



Resume Michael J. St. Denis, D. Env.

Background

Dr. St. Denis is a recognized expert in vehicle emissions control systems, on-board diagnostic systems and in-use vehicle testing with over 30 years of industry practice. He has experience with all vehicle inspection programs in the US, vehicle emissions testing technology, safety testing equipment, vehicle emissions modeling and vehicle information data systems. Dr. St. Denis designed in-use vehicle inspection programs for regulated entities (states or municipalities) throughout the US and assisted states in modeling their emissions to inform program designs. Dr. St. Denis is the author of several US EPA guidance documents on vehicle emissions control inspection technology including on-board diagnostics and quality assurance. He has extensive experience educating professionals in the industry. He performs research for the vehicle and oil companies, US EPA, state level regulatory agencies and performs vehicle testing in support of litigation. Dr. St. Denis has worked as an expert witness or expert consultant in the areas of vehicle emissions test equipment, vehicle emissions control technology, and comparing vehicle certification testing to on-road emissions to evaluate defeat devices and auxiliary emissions control devices. He excels at developing and presenting complex technical and engineering information at the appropriate literacy level.

Education

D. Env., Environmental Science and Engineering - UCLA, Los Angeles, CA 1993
M.S., Physical Chemistry - University of the Pacific, Stockton, CA, 1989
B.S., Chemistry - University of the Pacific, Stockton, CA, 1985

Professional Experience

2007 to Present

Principal, Founder - Revecorp, Inc., Roseville, CA

- Focus of work related to vehicle emissions, vehicle computer control technology/on-board diagnostics (OBDII), vehicle inspection programs, vehicle emissions testing equipment, air quality impacts of vehicle pollution, and vehicle inspection program implementation. Expert in emissions testing of evaporative emissions, and tailpipe emissions from both gasoline and diesel fueled vehicles. Expert in the development of acceptance testing for vehicle emissions inspection test equipment (OBDII, BAR97 type analyzers, IM240 type systems, dynamometers and gas cap/pressure testing equipment).
- Work as both a consulting expert and a testifying expert witness to various law firms investigating excess emissions caused by emissions control system defeat devices, undocumented auxiliary emission control devices (AECDS), test equipment patent infringement and failing components. Work includes designing and operating vehicle test programs including vehicle procurement to measure emissions impacts and identification of defeat devices, modeling and calculating potential environmental damage and costs, considering proposed alternative solutions and settlement negotiation via the FRE408 process.
- Developed the only vehicle identification number (VIN) decoder (VINterpretersm) which can provide vehicle test parameters and real time safety and emissions recall data. Data is used in many vehicle inspection programs in the US, in the "VINPro" app (Android and iOS), in the law enforcement app "ReveTHEFT" developed for the California Highway Patrol, and the US Department of Justice/FBI Law Enforcement Enterprise Portal (LEEP) used by law enforcement agencies in the US.
- Developed TransitChecksm vehicle inspection and fleet management system. TransitCheck is a tablet based vehicle inspection and driver tracking solution which submits data to a cloud-based data system to provide fleet managers real-time fleet information. TransitCheck works with the TransitLinq heavy duty vehicle scan tool Dr. St. Denis developed that interfaces with heavy duty vehicle on-board diagnostic systems to provide real time vehicle operation and diagnostic data.
- Management responsibilities include project planning, logistics, management and scheduling; project implementation and operations activities; personnel and resource allocation; business development activities; proposal preparation and submittal; development of project budgets; project-level financial monitoring and reporting (both internally and to clients); report preparation; contract negotiation; and client liaison.
- Current and recent vehicle technical project activities and responsibilities:
 - ✓ Providing subject matter expertise, data base administration, help desk, billing operations, and strategy management for future improvements to the California Bureau of Automotive Repair Smog Check program Cal-VIS project with partner Oncore Consulting (Present).
 - ✓ Project Manager for the District of Columbia Department of Motor Vehicles on the implementation of IM240 testing. Developed specifications for equipment, developed and supplied test systems software and hardware, and data systems to control inspections and push information to DMV registration systems (present).

