per million (ppm) range. In the Romero well field, Wells 8 and 11A had chloride concentrations in the range of 100 to 130 ppm.⁹ (T77,99:1-23.) For the Ashurst well field, the protestants proposed a chloride concentration standard of 175 milligrams per liter (mg/l). For the Romero well field, they proposed a chloride concentration standard of 125 ppm. (T77,281:5-25.) The ground water quality standards proposed by the protestants are not appropriate for the following two reasons.

First, chloride concentration alone is not an absolute indicator of seawater intrusion. An example is the Romero well field where the chloride concentration has been higher than in the downstream Ashurst well field. The fact that the chloride concentration was higher in the City's upstream well field than in the downstream

⁹ The U.S. Environmental Protection Agency has established a secondary drinking water standard for chloride concentration of 250 ppm.

well field suggests that seawater is not the source of the chloride in the upstream Romero well field. Seepage from septic tanks or treated effluent discharged into Chorro Creek are the more probable sources of the chloride.

Second, no evidence was presented to establish that seawater intrusion has worsened significantly since 1972, even though this time period includes two severe droughts (1976-77 and 1987-92). Therefore, the SWRCB finds that a seawater intrusion mitigation condition is not necessary and should not be included in any permits issued to the City for the Chorro Creek diversions.

8.4 Impacts to Public Trust Resources from the City's Extractions

There are several important fish, wildlife, and plant species in lower Chorro Creek and Morro Bay whose habitat is dependent upon maintenance of sufficient freshwater flows in lower Chorro Creek. The species of primary concern are the following: Steelhead trout (*Oncorhynchus mykiss*), California tidewater goby (*Eucyclogobius newberryi*), southwestern pond turtle (*Clemmys marmorata pallida*), California red-legged frog (*Rana aurora*), California black rail (*Laterallus jamaicensis coturniculus*), eel grass (*Zostera marina*), and pickleweed (*Salicornia virginica*). (DFG 4, p. 3; DFG 6, p. 2-4; DFG 13, p. 8.1-1 to 8.1-6; T95I,59:16-60:23; T95II,11:19-12:20, 23:12-21, 46:16-47:19, 70:16-71:10.) The biologists testifying at the 1995 hearing agreed that if freshwater flows in lower Chorro Creek are sufficient to protect steelhead trout, those flows would be sufficient to protect the other fish, wildlife, and plant species of concern in lower Chorro Creek and Morro Bay. (DFG 6, p. 5; T95II,14:25-15:9, 20:12-18, 25:13-25, 65:10-20.) Therefore, the SWRCB finds that if flows are maintained in lower Chorro Creek which are sufficient to protect habitat for steelhead trout, those flows are sufficient to prevent adverse effects on other public trust resources in lower Chorro Creek and Morro Bay.

The steelhead fishery requires maintenance of a minimum streamflow throughout the year to maintain suitable water quality and habitat conditions, such as cool water temperatures, adequate dissolved oxygen levels, sufficient water depth, overhanging riparian vegetation, and food organisms. Maintenance of minimum flows is particularly critical during the warm months of low flow, when increases in water temperatures and decreases in dissolved oxygen content in juvenile steelhead nursery areas are most likely to reach dangerous levels due to high air temperatures and lack of sufficient shading by riparian vegetation under stress. During these warm months, particularly in the summer, juvenile steelhead are most vulnerable to high mortality losses. Juvenile steelhead typically must remain in the nursery areas from one to two years before they grow large enough for outmigration to the ocean to begin their anadromous phase of development into mature adults. Higher flows are required during the winter and spring months to provide suitable upstream migration and spawning conditions for adult fish returning from the ocean, and also to provide for outmigration of juvenile fish ready to begin their ocean phase of development. (DFG 1, p. 12-14; DFG 13, p. 8.1-4; T95II,9:14-10:22.)

DFG biologist, Charles Marshall, testified that the minimum flow necessary to protect steelhead trout in lower Chorro Creek should be 3.0 cfs from December 1 through May 31, and 1.5 cfs from June 1 through November 30. (DFG 6, p. 7; T95II,5:22-6:6.) The higher flow is intended to facilitate upstream migration and spawning of adult fish in winter and spring and also to ensure adequate downstream migration of juvenile fish to the ocean. The lower flow is intended to protect minimum habitat conditions in lower Chorro Creek for steelhead trout, particularly in critical juvenile rearing and nursery areas during the warmest low-flow months. The lower flow recommendation is based on Mr. Marshall's review of DFG's testimony and exhibits presented at the 1987 hearing, his review of information derived from streamflow studies made since 1987 of Chorro Creek and nearby creeks with

characteristics similar to Chorro Creek, and his personal knowledge of Chorro Creek. Further, Mr. Marshall recommends that the SWRCB condition the City's permits, if granted, to require that no diversions be made from the Chorro Creek subterranean stream when the surface flow measured in Chorro Creek at Twin Bridges is less than the flow recommended above. (DFG 1; DFG 6; DFG 9; DFG 11; DFG 12; DFG 13; T95II,5:17-7:15.)

