

State of California
AIR RESOURCES BOARD

Resolution 03-33

December 11, 2003

Agenda Item No.: 03-10-5

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2543-232, entitled "The Use of Multi-Isotope Ratio Measurements and a New and Unique Technique to Resolve NO Transformation, Transport and Nitrate Deposition in the Lake Tahoe Basin," has been submitted by the University of California, San Diego.

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2543-232 entitled "The Use of Multi-Isotope Ratio Measurements and a New and Unique Technique to Resolve NO Transformation, Transport and Nitrate Deposition in the Lake Tahoe Basin," submitted by the University of California, San Diego, for a total amount not to exceed \$75,000.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 2543-232 entitled "The Use of Multi-Isotope Ratio Measurements and a New and Unique Technique to Resolve NO Transformation, Transport and Nitrate Deposition in the Lake Tahoe Basin," submitted by the University of California, San Diego, for a total amount not to exceed \$75,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed \$75,000.

ATTACHMENT A

“The Use of Multi-Isotope Ratio Measurements and a New and Unique Technique to Resolve NO Transformation, Transport and Nitrate Deposition in the Lake Tahoe Basin”

Background

The world-renowned clarity of Lake Tahoe has significantly declined since the mid-1960s due to increased inputs into the Lake of particulate matter, phosphorus and nitrate. To address this concern, the Lahontan Regional Water Quality Board and the Nevada Division of Environmental Protection are currently developing a Total Maximum Daily Load (TMDL) for Lake Tahoe. A TMDL is a water quality restoration plan designed to determine the ability of a body of water to accept contaminants without resulting in a reduction of water clarity. The TMDL process includes a plan to implement the controls necessary to meet the TMDL. Identification of the sources of pollutants such as nitrate to Lake Tahoe is an essential precursor to any control strategies.

Objective

The objective of this project is to perform nitrate isotope measurements on both aerosol and Lake water nitrates to identify and quantify the sources and variability of nitrate in the region and to the Lake.

Methods

The work will use a new technique based on ratios of isotopes of nitrogen and oxygen. This new technique has already been demonstrated to be unique in its ability to provide this information and will be a powerful complement to other work being done to support the development of the TMDL.

Expected Results

This project will provide estimates of the contributions from atmospheric deposition, and ground water to nitrate inputs to Lake Tahoe.

Significance to the Board

The ARB is currently conducting the Lake Tahoe Atmospheric Deposition Study (LTADS) with the goal of developing improved estimates of the annual and seasonal loading of phosphorus, nitrogen and particulate matter from atmospheric deposition to Lake Tahoe and improved attribution of the in-basin and out-basin sources of these materials. The results from this proposal will be used to augment nitrate data gathered during LTADS and help identify and quantify sources and variability of nitrate inputs to the Lake.

Contractor:

University of California, San Diego

Contract Period:
24 months

Principal Investigator (PI):
Professor Mark Thiemens

Contract Amount:
\$75,000

Cofunding:
This project will be funded with funds provided by the U.S. EPA to the Board for work related to Lake Tahoe.

Basis for Indirect Cost Rate:
The State and UC System have agreed to a ten percent indirect cost rate.

Past Experience with this Principal Investigator:
This is the ARB's first contract with Professor Thiemens. Professor Thiemens is the Dean of the Division of Natural Science at UC San Diego and a distinguished Scientist. He has received numerous awards and is a member of the American Academy of Arts and Sciences Member. He has co-authored over 150 publications.

BUDGET SUMMARY

University of California at San Diego

"The Use of Multi-Isotope Ratio Measurements and a New and Unique Technique to Resolve NO Transformation, Transport and Nitrate Deposition in the Lake Tahoe Basin"

DIRECT COSTS AND BENEFITS

1.	Labor and Employee Fringe Benefits	\$ 51,815
2.	Subcontractors	\$ 0
3.	Equipment	\$ 6,000
4.	Travel and Subsistence	\$ 5,000
5.	Electronic Data Processing	\$ 0
6.	Reproduction/Publication	\$ 0
7.	Mail and Phone	\$ 868
8.	Supplies	\$ 5,000
9.	Analyses	\$ 0
10.	Miscellaneous	\$ 1,000

Total Direct Costs \$ 69,683

INDIRECT COSTS

1.	Overhead	\$ 5,317
2.	General and Administrative Expenses	\$ 0
3.	Other Indirect Costs	\$ 0
4.	Fee or Profit	\$ 0

Total Indirect Costs \$ 5,317

TOTAL PROJECT COSTS \$ 75,000