- ✓ Expert witness on behalf of Utah Physicians for a Healthy Environment against Diesel Brothers (past), Trans American Products (present) and Harley Davidson (present) for Clean Air Act violations.
- ✓ Expert witness/consultant for vehicle emissions control defeat device litigation on gasoline and diesel fueled vehicles against Volkswagen, Audi, Fiat Chrysler Associates, and others (past) and others (present).
- ✓ OBDII testing program assistance to the Louisiana Department of the Environment (present).
- ✓ Evaluation of vehicle inspection equipment and specifications for MA DEP (present).
- ✓ Principal Investigator on CRC Project RW-105 "Roadside Measurement of Evaporative and PM Emissions" (2019-2023).
- ✓ Developed RFP and specifications for State of Vermont OBDII and safety inspection program, provided oversight (2015-2021).
- ✓ RFP development and inspection system testing for program replacement in NJ vehicle inspection system for the NJ Motor Vehicle Commission (2013).
- ✓ Review of California Bureau of Automotive Repair Smog Check Performance Report (2016 and 2017).
- ✓ CRC Project E-129, Alternate Oxygenate Effects On Emissions.
- ✓ Developed RFP and specifications for the NY Taxi and Limousine Commission inspection station equipment upgrade, perform oversight and IV&V for implementation (2013-2018).
- ✓ Recall notification and compliance effectiveness research conducted for Honda North America (2016 - 2017).
- ✓ Expert witness for patent validity *Inter Partes* Review before the Patent Trial and Appeals Board related to vehicle emissions test equipment (2013-2016).
- ✓ Acceptance testing of new Vehicle Information Data system for GA DEQ developed by Applus (2015).
- ✓ US EPA High Evaporative Emission Vehicle Identification Pilot Project (CRC E-77-3) field testing procedures and operations management with ERG (2008 - 2012).
- ✓ Co-Author of the US EPA Remote OBDII guidance document.
- ✓ Vehicle emissions control device testing for a vehicle manufacturer to settle US EPA emissions control systems non-compliance issues.
- ✓ Authored vehicle emissions inspection equipment audit guidance and procedures for US EPA.

2006 to 2013

President - St. Denis Innovations, LLC., Roseville, CA

- Responsible for new product development, intellectual property management, and technology licensing. Developed an OBD product protected by a U.S. patent which was sold by a distributor and on Amazon for vehicle OBDII testing.

1998 to 2007

Managing Partner, Senior Engineer - Sierra Research, Inc., Sacramento, CA

- As a Managing Partner at Sierra Research, involved in oversight of corporate business practices and marketing efforts. Responsibilities included: project, personnel and resource planning and management; participation in corporate marketing and strategic planning discussions and efforts; identifying and pursuing new business opportunities and strategic partnerships; ensuring on-time completion of projects and transmittal of deliverables to clients; client liaison; and contract, budget and schedule monitoring and reporting to clients.

- Managed Sierra's vehicle Inspection and Maintenance (I/M) program related projects. Technical I/M project activities and responsibilities have included:
 - ✓ Assistance to states in development of I/M program specifications, evaluation of I/M vehicle programs, analysis of vehicle emissions testing data, I/M program auditing and quality assurance, and technical support.
 - ✓ I/M program assistance to states and others in developing test program protocols, equipment specifications, contractor RFP and other procurement-related documents, and audit plans and procedures.
 - ✓ Extensive work in acceptance testing of centralized and decentralized I/M program test equipment (gas analyzers, dynamometers and OBDII test systems), and end-to-end testing of electronic transmission systems and vehicle information databases (VIDs).
 - ✓ Auditing all aspects of I/M programs from equipment auditing to overall program auditing for compliance with federal guidelines. Also provided hands-on training to perform OBDII and other emissions test equipment audits to US EPA and state program staff.
 - ✓ For the US EPA, worked on projects under a technical support contract to evaluate new test program designs, propose changes to current technical guidance, draft new guidance, and evaluate improvements in US EPA support to states on I/M programs.
 - ✓ Evaluation of emissions reductions through the use of various emissions testing regimes and various types of emissions analysis equipment (including particulate emissions from Diesels).
 - ✓ Development of and working with state clients on all aspects necessary to implement OBDII testing programs including development of specifications, equipment testing, and development of an OBDII master reference lookup table.
 - ✓ Development of annual reports on the status of all United States I/M programs, which involved contacting all the I/M programs to determine any program changes or other developments since publication of the previous annual report as well as any planned future program changes
 - ✓ Developing/updating Sierra's master I/M and OBDII lookup tables, and program specific vehicle reference tables (VRTs) that incorporate the contents of the master lookup tables for a number of I/M programs or their contractors including Georgia, California, New York, Washington State, New Jersey, Massachusetts, Texas, Virginia, Alaska, Connecticut, Oregon, New Mexico, ESP, Applus and Testcom.
- Co-developed and patented a tester for verifying performance of steady state or transient dynamometers. Purchased by multiple state I/M programs to conduct test system acceptance testing and audits. Developed an enhanced version for EPA to test two- and four-wheel drive 48-inch roll certification dynamometers.