In Section 8.1, the SWRCB found that pumping the Romero and Ashurst well fields depletes Chorro Creek. Thus, the City's right to divert water from the Chorro Creek subterranean stream should be conditioned on the maintenance of a minimum instream flow downstream of its two well fields. However, evidence in the hearing record does not support the flow recommendation of 3.0 cfs from December 1 through May 31. Hydrologic data in the hearing record for the period of December through May show that historic flows in lower Chorro Creek of 3.0 cfs or greater generally do not occur continuously but, rather, periodically and usually in association with rainstorms. (STAFF 24.) Linking the City's right to divert to a continuous instream flow that has not occurred historically is unreasonable. As long as minimum flow for habitat protection is maintained in lower Chorro Creek during December through May, steelhead trout can utilize periodic higher flow conditions for migration and spawning. (T95II,7:16-8:18, 17:21-20:11, 24:15-25, 58:5-61:10, 75:24-77:23.) Therefore, the SWRCB finds that sufficient grounds do not exist for establishing conditions in the City's permits requiring curtailment of diversions from December through May whenever surface flow downstream of the City's points of diversion is less than 3.0 cfs.

The SWRCB finds that a minimum flow is necessary to protect habitat for steelhead trout in lower Chorro Creek. The biologists testifying at the 1995 hearing observed representative reaches of lower Chorro Creek in which they found that surface flows measured at 1.4 cfs were adequate to protect steelhead

trout habitat. (T95II,7:10-15, 20:12-23:11, 26:16-27:22, 30:20-31-24, 34:18-35:16, 61:11-64:2, 65:21-66:15.) Mr. Marshall, however, recommended 1.5 cfs as the minimum flow. (DFG 6, p. 7.) The advantages of a 1.5 cfs flow compared to a 1.4 cfs flow appear to be slight from a biological perspective. Therefore, to maximize the City's utilization of the Chorro Creek subterranean stream, the SWRCB finds that the most appropriate minimum flow for protection of steelhead trout habitat in lower Chorro Creek during the period June 1 through November 30 is 1.4 cfs. Further, the SWRCB finds that this minimum flow should be extended to cover the entire calendar year, since flows are necessary to protect steelhead throughout the year.

About 90 percent of the time from November 1 through May 31 flow in Chorro Creek has been either greater than 3.0 cfs or less than 1.4 cfs. (MORRO BAY 23.) The remaining ten percent of the time, the flow was between 1.4 cfs and 3.0 cfs. Thus a winter-time instream flow requirement of 1.4 cfs will probably result in the City being able to extract water from the Chorro Creek subterranean stream about ten percent more of the time than if the instream flow requirement was 3.0 cfs.

Because the depletion effect on Chorro Creek from pumping the Ashurst well field is not quantified, the significance of the effect on public trust resources cannot be evaluated. Therefore, the SWRCB should reserve jurisdiction to revisit the appropriateness of the 1.4 cfs instream flow requirement downstream of the Ashurst well field if the City conducts a stream depletion study.

The appropriate location(s) for monitoring and enforcing the minimum flow requirement should be downstream of the City's points of diversion, just beyond the limit of the City's depletion effect on surface flows but upstream of the depletion effects caused by nearby pumpers. The evidence in the hearing record does not support establishing the monitoring location at

Twin Bridges, which is over one mile downstream from the City's Ashurst well field. There is a significant problem associated with the Twin Bridges location because there are at least three wells downstream of the Ashurst well field and upstream of Twin Bridges which could influence flow measured at Twin Bridges. These wells are the two irrigation wells on the Chorro Flats property owned by the RCD and the San Luis Obispo County well serving the Morro Bay State Park golf course. (RCD 2, p. 52, Figure 19; RCD 4, p. 34.) Unless there are reasonable and accurate means available to the City to account for the effects of these three wells on surface flow measured at Twin Bridges on a real time basis, it would not be appropriate to tie the City's diversions to flow conditions measured at a point downstream from the City's influence but susceptible to other diversions not under the City's control. Consequently, the SWRCB finds that the monitoring site(s) should be located downstream of the City's points of diversion, but only at locations sufficient to detect effects of the City's diversions without influence from other diversions from or sources of supply to Chorro Creek. In the case of overlapping pumping effects between the City and a nearby pumper, a compromise location shall be selected. The measuring devices and their locations should be approved by the Chief of the Division of Water Rights.

The SWRCB finds that terms and conditions should be included in the City's permits which prohibit diversions from the Chorro Creek subterranean stream whenever the surface flow in Chorro Creek measured downstream of the City's points of diversion is less than 1.4 cfs. These terms and conditions are intended to ensure that the City's diversions from the Chorro Creek subterranean stream will not cause significant adverse effects on steelhead trout and other public trust resources in lower Chorro Creek and Morro Bay.

The CCC also proposed conditions to protect public trust resources in its protest of the City's applications. The CCC

requested that any permits issued to the City be conditioned as follows:

1. Develop a water conservation program which includes an agricultural conservation element;
2. Develop a schedule for system improvements including the feasibility of relocating wells and the use of reclaimed water; and
3. Carry out a comprehensive monitoring program of the habitat of Chorro and Morro Creeks for purposes of determining the impact of City diversions on the habitat, and to develop appropriate mitigation measures.

