

Final California 2010 Integrated Report(303(d) List/305(b) Report)

Supporting Information

Regional Board 5 - Central Valley Region

Water Body Name: [Keswick Reservoir \(portion downstream from Spring Creek\)](#)
Water Body ID: CAL5244001220020730101915
Water Body Type: Lake & Reservoir

DECISION ID 6970

Region 5

Keswick Reservoir (portion downstream from Spring Creek)

Pollutant: Cadmium
Final Listing Decision: Do Not Delist from 303(d) list (TMDL required list)
Last Listing Cycle's Final Listing Decision: List on 303(d) list (TMDL required list)(2006)
Revision Status: Revised
Sources: Resource Extraction
Expected TMDL Completion Date: 2020
Impairment from Pollutant or Pollution: Pollutant

Conclusion: This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under this section a single line of evidence is necessary to assess listing status.

One lines of evidence are available in the administrative record to assess pollutant. None of samples exceed the water quality objective.

Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list.

This conclusion is based on the staff findings that:

1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy.
3. The chemical analyses? method detection limit were not low enough to determine whether or not the water body?s dissolved cadmium concentrations were below the WQOs for all 31 samples
4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.

RWQCB Board Staff Decision: After review of the available data and information, RWQCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because applicable water quality standards for the pollutant are being exceeded.

SWRCB Board Staff Decision: After review of this Regional Board decision, SWRCB staff recommend the decision be approved by the State Board.

USEPA Action (if applicable): USEPA approved the listing of this water body as a water quality limited segment requiring a TMDL for this pollutant.

**Line of Evidence (LOE) for Decision ID 6970, Cadmium
 Keswick Reservoir (portion downstream from Spring Creek)**

Region 5

LOE ID: 22385

Pollutant: Cadmium
 LOE Subgroup: Pollutant-Water
 Matrix: Water
 Fraction: Dissolved

Beneficial Use: Cold Freshwater Habitat
 Aquatic Life Use: Cold Freshwater Habitat

Number of Samples: 0
 Number of Exceedances: 0

Data and Information Type: PHYSICAL/CHEMICAL MONITORING
 Data Used to Assess Water Quality: Thirty-one samples were taken from the below Keswick Dam after the completion of the Slickrock Creek Dam. The chemical analyses? method detection limit were not low enough to determine whether or not the water body?s dissolved cadmium concentrations were below the WQOs.

Data Reference: [Metals and hardness data for Sacramento River \(below Keswick Dam and below Shasta Dam\), 2004](#)

Water Quality Objective/Criterion: California Toxics Rule Criteria (USEPA, 2000) - Freshwater Aquatic Life Protection Continuous Concentration (4-day Average) calculated based on the following formula $e(0.7852 \cdot \ln(\text{hardness}) - 2.715) \times (1.101672 - (\ln(\text{hardness}) \times 0.041838))$ which incorporates hardness. Basin Plan (CVRWQCB, 2007) - Maximum Contaminant Level Acute WQO based on the following formula $e((1.160) \times (\ln(\text{hardness}) - 5.777))$ which incorporates hardness.

Objective/Criterion Reference: [Water Quality Standards 2000. Establishment of numeric criteria for priority toxic pollutants for the State of California: Rules and regulations. Federal Register Vol. 65, No. 97. Washington, D.C.: Environmental Protection Agency Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Sacramento and San Joaquin River Basins. 4th ed](#)

Evaluation Guideline:
 Guideline Reference:

Spatial Representation: Samples were collected in downstream of the Keswick Dam.
 Temporal Representation: Samples were only collected from June 2004 to December 2004.
 Environmental Conditions:
 QAPP Information: QA information not available
 QAPP Information Reference(s):

**Line of Evidence (LOE) for Decision ID 6970, Cadmium
 Keswick Reservoir (portion downstream from Spring Creek)**

Region 5

LOE ID: 4243

Pollutant: Cadmium
 LOE Subgroup: Pollutant-Water
 Matrix: Water
 Fraction: Not Recorded

Beneficial Use: Warm Freshwater Habitat

Number of Samples: 0
 Number of Exceedances: 0

Data and Information Type: Not Specified
 Data Used to Assess Water Quality: Unspecified--This LOE is a placeholder to support a 303(d) listing decision made prior to 2006.