1997 to 1998

Diesel Emissions Testing Programs Project Manager - Clayton Industries, Inc., City of Industry, CA

- Responsible for development of loaded-mode Diesel vehicle test systems.
- Managed the first Heavy Duty Vehicle Inspection research project for CARB using a dynamometer and real time analyzers.
- Responsibility for international business development for gasoline and heavy duty diesel vehicle emissions test systems and for providing international technical support on new product development.

- Worked with government agencies in Hong Kong, China, Korea, Australia, Philippines, Canada, England, Germany, and California to develop vehicle emissions test systems.
- Worked with partners including Snap-On International, SPX Corporation, and Dah Chong Hong on joint development of vehicle emissions testing solutions in Asia.

1993 to 1997

Manager and Senior Engineer - Parsons, Inc., Pasadena, CA

- Served as Project Manager for projects involving vehicle emissions testing and emissions modeling analyses.
- Responsibilities in the area of vehicle testing included design and installation of computerized IM240 and ASM test lanes for testing light-duty motor vehicles, evaluation and selection of testing equipment, development of automation software, vehicle procurement, management of test center and staff, transient loaded mode vehicle emissions testing, and data analysis.
- Conducted studies evaluating the cost-effectiveness of accelerated vehicle retirement (scrap programs) for light duty vehicles, catalytic converter replacement, and I/M waiver criteria.
- Modeling responsibilities included review of vehicle emissions simulation modeling of heavy-duty Diesel vehicles and related modeling assumptions, development of a vehicle emissions reduction credit model for analysis of heavy-duty Diesel vehicle scrap programs, and evaluation and critique of heavy-duty Diesel vehicle emissions modeling performed by the US EPA.
- Project Technical Advisor to the Bureau of Automotive Repair (BAR) referee program. Managed technical processes for vehicle inspection, waiver processes and field operations. Developed and managed a research test center for BAR in which the first studies in California were conducted to evaluate the IM240 for use in centralized testing and to evaluate the current test procedure (ASM). Performed research on consumer assistance programs, catalytic converter replacements and early vehicle retirement.
- Served as Technical Manager for the Alternative Fuel Vehicle Feasibility Study conducted for the U.S. Air Force at Hill AFB in Ogden, Utah, evaluating the air quality benefits and cost-effectiveness of seven different systems for converting Diesel vehicles to operate on compressed natural gas.

1991 to 1993

Independent Contractor - South Coast Air Quality Management District, Los Angeles, CA

- Conducted research for project jointly sponsored by the South Coast Air Quality Management District, Ford Motor Company, and the Coordinating Research Council. Managed a test and simulation research project on computerized vehicle emissions control systems to determine if vehicle emissions control systems are calibrated to have lower emissions during certification than on road (the first "defeat device" testing ever performed). This research was one of the impetuses to the development of the revised certification tests including the US06 and SC03.
- Instrumented a vehicle using air/fuel ratio sensors, thermocouples in the exhaust stream, interface to on-board electronic engine controller, and other sensors. Collected vehicle operating parameter data on urban and freeway routes in Los Angeles.
- Developed new dynamometer driving cycles that were to be representative of actual driving patterns in Los Angeles and used these cycles to conduct transient loaded mode vehicle emissions tests at Ford's test facilities.

- Wrote two vehicle emissions computer models used to simulate driving in the Los Angeles area to aid in determining the causes of high emissions rate events.

1990 to 1993

Staff Research Associate - University of Los Angeles, California (UCLA)

- For the US EPA, developed a compact and portable differential optical absorption spectrometer (DOAS) to measure the indoor air pollutants formaldehyde, nitric acid (HONO), and NO₂. Designed and built the optical system and evaluated a new diode array electronic detection system for the spectrometer.
- For the South Coast Air Quality Management District, modified the Regional Human Exposure Model (REHEX) to allow for modeling of human exposure to benzene and formaldehyde in the South Coast air basin, later extended study 1,3-butadiene.