The City testified that it has developed a water conservation program. (T95I,20:25-21:12.) Further, standard permit term¹⁰ 29A which requires preparation of an urban water management plan, should be included in any permits issued to the City. The City, however, has no authority to implement agricultural conservation measures. Thus, requiring it to do so is unreasonable. Requiring the City to develop a schedule for system improvements is not recommended because no evidence was introduced to show that improvements are necessary. Finally, the 1.4 cfs instream flow requirement should mitigate impacts to habitat and public trust resources. Therefore, requiring a habitat monitoring program is not recommended for Chorro Creek.

8.5 Availability of Unappropriated Water

An instream flow requirement of 1.4 cfs may impact the City's ability to meet municipal demand. To determine the magnitude of the impact, surface flow records for Chorro Creek were used to determine how frequently the City would have to cease pumping

¹⁰ The SWRCB maintains a list of Standard Permit Terms, applicable portions of which are included in all permits pursuant to the California Code of Regulations, Title 23, Section 780. Copies of the Standard Permit Terms are available upon request.

with a 1.4 cfs instream flow requirement. The City's peak daily demand was estimated to determine whether the City's other water sources could meet municipal demand when Chorro Creek ground water is not available.

Surface flow in Chorro Creek has been measured since November 1978 by a continuous recording gage which is operated by the County of San Luis Obispo. The county records of the gage consist of daily mean flow values. (STAFF 24.) The gage is located near Canet Road just upstream of the confluence with San Luisito Creek and Well 11A, and approximately three miles downstream of the Men's Colony wastewater treatment plant outfall (Figure 1). Gage records show that streamflow in Chorro Creek is highly variable from day-to-day, season-to-season, and year-to-year.

Table 1 contains a monthly summary of the mean of the daily mean flow (mean) and the median of the daily mean flow (median) for the period of record. This summary demonstrates that periodic high to very high mean daily flows, induced by storm events, make median rather than mean flow a better indicator of the more prevalent flow conditions of record on Chorro Creek. During the months of July through November, the median flow is less than 1.4 cfs.

TABLE 1
MEAN AND MEDIAN OF DAILY MEAN FLOW
CHORRO CREEK GAGE AT CANET ROAD
NOVEMBER 1979 - DECEMBER 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MEAN cfs	19.1	32.7	29.8	10.3	4.0	2.5	1.6	1.3	1.3	1.9	3.2	6.3
MEDIAN cfs	3.9	4.1	10.0	4.9	2.9	1.9	1.0	1.1	0.5	1.1	0.9	2.9

As explained in Section 8.4, any permits issued to the City for Chorro Creek diversions should require the maintenance of an

instream flow of 1.4 cfs through the stream reach influenced by the City's wells. Well 11A is less than 0.5 mile downstream of the Canet Road gage and was shown to have a depletion effect on Chorro Creek of about 0.1 cfs. Therefore, a flow of 1.5 cfs or higher at Canet Road gage should result in a minimum flow of 1.4 cfs in Chorro Creek downstream of Well 11A. At flows less than 1.5 cfs at the Canet Road gage, the City would have to cease diversions at Well 11A.

Table 2 shows the percentage of time that the mean daily flow was less than 1.5 cfs in each month for the period of record. Water would be unavailable for appropriation by the City 60 percent of the time in July, 67 percent of the time in August, 72 percent of the time in September, 54 percent of the time in October and 64 percent of the time in November. For the other months, water would be unavailable less than half of the time. Daily records for the month of June show that stream flow has been significantly lower in the second half of the month than in the first half. Flows less than 1.5 cfs occur 53 percent of the time from June 15 through June 30, but only 38 percent of the time from June 1 through June 14.

TABLE 2

PERCENT OF THE TIME CHORRO CREEK MEAN DAILY FLOW
WAS LESS THAN 1.5 CFS AT THE CANET ROAD GAGE
NOVEMBER 1979 - DECEMBER 1994

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVERAGE
28%	28%	15%	13%	27%	46%	60%	67%	72%	54%	64%	37%	42%

Because the 16-year period of record of the Canet Road gage is relatively short, the water availability analysis above may not reflect long-term stream flow conditions in Chorro Creek. Assuming a correlation between stream flow and precipitation, the records for the Morro Bay Fire Station rainfall gage were examined to determine if the precipitation during the 16-year

period of the Canet Road stream gage was representative of long-term trends. The average annual precipitation for the period of the stream flow records is approximately equal to the long-term average of the rainfall record. Further, both extremely wet and extremely dry years occurred during the period of the Canet Road stream gage. Thus, the water availability projections in Table 2 are most likely representative of long-term trends.

The above analysis shows that, with the 1.4 cfs instream flow requirement, water will be unavailable to the City in most years from June 15 through November 30. Thus, in the reach below the wastewater treatment plant outfall, water would be unavailable for future appropriation from Chorro Creek during this time. The SWRCB finds that Chorro Creek and tributaries below the wastewater treatment plant outfall should be considered at a future hearing for inclusion in the Declaration of Fully Appropriated Streams pursuant to Water Code Section 1206, et seq.