Data Reference: [Placeholder reference pre-2006 303\(d\)](#)

Water Quality Objective/Criterion: Unspecified
Objective/Criterion Reference: [Placeholder reference pre-2006 303\(d\)](#)

Evaluation Guideline: Unspecified
Guideline Reference: [Placeholder reference pre-2006 303\(d\)](#)

Spatial Representation: Unspecified
Temporal Representation: Unspecified
Environmental Conditions: Unspecified
QAPP Information: Unspecified
QAPP Information Reference(s):

DECISION ID 6971

Region 5

Keswick Reservoir (portion downstream from Spring Creek)

Pollutant: Copper
Final Listing Decision: Do Not Delist from 303(d) list (TMDL required list)
Last Listing Cycle's Final Listing Decision: List on 303(d) list (TMDL required list)(2006)
Revision Status: Revised
Sources: Resource Extraction
Expected TMDL Completion Date: 2020
Impairment from Pollutant or Pollution: Pollutant

Conclusion: This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under this section a single line of evidence is necessary to assess listing status.

One lines of evidence are available in the administrative record to assess pollutant. None of samples exceed the water quality objective.

Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list.

This conclusion is based on the staff findings that:

1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy.
3. None of 34 samples exceeded the acute California Toxics Rule criteria and this does not exceed the allowable frequency listed in Table 4.1 of the Listing Policy. However, the available data is not representative of all seasons.
4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.

RWQCB Board Staff Decision: After review of the available data and information, RWQCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because applicable water quality standards for the pollutant are being exceeded.

SWRCB Board Staff Decision: After review of this Regional Board decision, SWRCB staff recommend the decision be approved by the State Board.

USEPA Action (if applicable): USEPA approved the listing of this water body as a water quality limited segment requiring a TMDL for this pollutant.

**Line of Evidence (LOE) for Decision ID 6971, Copper
Keswick Reservoir (portion downstream from Spring Creek)**

Region 5

LOE ID:	22384
Pollutant:	Copper
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Cold Freshwater Habitat
Number of Samples:	34
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Assess Water Quality:	Thirty-four samples were taken from the below Keswick Dam after the completion of the Slickrock Creek Dam. Zero exceedances of the acute or chronic WQO were observed.
Data Reference:	Metals and hardness data for Sacramento River (below Keswick Dam and below Shasta Dam). 2004
Water Quality Objective/Criterion:	California Toxics Rule Criteria (USEPA, 2000) - Freshwater Aquatic Life Protection Continuous Concentration (4-day Average) calculated based on the following formula $e^{(0.8545 \cdot \ln(\text{hardness}) - 1.702)} \times (0.96)$ which incorporates hardness. Basin Plan (CVRWQCB, 2007) - Maximum Contaminant Level Acute WQO based on the following formula $e^{((0.905) \times (\ln(\text{hardness}) - 1.612))}$ which incorporates hardness.
Objective/Criterion Reference:	Water Quality Standards 2000. Establishment of numeric criteria for priority toxic pollutants for the State of California: Rules and regulations. Federal Register Vol. 65, No. 97. Washington, D.C.: Environmental Protection Agency Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Sacramento and San Joaquin River Basins. 4th ed
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	Samples were collected in downstream of the Keswick Dam.
Temporal Representation:	Samples were only collected from June 2004 to December 2004.
Environmental Conditions:	
QAPP Information:	QA information not available
QAPP Information Reference(s):	

**Line of Evidence (LOE) for Decision ID 6971, Copper
Keswick Reservoir (portion downstream from Spring Creek)**

Region 5

LOE ID:	4244
Pollutant:	Copper
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Not Recorded
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	0
Number of Exceedances:	0

Data and Information Type: Not Specified
 Data Used to Assess Water Quality: Unspecified--This LOE is a placeholder to support a 303(d) listing decision made prior to 2006.
 Data Reference: [Placeholder reference pre-2006 303\(d\)](#)
 Water Quality Objective/Criterion: Unspecified
 Objective/Criterion Reference: [Placeholder reference pre-2006 303\(d\)](#)
 Evaluation Guideline: Unspecified
 Guideline Reference: [Placeholder reference pre-2006 303\(d\)](#)
 Spatial Representation: Unspecified
 Temporal Representation: Unspecified
 Environmental Conditions: Unspecified
 QAPP Information: Unspecified
 QAPP Information Reference(s):

DECISION ID 6972

Region 5

Keswick Reservoir (portion downstream from Spring Creek)

Pollutant: Zinc
Final Listing Decision: Do Not Delist from 303(d) list (TMDL required list)
Last Listing Cycle's Final Listing Decision: List on 303(d) list (TMDL required list)(2006)
Revision Status Revised
Sources: Resource Extraction
Expected TMDL 2020
Completion Date:
Impairment from Pollutant or Pollution: Pollutant

Conclusion: This pollutant is being considered for removal from the section 303(d) list under section 4.1 of the Listing Policy. Under this section a single line of evidence is necessary to assess listing status.