Large Project Experience

California Bureau of Automotive Repair, Smog Check Referee Program, 1993 to 1997. Technical manager for vehicle inspection station network of 57 facilities throughout state of CA with over 100 staff. Responsible for oversight of technical field operations, project budgeting and resource allocation including facilities and staff. Total program value over \$40 million.

California Bureau of Automotive Repair, Program Test Options Evaluation, 1994 to 1996. Designed, equipped and operated three test facilities, managed 20 staff. Total program value \$1.5 million.

New Jersey Motor Vehicle Commission, Motor Vehicle Emission Program Replacement Planning and Oversight, 2011 - 2016. Provide evaluation, planning and oversight for implementation of a revised vehicle inspection program. Work includes complete review of the current program, modeling of emissions impacts and financial impacts of various alternative inspection delivery methods, development of a Request for Proposals for the State to retain a vendor to implement the developed plan and then oversight of the new vendor. Revecorp worked as a sub-contractor to ERG. inspection vendor contract valued at \$30 to \$60 million.

New Jersey Department of Motor Vehicles, Vehicle Inspection Program Privatization Oversight, 1999-2005. Provided oversight of contractor retrofitting 37 inspection stations throughout the entire state of NJ for operation by private contractor. Performed review of facility plans, equipment and software specifications, database and communications specifications, and staff training and management plans. Provided acceptance testing and approval of installations before being allowed to become operational. Retrofit cost over \$60 million, operational revenue over \$40 million per year.

Massachusetts Department of Environmental Protection, Vehicle Inspection Program Privatization Oversight, 2000-2005. Provided oversight of contractor equipping 1800 private inspection stations, installing new data system, and establishing program operations. Performed final acceptance testing, specification reviews, data system reviews, and program option analyses. Total program value \$250 million.

Louisiana Department of Environmental Quality, Program Implementation Oversight, 2003 to present. Providing contractor oversight for implementation of new test equipment and data system developed by contractor. Total program value several million dollars.

Washington DC Department of Motor Vehicles, Test Facility Retrofit, 2005 to 2007. Project manager and overall design engineer for complete facility equipment and data system upgrades. Selected subcontractors for equipment and data system development and managed three phases of retrofit. Retrofit cost \$2 million.

Performed audits of state-wide vehicle inspection programs for Alaska, Colorado, Connecticut, the District of Columbia and Missouri. Evaluated programs versus vendor contractual requirements, federal and state regulations, and best engineering practices.

Other Experience

- Expert witness/consultant services related to vehicle defeat devices, undisclosed AECDs, vehicle emissions control system tampering by aftermarket shops, vehicle inspection program testing equipment product defects, emissions testing fraud, and USPTO patent infringement inter partes reviews (IPR) related to vehicle inspection and diagnostic equipment. Developed damages models and calculated impacts, considered alternative settlement solutions, and participated in FRE 408 negotiations as a technical expert in vehicle emissions controls. Provided expert witness testimony on the stand, developed expert reports, declarations, and been deposed.
- Qualified as an expert in vehicle emissions and vehicle emissions control systems by Judge Robert Shelby of the US District Court for the District of Utah, Central District, Case No. 2:17-cv-32-RJS-DBP.
- Certified as a "HD IM Tester" by the California Air Resources Board, Cert # IK200200 through Nov 2024.
- "Evaporative Emissions Control System Monitoring," U.S. Patent application 14/453,294 filed August 6, 2014. Inventors: G. Glinsky and M. St. Denis.
- "Evaporative Emissions Control System Monitoring," U.S. Patent application 14/064,934 filed October 28, 2013. Inventors: G. Glinsky and M. St. Denis.
- "A Device and Method for Verifying the Operation of a Chassis Dynamometer," U.S. Patent No. 6,601,441 B1, issued August 5, 2003. Inventors: G. Torgerson and M. St. Denis, Assignee: Sierra Research Inc.
- "OBDII Readiness Status Notification Device," U.S. Patent 7,012,512 B2 issued March 14, 2006. Inventor: M. St. Denis, Assignee: St. Denis Innovations LLC.
- Guest lecturer during period 1999-2002 at University of Michigan summer courses in automotive emissions control.
- Development of TransitCheck, tablet-based software allowing for regulatory required pre and post trip inspections of vehicles which transport the public or are used commercially. Additionally, developed TransitLock an electronic lock for commercial buses, and TransitLinq a SAE J1939 (heavy duty) scan tool. TransitCheck is in wide use across the US.
- Development of VINterpreter, a vehicle identification number decoder that can provide all information necessary for vehicle inspections and real time open recall information. Currently used in several state vehicle inspection programs. Also available as iOS and Android applications as VINPro.
- Development of ReveTHEFT, a stolen vehicle identification Android application for use by law enforcement.