Flows less than 1.5 cfs occur in Chorro Creek at the Canet Road gage at all times of the year and for extended periods as well, particularly during the summer. (STAFF 24.) Therefore, maintaining an instream flow of 1.4 cfs in Chorro Creek would require that the City supply all of its municipal demand from sources other than the Chorro Creek well fields. The City would have to meet peak demand using the Morro Creek well field and the desalination plant because the City has only minimal capacity to store water. Table 3 shows the peak flow available from the desalination plant and the Morro Creek wells which totals approximately 1.5 million gallons per day (mgd). (MORRO BAY 26, p. 49, p. 74.)

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Table 3

PEAK FLOW
FROM DESALINATION PLANT AND MORRO CREEK WELLS

SOURCE	PEAK FLOW		
	CFS	GPM	MGD
Desal. Plant	0.89	400	0.575
Morro Creek	1.4 ¹¹	628	0.904
TOTALS	2.3	1,028	1.48

The record does not contain an accounting of the City's peak daily demand. Therefore, a conservative estimate of this demand was made using the following parameters as assumptions:

- 1995-1996 population = 10,000 (T95II,133:13-16.)
- Average annual per capita demand (1991-1992) = 120 gallons (T95I, 78:13-79:4; MORRO BAY 26, Table 5-1 and Figure 6-1.)
- Peak daily demand = 1.9 times average daily demand (MORRO BAY 26, p. 46.)

The above assumptions result in an average daily demand of 1.2 mgd and peak daily demand of about 2.3 mgd, the latter being substantially in excess of the 1.5 mgd peak flow available from the Morro Creek wells and the desalination plant. The SWRCB therefore concludes that the public interest is best served by delaying implementation of the 1.4 cfs instream flow requirement until deliveries are available from the State Water Project to give the City time to develop an alternate source of water. The City plans to take delivery of 1,313 acre-feet annually of State Water Project water starting in August 1996. The City is also

¹¹ The maximum 30-day average diversion rate in the City's Morro Creek applications is 1.2 cfs. If the 30-day average diversion rate was to exceed 1.2 cfs, the City would need to file a new application or an application for a temporary water right permit for diversion of the excess.

seeking an additional allocation of State Water Project water from San Luis Obispo County. (T95I, 21:18-20, 21:25-22:8, 134:19-21.)

The public interest is also served by preserving the effluent flow of 0.75 cfs released for steelhead preservation from the Men's Colony wastewater treatment plant. Mr. Cleath's stream depletion study established that Chorro Creek flow is augmented by discharged effluent in the reach adjacent to the Romero well field and that pumping Well 11A depletes Chorro Creek by about 0.1 cfs. (MORRO BAY 40, p. 5.) Therefore, any permits issued to the City for appropriations from Chorro Creek should be conditioned on maintenance of the 0.75 cfs effluent flow through the Romero well field area until the 1.4 cfs instream flow requirement goes into effect. To accomplish this, the City should cease diversions from Well 11A when instantaneous flow measured at the Canet Road gage is less than 0.85 cfs. The City's Exhibit 47 shows that ground water production from the Ashurst well field is adequate to make up the supply deficit not available from the desalination plant and the Morro Creek wells. An interim instream flow requirement for the Ashurst well field is not recommended because the record contains no evidence that the 0.75 cfs effluent release reaches the Ashurst well field.

The SWRCB finds that specific terms and conditions for protection of public trust resources should be as follows:

- For the protection of fish and wildlife habitat and other public trust resources in Chorro Creek and Morro Bay, beginning when deliveries are available from the State Water Project Permittee shall:
 - a. Cease all diversions from Well 11A (Romero well field), or from any wells constructed or operated as replacements wells for Well 11A, whenever surface flow measured in Chorro Creek downstream of the reach depleted by

extractions of ground water from Well 11A, or other wells as described above, is less than 1.4 cubic feet per second; and

- b. Cease all diversions from Wells 9, 9A, 10, 10A 12, and 16 (Ashurst well field), or from any wells constructed or operated as replacement wells for the Ashurst well field, whenever surface flow measured in Chorro Creek downstream of the Ashurst well field is less than 1.4 cubic feet per second.
- Permittee may, at its option, seek a waiver of paragraph b. (above) by conducting a study and providing the Chief, Division of Water Rights, with quantitative evidence that ground water extraction from the Ashurst well field does not deplete surface flow in Chorro Creek. The evidence shall be provided in a report which also specifies the reach of the creek and portion of the alluvial aquifer studied and a description and justification of the methodology used to measure stream depletion. The SWRCB reserves jurisdiction over this permit to determine whether to waive paragraph b. Any action to waive paragraph b. shall be taken only after notice to interested parties and opportunity for hearing.
 - No later than January 1, 1997, Permittee shall install devices which are capable of continuous measurements of surface flow in Chorro Creek to document compliance with the minimum surface flow conditions of this Permit. One measuring device shall be installed in Chorro Creek downstream of the Romero well field at a location sufficient to detect the full depletion effects of Permittee's diversions from the Romero well field, but upstream of the depletion effects caused by nearby pumpers on surface flow in Chorro Creek. Another measuring device shall be installed in Chorro Creek downstream of the Ashurst well field at a location sufficient to detect the full depletion effects of

