

TEXAS environmental improvement  
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**RESOLUTION 2.58**

**Authorization of New Air Quality Research Projects H113, H114, H115, H116, and H117**

Whereas the Texas Environmental Research Consortium (TERC) has implemented an air quality research program that is committed to making significant contributions to mitigating the effects of ozone, particulate matter, and air toxic pollution in the Houston-Galveston and Dallas-Fort Worth regions; and

Whereas there are significant remaining funds reserved by the State of Texas for air quality research managed by TERC for the current biennium; and

Whereas TERC anticipates that additional funds will be made available in 2009 from the federal Coastal Impact Assistance Program (CIAP) for air quality research related to ozone, particulate matter, and air toxics in Houston and other coastal areas of Texas; and

Whereas the Science Advisory Committee of TERC has reviewed the proposed air quality research projects H113, H114, H115, H116, and H117 with input from the Texas Commission on Environmental Quality (TCEQ), and has found these projects meritorious and consistent with the Strategic Research Plan; and

Whereas the Science Advisory Committee has recommended these projects for funding by TERC, subject to budget and scope modifications of the original proposals in certain cases (H115, H116, and H117); and

Whereas the Houston Advanced Research Center (HARC) and the TERC Executive Director have reviewed these recommendations and find them reasonable; and

Now therefore be it resolved that the Board of Directors of TERC authorize HARC to engage persons and entities to complete the following projects with the appropriate funding stipulations:

Project H113: Houston Urban Air Composition Characterization Using a Mobile Laboratory and Measurements of HONO at Moody Tower (\$154,696 of State funds);

Project H114: Occurrence and Distribution of Nitrophenols in Air and Rain Water in Houston and Dallas (\$150,000 of CIAP and/or State funds);

Project H115: Inter-comparison of Solar Occultation Flux (SOF) and Differential Absorption LIDAR (DIAL) Remote Sensing Tools (\$250,000 of State and/or CIAP funds);

Project H116: The Benzene and other Toxics Exposure (BEE-TEX) Study (\$250,000 of CIAP funds);

Project H117: PM and Ozone Formation from Toluene and the Importance of “NO<sub>x</sub>-sinks” under NO<sub>x</sub>-limited Conditions (\$15,000 of CIAP funds).

Adopted and approved this 11<sup>th</sup> day of December, 2008.

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Kelly Frels, Chairman

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**RESOLUTION 2.59**

**Budget Modifications of Air Quality Research Projects H100 and H101**

Whereas the Texas Environmental Research Consortium (TERC) has implemented an air quality research program that is committed to making significant contributions to the attainment of the federal ozone standard in the Houston-Galveston and Dallas-Fort Worth regions, such as its successful contributions to the past Second Texas Air Quality Study (TexAQS II); and

Whereas the Strategic Research Plan identifies the issue of radical precursors such as formaldehyde and nitrous acid as being of vital importance to the State Implementation Plan (SIP) for ozone attainment, based on the results of TexAQS II and other studies partially or wholly funded by TERC; and

Whereas TERC has already approved the implementation of a follow-up field study to TexAQS II, to be known as the Study of Houston Atmospheric Radical Precursors (SHARP), including the on-going projects H100 and 101; and

Whereas there are significant remaining funds reserved by the State of Texas for air quality research managed by TERC for the current biennium; and

Whereas the Science Advisory Committee of TERC has recommended that additional resources be made available for H100 and H101 to make sufficient measurements during SHARP to characterize the role of formaldehyde and nitrous acid in enhancing ozone formation in Houston; and

Whereas the Houston Advanced Research Center (HARC) and the TERC Executive Director have reviewed this recommendation and find it reasonable;

Now therefore be it resolved that the Board of Directors of TERC authorize additional funds of \$195,726 to complete H100 and \$200,000 to complete Phase 2 of H101.

Adopted and approved this 11<sup>th</sup> day of December, 2008.

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Kelly Frels, Chairman

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RESOLUTION 2.60

Whereas the Texas Environmental Research Consortium (TERC) is managing the NTRD program with the intent to see that all projects are properly tested and verified in accordance with the procedures proscribed by the Texas Commission on Environmental Quality (TCEQ) and the U.S. Environmental Protection Agency (EPA).

Whereas project N-12 by Miratech identified additional costs not covered by the current contract that are associated with additional testing and verification and the contractors continue to supply a minimum match of 20%;

Whereas the total previously approved amounts for the relevant RFGA will not be exceeded;  
and

Whereas TCEQ has determined that a budget increase of \$37,136 is appropriate for project N-12 entitled Mechanical Variable Injection Timing by Motive Engineering

Now, Therefore, Be It Resolved that the TERC Board of Directors hereby authorizes the Houston Advanced Research Center to increase the funding for Project N-12 as outlined above.

Adopted and approved this 11<sup>th</sup> day of December 2008.