Representative Clients

- ✓ U.S. Environmental Protection Agency
- ✓ Alaska Department of Environmental Conservation
- ✓ Municipality of Anchorage Alaska
- ✓ Borough of Fairbanks Alaska

- ✓ Arizona Department of Environmental Quality
- ✓ California Air Resources Board
- ✓ California Bureau of Automotive Repair
- ✓ Colorado Department of Public Health and the Environment
- ✓ Connecticut Department of Motor Vehicles
- ✓ District of Columbia Department of Motor Vehicles
- ✓ District of Columbia Department of Energy and Environment
- ✓ Georgia Environmental Protection Division
- ✓ Louisiana Department of Environmental Quality
- ✓ Massachusetts Department of Environmental Protection
- ✓ Maryland Department of the Environment/Motor Vehicle Administration
- ✓ Missouri Department of Natural Resources
- ✓ New Hampshire Department of Motor Vehicles (Via Gordon-Darby)
- ✓ New Jersey Clean Air Program
- ✓ New York Taxi and Limousine Commission
- ✓ Texas Commission on Environmental Quality
- ✓ Vermont Department of Motor Vehicles
- ✓ Vermont Department of Environmental Conservation
- ✓ Virginia Department of Environmental Quality
- ✓ Pacific Vehicle Testing Technologies, Ltd. (AirCare British Columbia)
- ✓ New South Wales Roads and Traffic Authority (Australia)
- ✓ Coordinating Research Council
- ✓ Honda North America
- ✓ Eastern Research Group (ERG)
- ✓ Opus Inspections/Envirotest/Environmental System Products Inc.
- ✓ Worldwide Environmental Products
- ✓ Applus Technologies
- ✓ SGS Corporation
- ✓ Parsons Corporation
- ✓ Environmental Testing Corporation
- ✓ Hager Environmental and Atmospheric Technologies
- ✓ Gordon-Darby Inc.
- ✓ Dah Chong Hong Motor Service Center Ltd., (Hong Kong, China)
- ✓ Stetina Brunda Garred & Brucker PC
- ✓ Baron & Budd, PC
- ✓ Bleichmar Fonti & Auld LLP
- ✓ Lieff Cabraser Heimann & Bernstein, LLP
- ✓ Zars Law
- ✓ Sidley Austin, LLP
- ✓ Quinn Emanuel Urquhart Oliver & Hedges, LLP
- ✓ Fraser Milner Casgrain, LLP

Publications and Presentations

"Outcome from Roadside Evaporative RSD Testing", presented at I/M Solutions, Savanna, GA, May 1-3, 2023

"Diesel Brother's and New Cases to Stop Defeat Parts Sales", presented at I/M Solutions, Savanna, GA, May 1-3, 2023

"Roadside Measurement of Evaporative and PM Emissions Using Remote Sensing", CRC Report No. RW-105, April 2023 (co-author Gerard Glinsky), <https://crcao.org/wp-content/uploads/2023/04/CRC-RW-105-Final-Report-Revecorp-20230405.pdf>

"CRC RW-105: Roadside Measurement of Evaporative and PM Emissions Using Remote Sensing", presented at I/M Solutions, New Orleans, LA, May 23-25, 2022

"Revecorp Expert Services For Utah Physicians for a Healthy Environment in UPHE v. Diesel Power Gear (Diesel Brothers)", presented at I/M Solutions, New Orleans, LA, May 23-25, 2022

"Considerations for Improving Safety Testing", presented at I/M Solutions, New Orleans, LA, May 23-25, 2022

"Strategy Management for Services (SMS) Report", prepared for the California Bureau of Automotive Repair, December, 2021 (co-authors Oncore Consulting LLC).