Permittee's diversions from the Ashurst well field, but upstream of the depletion effects caused by nearby pumpers on surface flows in Chorro Creek. In the case of overlapping pumping effects between the City and a nearby pumper, a compromise location shall be selected. These measuring devices shall be continuously operated and properly maintained by Permittee. In the event that either of these devices is rendered inoperable due to relocation of the Chorro Creek stream channel, Permittee shall move the measuring device to a suitable location in the new stream channel within 60 days after surface flows are rediverted into the new stream channel. The measuring devices and their locations shall be approved by the Chief of the Division of Water Rights. A description and justification of the measuring devices and their locations shall be submitted for approval no later than July 1, 1996.

- By March 1 of each year Permittee shall submit a report to the Chief, Division of Water Rights, documenting compliance with the minimum surface flow conditions of this Permit. The report shall contain:
 - a. A list of dates and times during the previous calendar year when water was pumped at each of Permittee's points of diversion under this Permit; and
 - b. For each of the dates and times listed in paragraph a. (above) the corresponding minimum surface flows measured in Chorro Creek at each of the surface flow measuring devices.
- Permittee shall cease all diversions from the Romero well field, or from any wells constructed or operated as replacements for wells in the Romero well field, whenever instantaneous surface flow in Chorro Creek measured at the Canet Road stream gage is less than 0.85 cubic feet per

second. This term shall be in effect until deliveries are available from the State Water Project.

9.0 MORRO CREEK APPLICATIONS

9.1 Stream Depletion Effects of the City's Extractions

To address the issue of the stream depletion impact on Morro Creek from pumping the Kaiser well field, the City provided the expert testimony of hydrogeologist, Timothy Cleath. In his written testimony (MORRO BAY 40, p. 3) Mr. Cleath stated:

"Based on the fact that the Morro Creek stream bed is underlain by low permeability sedimentary beds, I would expect to see little, if any, direct reduction in Morro Creek stream flow adjacent to the City's wells resulting from pumping the wells."

In support of this statement, Mr. Cleath referred to Figure A-2 in the City's Exhibit 25 which depicts aquifer stratigraphy beneath Morro Creek as interpreted from geologic well logs. The well logs show that 30 to 40 feet of clay, or clay and gravel beds, underlie Morro Creek adjacent to the City's points of diversion. No evidence was presented by the parties to refute the City's conclusion that the clay layer will protect surface flows of Morro Creek from depletion effects due to pumping the Kaiser well field. Therefore, the SWRCB finds that the City's extraction of water from the subterranean stream of Morro Creek will not result in any significant depletion of the surface flow of Morro Creek.

9.2 Injury to Prior Rights

Mr. Ron Kennedy, the Nagano Company, and Mr. David Wixom protested Application 24246 on the basis of injury to prior rights. They claim riparian rights to surface and ground water flow in the Morro Creek watershed. They did not protest Application 27477.

Protestant Kennedy did not appear at any of the three hearings, nor did he provide the SWRCB with good cause for failure to appear in support of his protest. Section 766, Title 23,

California Code of Regulations, states that the lack of such showing of good cause for failure to appear at a hearing may, in the discretion of the Board, be interpreted as an abandonment of interest in the application. The SWRCB exercises such discretion and finds that Mr. Kennedy's protest against Application 24246 has been abandoned.

At the 1977 hearing, protestant Wixom testified that in 1972, a dry year, his wells which normally pumped 300 gallons per minute (gpm) dropped to 75 gpm. One well went completely dry. (T77,243:3-21.) The dry well was permanently abandoned and the pump and casing pulled. (T77,244:11-13.) That year, Mr. Wixom stopped watering his pasture in favor of using the available water on his avocados. (T77,244:19-23.) In 1976, another dry year, Mr. Wixom testified that one pump broke suction because water levels in the alluvium had dropped. (T77,245:12-15.) He also testified that surface flow in parts of Morro Creek dried up in 1972 and 1976. (T77,253:1-9.) In 1972, the well problems started 30 to 45 days after the surface flow in the creek dried up. (T77,253:17-23.)

Mr. Patrick N. Nagano, representing protestant Nagano Company, testified that in 1972, one agricultural well and one domestic well broke suction periodically impacting his ability to produce water. (T77,262:15-23.) As a result of the water supply conditions in 1972 and 1976, Mr. Nagano fallowed as much as 50 acres of farmland. (T77,265:12-23.) Mr. Nagano testified that he "has a feeling" that the City's pumping impacts his wells. (T77,265:7-9.) However, he did not provide any evidence in support of his "feeling."

At the 1977 hearing, protestants Wixom and Nagano Company requested that the SWRCB adopt water level standards for the City's wells and for any wells in the vicinity of the City's wells as a measure to protect Nagano Company's and Mr. Wixom's riparian rights. They requested that the City's right to divert

be conditioned on maintenance of the water level standards. (T77,282:19-283:5, 291:6-292:14.) They proposed a static water level standard of 5 feet above sea level for the Morro Creek well field and vicinity. (T77,280:23-281:17; RJ 4.)