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Kelly Frels, Chairman

## **Justification for Additional Funding**

### **Motive Engineering (N12)**

Motive Engineering has requested an additional \$37,136 from HARC with a cost share of \$9,284 from Motive Engineering to complete N-12. The original engine platform selected for this project was a 10 to 15 liter truck engine. However due to availability of the test engine, Motive Engineering desired to change the engine platform to the EMD 645 locomotive engine. It seemed appealing due to a greater potential of NO<sub>x</sub> reduction and a larger number of these engines remain in service in the non attainment areas.

Changing to the EMD engine increased testing cost at SwRI due to additional fuel consumption by the larger engine displacement, recent fuel cost increases, and an increase in engine setup cost.

# TEXAS environmental improvement

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#### RESOLUTION 2.62

Whereas the Texas Environmental Research Consortium (TERC) is implementing the New Technology Research and Development (NTRD) program to facilitate the development and verification of new technologies to maximize the reduction of Oxides of Nitrogen from diesel fueled vehicles and equipment; and

Whereas a significant number of diesel fueled vehicles operate in the Houston-Galveston and Dallas-Fort Worth areas contributing to the NO<sub>x</sub> emissions problem of the regions; and

Whereas the Houston Advanced Research Center and the Environmental Technology Advisory Committee have conducted an assessment of technology needs and developed a strategic plan to address these needs; and

Whereas a need has been identified to issue a request for grant applications (RFGA) for additional work in the area of Development, Verification and Testing of Innovative Technologies to Reduce NO<sub>x</sub> Emissions from Diesel Powered Equipment and Vehicles; and

Whereas, the subject of the proposed request for grant applications addresses significant strategic needs;

Now, Therefore, Be it resolved that the Board of Directors of the Texas Environmental Research Consortium hereby authorizes the Houston Advanced Research Center to develop, publish and issue a Request for Grant Applications for the purpose of receiving proposals from interested parties for the Development, Verification and Testing of Innovative Technologies to Reduce NO<sub>x</sub> Emissions from Diesel Powered Equipment and Vehicles.

Be it Further Resolved that TERC's Executive Director and the Houston Advanced Research Center also are authorized to budget and expend up to \$5 million of the NTRD program's FY 2009 budget to support projects under this RFGA.

Adopted and approved this 11<sup>th</sup> day of December 2008.

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Kelly Frels, Chairman

## **RFGA 18 Development, Verification and Testing of Innovative Technologies to Reduce NOx Emissions from Diesel Powered Equipment and Vehicles**

Total funding available: \$5,000,000.

It is anticipated that 10 to 15 projects will be awarded.

Applications are being requested for projects to develop, verify and test innovative emission reduction technologies, particularly focused on oxides of nitrogen emissions (NOx), as part of the State of Texas' New Technology Research and Development (NTRD) program. This request is to solicit applications for funding to address the following areas:

1. Development, verification and testing of novel and cost effective aftertreatment technologies, which specifically target:
  - Innovative catalyst formulation
  - Catalyst thermal management technologies
  - Innovative aftertreatment control strategies
2. Verification testing of conventional urea based SCR systems for existing engines.
3. Development, verification and testing of novel and cost effective clean diesel technologies, which specifically target:
  - Clean combustion system
  - EGR system and other engine add-on systems
4. Development, verification and testing of novel and cost effective vehicle or drive-train technologies that can directly or indirectly reduce NOx emissions through engine duty cycle modification.

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**RESOLUTION 2.64**

Whereas the Texas Environmental Research Consortium (TERC) is responsible for implementing the New Technology Research and Development (NTRD) Program under contract with the Texas Commission on Environmental Quality; and

Whereas the Board of Directors of the Texas Environmental Research Consortium (TERC) has established an Environmental Technology Advisory Council (ETAC) composed of nationally and internationally distinguished scholars and practitioners in engineering and technical fields who will provide assistance in identifying the appropriate technologies to fund; and

Whereas, membership on the ETAC has declined due to expiration of terms of some members and new members must be appointed to maintain the valuable pool of expertise and support for the NTRD program; and

Whereas, HARC and the Executive Director have considered the needs of the NTRD program and the qualifications of suitable members and identified an individuals with qualifications highly appropriate for membership on the ETAC; and

Whereas Mr. Andrew Trenholm served as Director of the Air Pollution Control Technology Verification Center at Research Triangle Institute, which operated in partnership with EPA's ETV Program to provide independent, third-party verification of the environmental performance of a wide variety of air pollution control technologies; and

Whereas Mr. Trenholm has gained national recognition as an expert on diesel emissions reductions technology; and

Whereas the Environmental Technology Advisory Committee of the NTRD program would greatly benefit from Mr. Trenholm's participation;

Whereas the Executive Director and HARC strongly recommend appointment of Andrew Trenholm to the ETAC,

Now, Therefore, Be It Resolved that the Board of Directors of the Texas Environmental Research Consortium hereby appoints Andrew Trenholm to the ETAC, effective immediately.

Adopted and approved this 11<sup>th</sup> day of December 2008.