"Independent Review of the 2017 Smog Check Performance Report", prepared for the California Department of Consumer Affairs and the California Bureau of Automotive Repair, Agreement 001546, June 20, 2018 (co-authors R. Budd, and S. Kishan (Eastern Research Group), J Lindner (Eastern Research Group)).
https://www.bar.ca.gov/pdf/2017_Smog_Check_Performance_Report_Review.pdf

"Increasing Safety Recall Compliance Through Notification In Inspection Programs", presented at State Vehicle Safety Inspection Program Workshop, University of Texas at Austin's Pickle Research Campus, June 26, 2018

"The History of Emissions Cheating, How is it Done and Does it Affect I&M and Air Quality", presented at I/M Solutions, Henderson, NV, May 7-9, 2018

"Recall Importance and Improving Recall Remedy Rates", presented at the State of California Bureau of Automotive of Repair Advisory Group, October 19, 2017.
https://www.bar.ca.gov/pdf/Safety_Recall.pdf

"Independent Review of the 2016 Smog Check Performance Report", prepared for the California Department of Consumer Affairs and the California Bureau of Automotive Repair, Agreement 001546, June 6, 2017 (co-authors R. Budd, and S. Kishan (Eastern Research Group), J Lindner (Eastern Research Group)).
https://www.bar.ca.gov/pdf/2017_Smog_Check_Performance_Report.pdf

"Results from a Recall Notification and Compliance Study", presented at I/M Solutions, Denver, CO, May 21-24, 2017

"A Successful RFP Process", presented at I/M Solutions, Denver, CO, May 21-24, 2017

"Improving Recall Notifications and Compliance", presented at I/M Solutions, Pittsburg, PA, May 1-4, 2016

Introduction/Summary of Memorandum "Evaluation of EDAR for Measurement of Simulated Exhaust Emissions", Prepared for the Colorado Department of Health, US EPA and HEAT by ERG, January 2, 2016.

"Request for Proposal 16-X-24049 For: Enhanced Motor Vehicle Inspection / Maintenance Program", New Jersey Department of Treasury and New Jersey Motor Vehicle Commission, December 21, 2015.

"Request for Proposals, Vermont Automated Vehicle Inspection Program Services", Vermont Department of Motor Vehicles, July 2015.

"Connecticut Vehicle Inspection Program 2014 On-Road Vehicle Survey", Prepared for Applus and the State of Connecticut Department of Motor Vehicles, with Hager Environmental & Atmospheric Technologies (HEAT), February 9, 2015, https://docs.wixstatic.com/ugd/3ee5f0_b6f8746eac594abeacc997db69f23da4.pdf.

"Investigation of Techniques for High Evaporative Emissions Vehicle Detection: Denver Summer 2008 Pilot Study at Lipan Street Station - Report Version 5", US EPA Report EPA-420-R-14-027 Prepared for EPA by Eastern Research Group, Inc. EPA Contract No. EP-C-06-080 Work Assignment No. 2-2, October 2014, <http://www.epa.gov/otaq/emission-factors-research/documents/420r14027.pdf>.

"Request for Proposals, Implementation and Maintenance Services for an automated Inspection System for the New York Taxi and Limousine Commission", PIN 156 14P00438, The City of New York, Taxi and Limousine Commission, August 2014.

"Multi-Day Diurnal Testing", US EPA Report EPA-420-R-14-006, Prepared for EPA by Eastern Research Group, Inc., EPA Contract No. EP-C-06-0-80, Work Assignment No. 5-11, March 2014, <http://www.epa.gov/otaq/emission-factors-research/documents/420r14006.pdf>.

"Evaporative Emissions Durability Testing", CRC Project E-91, Prepared for the Coordinating Research Council, August 6, 2012 (Co-Authors Joe Roeschen, Revecorp; Keith Vertin, Gerard Glinsky, Jan Mickelsen, SGS Environmental Testing Corporation; Craig Morgan, Chrysler Corporation Chelsea Proving Grounds), <http://www.crao.org/reports/recentstudies2012/E-91/CRC%20E-91%20Final%20Report%20120910.pdf>

"Auditing OBDII Data for Accuracy and Enforcement", presented at I/M Solutions, Salt Lake City, Utah, April 27 – 30, 2014

"Revecorp VINterpreter VIN Decoder", presented at I/M Solutions Schaumburg, Illinois, May 5-8, 2013.

"Data Quality to Improve Program Efficiency and Customer Satisfaction", presented at I/M Solutions Schaumburg, Illinois, May 5-8, 2013.