The City's expert witness, Dr. Mann, testified that the City's pumping from the Morro Creek alluvium does not impact the upstream riparians' wells. Dr. Mann described a constriction in the alluvium between the Kaiser well field and the protestants' wells. (T77,49:21-50:3.) He testified that the constriction results in a reduced cross-sectional area in the alluvium. As water flows through this smaller cross-sectional area, a pressure head is propagated upstream. This tends to keep water levels higher than they would be in the absence of the constriction. (T77,68:17-22.) Dr. Mann testified that because of the constriction, the effects of the City's pumping on the upstream riparian's wells is undetectable. (T77,61:22-62:4.)

Although the protestants testified to water shortages experienced during dry years, they did not establish a cause and effect relationship with the City's pumping. The City's expert witness testified that because of hydrogeologic conditions in the alluvial aquifer, the Kaiser well field does not impact the riparians' wells. Based on this testimony and lack of any evidence to the contrary, the SWRCB concludes that diversions by the City from the Morro Creek subterranean stream, below the aforementioned constriction, do not adversely affect upstream diversions by protestants Nagano Company and Mr. Wixom. Because there is no showing of injury to Nagano Company's and Mr. Wixom's riparian rights, special conditions to protect their rights are not needed in any permits which may be issued to the City for diversions from the Morro Creek subterranean stream.

9.3 Seawater Intrusion

As described in Section 8.3, seawater intrusion has degraded ground water quality in the coastal portions of both the Morro

Creek and Chorro Creek alluvial aquifers. At the 1977 hearing, riparian protestants Wixom and Nagano Company requested that the SWRCB adopt chloride concentration standards for ground water from the City's wells and for ground water from any wells in the vicinity of the City's wells. If the proposed standards are exceeded, the protestants want the City to cease pumping until the standards are once again achieved. For the Kaiser well field, a chloride concentration standard of 175 mg/l is proposed by the protestants. (T77,281:12-25, 282:19-283:5; RJ 4.)

At the 1977 hearing, the City's Director of Public Works, Mr. Douglas Stuart, testified that chloride concentration is a controlling factor in the management of its Morro Creek wells. (T77,78:8-15.) Wells 1 and 2 are the only wells that are impacted by seawater intrusion. Historically, the chloride concentration in water from Well 1 has exceeded 900 ppm. (T77,96:9-17.) Mr. Stuart thought that the chloride content of Well 2 had been in excess of 2,000 ppm. This well was so severely impacted at one time that it was not pumped for two years. Subsequently, the well was pumped, but not into the domestic distribution system. (T77,98:3-9.) Due to deteriorating water quality, replacement wells were drilled for Wells 1 and 2. (T95I,154:6-9, 154:18-155:7; MORRO BAY 15.)

Because there are no intervening diverters of record on Morro Creek between the Kaiser well field and the ocean, and because the City will need to control seawater intrusion to protect its own wells, monitoring and water quality standards are not recommended for Morro Creek.

9.4 Impacts to Public Trust Resources from the City's Extractions

The biologists testifying at the 1995 hearing did not recommend that minimum stream flow standards be established for protection of public trust resources in lower Morro Creek. They have determined that while there may be potential for restoration of fish and wildlife habitat in Morro Creek, most of the habitat

that could be restored is located upstream of the City's wells. Existing agricultural diversions from the creek upstream of the City's wells have already degraded the habitat to such an extent that restoration is unlikely to be successful. (T95II,14:19-24, 53:10-55:3.) Also, as explained in Section 9.1, the City's extraction of water from the subterranean stream of Morro Creek will not result in any significant depletion of the surface flow of Morro Creek. Consequently, the City's existing and proposed diversions from the Morro Creek subterranean stream will not cause any significant impact on public trust resources dependent on surface flows in Morro Creek. Therefore, the SWRCB finds that it is unnecessary to require minimum stream flows for protection of public trust resources in Morro Creek.

The CCC's public trust protest of the City's application on Morro Creek is identical to its Chorro Creek protest. The dismissal conditions proposed by the CCC are also identical and are listed in Section 8.4. Because the City's Morro Creek diversions have no significant impact on public trust resources, the CCC's dismissal conditions are not appropriate.

9.5 Availability of Unappropriated Water

The City's extraction of ground water from the Morro Creek subterranean stream does not cause any significant depletion of the surface flow of Morro Creek. Further, the City's extractions do not affect upstream diversions by protestants with senior rights nor do they affect the public trust resources dependent upon surface flows in Morro Creek. Consequently, the SWRCB finds that unappropriated water is available to supply the City for Applications 24246 and 27477 in the amounts and seasons requested.