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Kelly Frels, Chairman

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**RESOLUTION 2.65**

Whereas, the Houston Advanced Research Center (HARC) has served under contract to the Texas Environmental Research Consortium (TERC) providing website services to the Executive Director and the Board of Directors; and

Whereas, TERC has a need for website services for outreach purposes and to comply with contractual requirements; and

Whereas, TERC has a stated position that it prefers to contract for services rather than hire employees; and

Whereas, HARC has performed well in providing the website services required by TERC; and

Now, Therefore, Be it Resolved that the Board of Directors of the Texas Environmental Research Consortium hereby authorizes the Chairman to execute a contract with HARC for the website services necessary for outreach purposes and compliance with the terms of the contracts to which TERC is a party.

Adopted and Approved this 11<sup>th</sup> day of December, 2008.

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Kelly Frels, Chairman

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**RESOLUTION 2.66**

Whereas it is financially prudent for Texas Environmental Research Consortium (TERC) to have their financials audited; and

Whereas the Texas Commission on Environmental Quality's (TCEQ) awards require TERC to have an audit performed on an annual basis; and

Whereas the accounting firm of Blazek and Vetterling LLP is very knowledgeable in state and federal audits as they pertain to non-profits; and

Whereas TERC has had Blazek and Vetterling LLP audit TERC's financials for the past three years;

Now, Therefore, Be it Resolved that the Board of Directors of the Texas Environmental Research Consortium hereby authorizes the Executive Director and the Houston Advanced Research Center to appoint Blazek and Vetterling LLP to audit the TERC financial statements for 2008.

Adopted and Approved this 11<sup>th</sup> day of December, 2008.

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Kelly Frels, Chairman

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**RESOLUTION 2.67**

Whereas the Texas Legislature has authorized the Texas Environmental Research Consortium (TERC) to administer the New Technology and Development (NTRD) Program, including an Air Quality Research component; and

Whereas TERC is implementing these programs under contract with the Texas Commission on Environmental Quality (TCEQ); and

Whereas the TCEQ and TERC will finalize the FY 2009 budget for the NTRD and Air Quality Research Programs in accordance with the Texas Emission Reduction Plan and the FY 2008/FY 2009 Appropriations Bill; and

Whereas TERC has received U.S. EPA funding through a grant from the University of Houston; and

Whereas TERC anticipates receiving Department of Interior's Coastal Impact Assistance Program funding in mid-year; and

Whereas the FY 2009 budget for these programs is \$9,098,847.

Now, Therefore, Be It Resolved that the Board of Directors of the Texas Environmental Research Consortium hereby adopts and approves the FY 2009 budget for its Air Quality Research and NTRD Programs.

Adopted and Approved this 11<sup>th</sup> day of December 2008.

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Kelly Frels, Chairman

**TEXAS ENVIRONMENTAL RESEARCH CONSORTIUM**

**CONSOLIDATED REVENUES AND EXPENDITURES**

For Fiscal Years ending December 2009 and December 2008 as projected  
and December 31, 2007 and December 2006 Actuals

	Projected for the Year ended December 31, 2009	Projected for the Year ended December 31, 2008	Actuals for the Year ended December 31, 2007	Actuals for the Year ended December 31, 2006
<b>Revenues:</b>				
Federal Grants	\$ 267,216	\$ 95,000		
State Grants	\$ 8,831,631	\$ 6,181,746	\$ 6,663,351	\$ 3,616,363
Investment Income	\$ 150,000	\$ 180,000	\$ 62,558	\$ 24,654
<b>1 Total Revenues</b>	<b>\$ 9,248,847</b>	<b>\$ 6,456,746</b>	<b>\$ 6,725,909</b>	<b>\$ 3,641,017</b>
<b>Expenditures:</b>				
Consultants	\$ 113,400	\$ 151,338	\$ 152,455	\$ 453,437
Other Operating Costs	\$ 112,402	\$ 124,280	\$ 116,393	\$ 55,429
Subcontracts	\$ 8,873,045	\$ 6,001,128	\$ 6,403,252	\$ 3,392,064
<b>2 Total Expenditures</b>	<b>\$ 9,098,847</b>	<b>\$ 6,276,746</b>	<b>\$ 6,672,100</b>	<b>\$ 3,900,930</b>
<b>3 Operating Income/(Loss)</b>	<b>\$ 150,000</b>	<b>\$ 180,000</b>	<b>\$ 53,809</b>	<b>\$ (259,913)</b>

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**Resolution 2.68**

Whereas the Amended and Restated By-Laws of the Texas Environmental Research Consortium (TERC) states that after an initial 3-year term Directors wishing to continue serving on the TERC board may be reappointed for an additional 3-year term; and

Whereas the directors listed below have, by criteria established by the Board, reached the end of an initial 3-year term; and

Whereas the TERC Board of Directors wishes to retain the services of these directors; and

Whereas these directors wish to continue service to the organization;

Now, Therefore, Be it resolved that the Board of Directors of the Texas Environmental Research Consortium hereby appoints each of the following directors to an additional 3-year term of service on the Board:

The Honorable Chad Adams  
The Honorable Tom Leppert  
Mr. Jim Marston  
Dr. Jonathan Ward  
The Honorable Bill White  
The Honorable James D. Yarbrough

Adopted and approved this 11<sup>th</sup> day of December 2008.

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Kelly Frels, Chairman