One lines of evidence are available in the administrative record to assess pollutant. None of samples exceed the water quality objective.

Based on the readily available data and information, the weight of evidence indicates that there is sufficient justification against removing this water segment-pollutant combination from the section 303(d) list.

This conclusion is based on the staff findings that:

1. The data used satisfies the data quality requirements of section 6.1.4 of the Policy.
2. The data used satisfies the data quantity requirements of section 6.1.5 of the Policy.
3. None of 31 samples exceeded the water quality objective and this exceeds the allowable frequency listed in Table 4.1 of the Listing Policy. However, the available data is not representative of all seasons.
4. Pursuant to section 4.11 of the Listing Policy, no additional data and information are available indicating that standards are met.

RWQCB Board Staff Decision: After review of the available data and information, RWQCB staff concludes that the water body-pollutant combination should not be removed from the section 303(d) list because applicable water quality standards for the pollutant are being exceeded.

SWRCB Board Staff Decision: After review of this Regional Board decision, SWRCB staff recommend the decision be approved by the State Board.

USEPA Action (if applicable): USEPA approved the listing of this water body as a water quality limited segment requiring a TMDL for this pollutant.

**Line of Evidence (LOE) for Decision ID 6972, Zinc
Keswick Reservoir (portion downstream from Spring Creek)**

Region 5

LOE ID:	22386
Pollutant:	Zinc
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Dissolved
Beneficial Use:	Cold Freshwater Habitat
Aquatic Life Use:	Cold Freshwater Habitat
Number of Samples:	31
Number of Exceedances:	0
Data and Information Type:	PHYSICAL/CHEMICAL MONITORING
Data Used to Assess Water Quality:	Thirty-one samples were taken from the below Keswick Dam after the completion of the Slickrock Creek Dam. Zero exceedances of the acute or chronic WQO were observed.
Data Reference:	Metals and hardness data for Sacramento River (below Keswick Dam and below Shasta Dam), 2004
Water Quality Objective/Criterion:	California Toxics Rule Criteria (USEPA, 2000) - Freshwater Aquatic Life Protection Continuous Concentration (4-day Average) calculated based on the following formula $e(0.8473 \cdot \ln(\text{hardness}) + 0.884) \times (0.986)$ which incorporates hardness. Basin Plan (CVRWQCB, 2007) - Maximum Contaminant Level Acute WQO based on the following formula $e((0.830) \times (\ln(\text{hardness}) - 0.289))$ which incorporates hardness.
Objective/Criterion Reference:	Water Quality Standards 2000. Establishment of numeric criteria for priority toxic pollutants for the State of California: Rules and regulations. Federal Register Vol. 65, No. 97. Washington, D.C.: Environmental Protection Agency Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Sacramento and San Joaquin River Basins. 4th ed
Evaluation Guideline:	
Guideline Reference:	
Spatial Representation:	Samples were collected in downstream of the Keswick Dam.
Temporal Representation:	Samples were only collected from June 2004 to December 2004.
Environmental Conditions:	
QAPP Information:	QA information not available
QAPP Information Reference(s):	

**Line of Evidence (LOE) for Decision ID 6972, Zinc
Keswick Reservoir (portion downstream from Spring Creek)**

Region 5

LOE ID:	4245
Pollutant:	Zinc
LOE Subgroup:	Pollutant-Water
Matrix:	Water
Fraction:	Not Recorded
Beneficial Use:	Warm Freshwater Habitat
Number of Samples:	0

Number of Exceedances: 0

Data and Information Type: Not Specified

Data Used to Assess Water Quality: Unspecified--This LOE is a placeholder to support a 303(d) listing decision made prior to 2006.

Data Reference: [Placeholder reference pre-2006 303\(d\)](#)

Water Quality Objective/Criterion: Unspecified

Objective/Criterion Reference: [Placeholder reference pre-2006 303\(d\)](#)

Evaluation Guideline: Unspecified

Guideline Reference: [Placeholder reference pre-2006 303\(d\)](#)

Spatial Representation: Unspecified

Temporal Representation: Unspecified

Environmental Conditions: Unspecified

QAPP Information: Unspecified

QAPP Information Reference(s):