10.0 CITY'S REQUEST TO AMEND APPLICATIONS

At the end of the 1995 hearing, the City requested to amend its applications as follows:

- Reduce the maximum total annual amount of water diverted from both creeks to 1,600 afa from 1,723.5 afa;
- Extract 533 afa (one-third of the total) from Morro Creek subterranean stream and 1,067 afa (two-thirds of the total) from Chorro Creek subterranean stream during regular rainfall years;¹²
- Extract 400 afa (one-fourth of the total) from Morro Creek subterranean stream and 1,200 afa (three-fourths of the total) from Chorro Creek subterranean stream during drought years.¹³

(T95II, 134:1-135:6.) The annual limitations of the pending applications and the requested amendments are summarized in Table 4. Table 4 shows that the City's drought year request for Chorro Creek exceeds the total of annual limitations in the pending applications. The City's drought year request will result in the initiation of a new right for which a new application must be filed. Further, the City did not specify an amount to be diverted for each application. Diversion amounts must be specified for applications and permits. (Water Code Sections 1260(c) and 1375(b).) Finally, the City may need the full amount specified for each application to meet its demand. Therefore, the City's request to amend its applications is denied.

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¹² The City did not define regular rainfall years.

¹³ The City did not define drought years.

TABLE 4

CITY OF MORRO BAY
ANNUAL LIMITATION DATA

Source	Application	Current Annual Limitation (afa)	Regular Rainfall Year (afa)	Drought Year (afa)
Chorro Creek Subterranean Stream	24239	390		
	24245	535		
	27386	217.5		
	Total	1,142.5	1,067	1,200
Morro Creek Subterranean Stream	24246	490		
	27477	91		
	Total	581	533	400
Total Diversion Requested		1,723.5	1,600	1,600

11.0 COMPLIANCE WITH CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

As the lead agency pursuant to CEQA, the City is responsible for the preparation of appropriate environmental documents for the proposed project covered by Applications 24239, 24245, 24246, 27386, and 27477. In November 1985, the City completed a Draft Environmental Impact Report (EIR) for the project and circulated it through the State Clearinghouse for public review (SCH # 85032014). On April 14, 1986, the City certified the Final EIR. On April 18, 1986, the City filed a Notice of Determination with the San Luis Obispo County Clerk. (STAFF 1 and 10.)

In accordance with its functions as a responsible agency under Section 15096 of the CEQA Guidelines (Title 14, California Code of Regulations, Section 15000, et seq.), the SWRCB has reviewed the Final EIR. The SWRCB has considered the Final EIR in deciding whether to approve the project and in deciding what specific terms or conditions should be included in any permits issued on the City's applications. The Final EIR concluded that no significant adverse impacts on the environment would be caused by the proposed project. (STAFF 10, p. 50.)

12.0 CONCLUSION

Based on the foregoing findings, Applications 24239, 24245, 24246, 27386, and 27477 should be approved subject to the terms and conditions specified in the order which follows.

ORDER

IT IS HEREBY ORDERED that Applications 24239, 24245, 24246, 27386, and 27477 be approved and permits be issued subject to prior rights and subject to standard permit terms 6, 10 through 13, and 29A in addition to the following terms and conditions:

Application 24239

1. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 0.851 cubic-foot per second to be diverted from January 1 through December 31 of each year. The maximum amount diverted under this permit shall not exceed 390 acre-feet per year.
2. The total quantity of water diverted under this permit together with that diverted under the permits issued pursuant to Applications 24245 and 27386 shall not exceed 1,142.5 acre-feet per year.
3. Complete application of the water to the authorized use shall be made by December 31, 2001.
4. The equivalent of the authorized continuous flow allowance for any 30-day period may be diverted in a shorter time, provided there is no interference with other rights and instream beneficial uses, and provided further that all terms and conditions protecting instream beneficial uses are observed.
5. For the protection of fish and wildlife habitat and other public trust resources in Chorro Creek and Morro Bay,

beginning when deliveries are available from the State Water Project Permittee shall:

- a. Cease all diversions from Well 11A (Romero well field), or from any wells constructed or operated as replacement wells for Well 11A, whenever surface flow measured in Chorro Creek downstream of the reach depleted by extractions of ground water from Well 11A, or other wells as described above, is less than 1.4 cubic feet per second; and
 - b. Cease all diversions from Wells 9, 9A, 10, 10A, 12, and 16 (Ashurst well field), or from any wells constructed or operated as replacement wells for the Ashurst well field, whenever surface flow measured in Chorro Creek downstream of the Ashurst well field is less than 1.4 cubic feet per second.
6. Permittee may, at its option, seek a waiver of term 5b by conducting a study and providing the Chief, Division of Water Rights, with quantitative evidence that ground water extraction from the Ashurst well field does not deplete surface flow in Chorro Creek. The evidence shall be provided in a report which also specifies the reach of the creek and portion of the alluvial aquifer studied and a description and justification of the methodology used to measure stream depletion. The State Water Resources Control Board reserves jurisdiction over this permit to determine whether to waive term 5b. Any action to waive term 5b shall be taken only after notice to interested parties and opportunity for hearing.
7. No later than January 1, 1997, Permittee shall install devices which are capable of continuous measurements of surface flow in Chorro Creek to document compliance with the minimum surface flow conditions of this Permit. One