"Evaporative Emissions Reductions Using Remote Sensing," presented at I/M Solutions Conference, Sacramento, California, May 20-24, 2012.

"Changes to the Delivery of I/M Programs as OBDII Matures" Presented at the 22nd CRC Real World Vehicle Emissions Workshop, San Diego, California, March 25-28, 2012.

"Evaporative Emissions Reductions Using Remote Sensing," Presented at the 22nd CRC Real World Vehicle Emissions Workshop, San Diego, California, March 25-28, 2012.

"New Jersey Interim Report: Review of Current I/M Program and NGcontract Options", Draft Report, New Jersey Motor Vehicle Commission, December 1, 2011.

"Mentoring for Potential New I/M Non-attainment Areas" Presented at the 26th Clean Air Conference, Estes Park, Colorado, September 27, 2010 (co-author Jim Lindner, ERG).

"Recommended Guidance for Remote OBD I/M Programs", Transitioning I/M Workgroup, Mobile Source Technical Review Subcommittee, Clean Air Act Advisory Committee, September 2010 (author of two chapters).

"Evaluation of the District of Columbia Vehicle Inspection Program Options," prepared for the District of Columbia Department of the Environment, December 2008.

"Survey Results: What States Think About Future OBD", presented by Richard Joy at the 24th Annual Mobile Sources/Clean Air Conference, Breckenridge, Colorado, September 22-25, 2008 (performed study, analysis and generated results).

"Review of: Evaluation of the 2003 – 2004 Phoenix I/M Program Using Random Sample Data, Draft Report to the Arizona Department of Environmental Quality, July 2007", prepared in conjunction with Gordon-Darby Inc. for the Arizona Department of Environmental Quality, November 2007.

"District of Columbia South West Vehicle Inspection Station Vehicle Emissions Test Equipment Audit Procedures," prepared for the District of Columbia Department of the Environment, September 2007.

"Manager's Perspective on the DC Vehicle Inspection Program Improvements," presented at the 23rd Annual Mobile Sources/Clean Air Conference, Breckenridge, Colorado, September 24-27, 2007.

Series of user training videos for the use of the Gordon-Darby TIMSPlus vehicle information management system by the state of Texas program staff. Prepared for Gordon-Darby, September 2007.

"SEM-04-007 (Quebec Automobiles), Data for the Factual Record," Sierra Research Report No. SR2007-02-02, prepared for the Commission for Environmental Cooperation of North America, February 28, 2007.

"Municipality of Anchorage I/M Program Evaluation Study," Sierra Research Report No. SR2007-01-01, prepared for the Municipality of Anchorage, January 2007.

"Municipality of Anchorage Cold Weather Program Evaluation Study," presented at the 22nd Annual Mobile Sources/Clean Air Conference, Keystone, Colorado, September 25-28, 2006.

"Evaluation of Clayton TEC1500 Chassis Dynamometers," Sierra Research Report No. SR2006-06-02, June 20, 2006 for Sidney Austin LLP.

"United States Motor Vehicle Inspection and Maintenance Programs," Sierra Research Report No. SR2005-12-03, December 2005.

"OBD Support Issues: Tools Available for Improvement in I/M Programs and Recent Developments," presented at the 21st Annual Mobile Sources/Clean Air Conference, Keystone, Colorado, September 26-29, 2005.

"Municipality of Anchorage I/M Program Evaluation Design," Sierra Research Report No. SR2005-07-05, prepared for the Municipality of Anchorage, July 2005.

"Comparison of New Jersey OBDII I/M Results to Other States," Sierra Research Report No. SR2005-04-01, prepared for New Jersey Motor Vehicle Services, April 20, 2005.

"Audit of ESP Missouri's Performance in the Gateway Clean Air Program," Sierra Research Report No. SR2005-01-02, prepared for Environmental Systems Products Holdings, Inc., January 27, 2005.

"Review of Light-Duty Diesel and Heavy-Duty Diesel/Gasoline Inspection Programs," Journal of the Air and Waste Management Association, Volume 55, December 2005, pages 1876-1884.

"Analysis and Comparison of OBDII Data From Five IM Programs," presented at the 20th Annual Mobile Sources/Clean Air Conference, Copper Mountain, Colorado, October 5-8, 2004.