measuring device shall be installed in Chorro Creek downstream of the Romero well field at a location sufficient to detect the full depletion effects of Permittee's diversions from the Romero well field, but upstream of the depletion effects caused by nearby pumpers on surface flow in Chorro Creek. Another measuring device shall be installed in Chorro Creek downstream of the Ashurst well field at a location sufficient to detect the full depletion effects of Permittee's diversions from the Ashurst well field, but upstream of the depletion effects caused by nearby pumpers on surface flows in Chorro Creek. In the case of overlapping pumping effects between the City and a nearby pumper, a compromise location shall be selected. These measuring devices shall be continuously operated and properly maintained by Permittee. In the event that either of these devices is rendered inoperable due to relocation of the Chorro Creek stream channel, Permittee shall move the measuring device to a suitable location in the new stream channel within 60 days after surface flows are rediverted into the new stream channel. The measuring devices and their locations shall be approved by the Chief of the Division of Water Rights. A description and justification of the measuring devices and their locations shall be submitted for approval no later than July 1, 1996.

8. By March 1 of each year, Permittee shall submit a report to the Chief, Division of Water Rights, documenting compliance with the minimum surface flow conditions of this Permit. The report shall contain:
 - a. A list of dates and times during the previous calendar year when water was pumped at each of Permittee's points of diversion under this Permit; and
 - b. For each of the dates and times listed in paragraph a. (above) the corresponding minimum surface flows measured

in Chorro Creek at each of the surface flow measuring devices.

9. Permittee shall cease all diversions from the Romero well field, or from any wells constructed or operated as replacements for wells in the Romero well field, whenever instantaneous surface flow in Chorro Creek measured at the Canet Road stream gage is less than 0.85 cubic foot per second. This term shall be in effect until deliveries are available from the State Water Project.

10. At such time as permittee is diverting water authorized under this permit and the water level in one or more of the wells operated on the Coastal San Luis Resource Conservation District property, the Roemer/Jones property, the Gary and Joyce Williams property, or their successors in interest, for valid riparian and/or pre-1914 appropriative uses of water from the Chorro Creek subterranean stream, reaches a depth which renders the well or wells unusable, permittee shall either:
 - a. Stop its diversion until conditions are such that the well or wells is/are again usable, or
 - b. Deliver water to the riparian/pre-1914 appropriative place of use served by the well or wells.

The riparian/pre-1914 appropriative diverter shall bear the estimated costs which would have been incurred to pump water from the affected well or wells. In the absence of an agreement between the permittee and the other parties relative to pumping costs, the costs shall be based on an average amount per acre-foot for pumping water from the affected well or wells during the month in question over the prior three years. Permittee shall pay the cost of installing and maintaining any water conveyance facilities

needed to deliver water to the riparian/pre-1914 appropriative place of use.

The State Water Resources Control Board reserves jurisdiction to modify this permit term based on findings that the methods of diversion and/or uses of water of the riparian and pre-1914 appropriative diverters identified in this term are wasteful or unreasonable pursuant to Article X, Section 2 of the California Constitution. Any modification of this term will occur only after notice to interested parties and opportunity for hearing.

Application 24245

1. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 2.02 cubic feet per second to be diverted from January 1 through December 31 of each year. The maximum amount diverted under this permit shall not exceed 535 acre-feet per year.
2. The total quantity of water diverted under this permit together with that diverted under the permits issued pursuant to Applications 24239 and 27386 shall not exceed 1,142.5 acre-feet per year.
3. Same as Application 24239.
4. Same as Application 24239.
5. Same as Application 24239.
6. Same as Application 24239.
7. Same as Application 24239.
8. Same as Application 24239.

9. Same as Application 24239.
10. Same as Application 24239.

Application 27386

1. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 0.3 cubic foot per second to be diverted from January 1 through December 31 of each year. The maximum amount diverted under this permit shall not exceed 217.5 acre-feet per year.
2. The total quantity of water diverted under this permit together with that diverted under the permits issued pursuant to Applications 24239 and 24245 shall not exceed 1,142.5 acre-feet per year.
3. Same as Application 24239.
4. Same as Application 24239.
5. Same as Application 24239.
6. Same as Application 24239.
7. Same as Application 24239.
8. Same as Application 24239.
9. Same as Application 24239.
10. Same as Application 24239.

Application 24246

1. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 1.07 cubic feet per second to be diverted from January 1 through December 31

of each year. The maximum amount diverted under this permit shall not exceed 490 acre-feet per year.

2. The total quantity of water diverted under this permit together with that diverted under the permit issued pursuant to Application 27477 shall not exceed 581 acre-feet per year.
3. Same as Application 24239.
4. Same as Application 24239.

Application 27477

1. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 0.13 cubic foot per second to be diverted from January 1 to December 31 of each year. The maximum amount diverted under this permit shall not exceed 91 acre-feet per year.
2. The total quantity of water diverted under this permit together with that diverted under the permit issued pursuant to Application 24246 shall not exceed 581 acre-feet per year.

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3. Same as Application 24239.

4. Same as Application 24239.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a decision duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 20, 1995.

AYE: John Caffrey
Marc Del Piero
James M. Stubchaer
John W. Brown

NO: None

ABSENT: Mary Jane Forster

ABSTAIN: None



Maureen Marché
Administrative Assistant to the Board