"Development of the IM147: An Alternative Inspection/Maintenance Mass-Emission Transient Test to Address Vehicle Preconditioning Concerns," Journal of the Air and Waste Management Association, Volume 54, March 2004, pages 269-285.

"Draft Audit Report on Connecticut Vehicle Emissions Testing Programs," Prepared by Sierra Research in conjunction with Gordon Darby for Connecticut Department of Motor Vehicles, May 20, 2004.

"2002 Alaska I/M Program Audit," Sierra Research Report No. 02-09-01, prepared for Alaska Department of Environmental Conservation, September 11, 2002.

"Diesel Emissions Overview," presented at the 18th Annual Mobile Sources/Clean Air Conference, Breckenridge, Colorado, September 10-13, 2002.

"Report on Equipment Testing for CDPHE of the Colorado Centralized Test Lanes," Sierra Research Report No. SR02-09-05, prepared for the Colorado Department of Public Health and the Environment," September 2002.

"Hands-On Audit Training for Mass- and Concentration-Based IM Programs," Sierra Research Report No. SR02-02-02, prepared for U.S. Environmental Protection Agency Certification and Compliance Division, February 2002.
<https://tinyurl.com/rae9aujt>.

"New Jersey Enhanced I/M Program Audit Procedures Manual," prepared for New Jersey Department of Environmental Protection, February 15, 2002.

"Technical Evaluation of IM Program Dynamometer Specifications and Guidance," Sierra Research Report No. SR01-12-01, prepared for the U.S. Environmental Protection Agency, December 2001.

"Status of Vehicle Inspection Programs for Light-Duty Diesel Vehicles and Heavy-Duty Gasoline and Diesel Vehicles," Sierra Research Report No. SR01-11-01, prepared for U.S. Environmental Protection Agency, Certification and Compliance Division, November 6, 2001, <https://tinyurl.com/4bec6zft>.

"QA/QC Procedures Based on Program Data and Statistical Process Control Methods for I/M Programs," Sierra Research Report No. SR01-10-02, prepared for U.S. Environmental Protection Agency, Certification and Compliance Division under

Contract No. 68-C7-0051, Work Assignment No. 3-03, October 30, 2001.
<https://tinyurl.com/ma3xc3at>.

"CT2001-D Analyzer System Specifications for Vehicle Emission Test Equipment to Be Used in Decentralized Test-Only and Test-and-Repair Inspection Facilities," Draft Version 1.0, prepared for Connecticut Department of Motor Vehicles, October 29, 2001.

"Technical and Functional Specification for a Light-Duty Vehicle Emissions Measuring System," Revised Draft, prepared for New South Wales Roads and Traffic Authority, May 2001.

"Reductions in Human Benzene Exposure in the California South Coast Air Basin," Atmospheric Environment, 35 (2001) pages 1069-1077. (Co-Authors S.A. Fruin, A.M. Winer (UCLA), S.D. Colome, F.W. Lurmann (Sonoma Technology)).

"Acceptance Testing of the Vancouver B.C. AirCare II IM240 Emissions Inspection System," prepared for Pacific Vehicle Testing Technologies, Ltd., February 2001.

"Massachusetts Enhanced Safety and Emission Inspection Program, Covert Vehicle and Visual Auditing Program Operations Manual," Sierra Research Report No. 00-11-01, prepared for Keating Technologies, Inc., November 2000.

"I/M Lookup Table Update," prepared for U.S. Environmental Protection Agency, Certification and Compliance Division under Contract No. 68-C7-0051, Work Assignment No. 2-03, October, 2000, <https://tinyurl.com/5223vkxy>.

"I/M Acceptance Testing and Auditing," presented at the 16th Annual Mobile Sources/Clean Air Conference, Snowmass, Colorado, September 19-22, 2000.

"QA/QC for Transient Mass Emissions testing in I/M Programs," presented at the 16th Annual Mobile Sources/Clean Air Conference, Snowmass, Colorado, September 19-22, 2000.

"U.S. EPA Steady State and Transient Testing Equipment Audit Guidance," prepared for U.S. Environmental Protection Agency under Contract No. 68-C7-0051, Work Assignment No. 2-05, September 15, 2000, available at:
<https://www.epa.gov/sites/default/files/2016-06/documents/auditgd.pdf>
and <https://www.epa.gov/sites/default/files/2016-06/documents/auditfrm.pdf>.

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