

Quality Matters

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Quality Assurance

Quality Assurance is more than testing acceptance and quality control samples. Quality Assurance includes inspection, certification of equipment and processes, qualification of technicians, a system of documentation, verification testing, and independent assurance testing. One way that we ensure that we are testing samples uniformly across the state is through the Louisiana Department of Transportation and Development (LADOTD) Cooperative Testing Program (COOP). This proficiency sample program, administered by the Materials and Testing Section, is formally established to provide an ongoing intradepartmental evaluation of the quality and accuracy of material testing. This program involves all major LADOTD testing facilities including the Materials and Testing Section, the Louisiana Transportation Research Center (LTRC), and the nine LADOTD District Laboratories.

This program consists of all laboratories performing tests on a number of homogeneous samples every six months. In April and October of each year, samples are prepared, shipped to the Materials and Testing Section for distribution to the various laboratories,

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Best Paint for Your Buck



LADOTD was recently approached by a coatings manufacturer to change a painting procedure in the 2006 LA Standard Specification. They have suggested that we allow the use of organic zinc paint

systems to be used on new structural steel painted in the fabrication shop as the primary coating system. In order to fully understand what is implied in this suggestion, some background information is required concerning LADOTD's perspective on paint systems.

The QPL 78 for zinc paint systems was developed by LADOTD within the last five years. Immediately prior to using zinc paint systems from QPL 78, our bridge paints generally consisted of three-coat waterborne

acrylic systems from QPL 68. This recent change in specification was due to extensive field evaluations and accelerated lab testing of zinc paint systems performed by FHWA and many other states' DOTs. One research study in particular illustrated the effective corrosion prevention over 20 years¹ on bridges through the use of zinc paint systems, specifically inorganic zinc, compared to several alternative systems such as alkyd systems, epoxy paint, etc. As a result, the current specification requires the use of QPL 78 for new structural steel to secure maximum protection of our new structure.

LADOTD specifies that inorganic zinc primer is to be applied in the fabrication shop². This is in

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Debi Kelley Retires



After 36-plus years at the Matlab, one of the most well-known employees, Deborah “Debi” Ourso Kelley, has retired! Virtually everyone who walked through the Matlab doors

knew Debi. She “trained” all Material Administrators during her span and promoted the idea that “Quality Matters!”

Born in Donaldsonville, she grew up in Brusly McCall and enjoyed playing on the farm and raising 4-H Steers. Debi was married to Louie “Al” Kelley for 23 ½ years. They had two sons, Cody Paul and Devin Lee. Debi, her sister, Patricia, and her brother, Sonny, are the children of Meredith “Bullie” N. Ourso Sr. and Bessie Gomez of Donaldsonville. Other members of Debi’s family include her sister-in-law, Faye Falcon Ourso; her nephew, Trae’, and his wife Meagan; her nieces, Jamie and Jena; and her two great-nieces Alyse Katherine and Ava Kate Ourso. Other special members of her family are Teri Copenhaver and her daughter Kaylee.

Quality Assurance *(continued from page 1)*

and tested by specified methods. The results of the tests are forwarded to the Materials Testing Section for statistical analysis.

In particular, we remove statistical outliers and then compare individual results to a range established by the average value (or design target) ± 2 standard deviations. Any values outside of the range require greater scrutiny. The deficiencies are reported to the participants, who then investigate and respond to the Materials Engineer Administrator

with satisfactory evidence that all deficiencies will be corrected.

This information is quite useful in discovering deficiencies in equipment and test procedure performances. It is also useful in the development of specifications and testing tolerances. By knowing how consistently we can test a controlled and uniform material, we can determine how much variation to allow in the specification tolerances that would be due to the sampling and testing. For more information, see ED SM V.1.1.3. 

Debi graduated from Donaldsonville High School in 1970. Debi attended Nicholls State University, graduating in 1972 with an Associate of Science degree in Office Administration. Since then, Debi spent her time with DOTD working in the Administrative Unit and has been the assistant to seven Materials Engineers. Debi also assisted all other engineers at the Matlab.

Entering retirement, Debi plans to enjoy spending time with her wonderful family and friends, traveling, cheering on the LSU Tigers, and spoiling her great nieces. Debi wishes all her friends at DOTD success in their remaining years with the Department and wishes everyone much happiness and good health.

Debi is loved and will be greatly missed by all at the Matlab. We wish Debi the best of luck and hope she finds joy in retirement! 

MatLab Updates

Secretary’s Award of Excellence – Alton Booth, Engineering Technician DCL, received the Secretary’s Award of Excellence in May 2009. Alton functioned as DOTD Incident Commander at the Union Passenger Terminal, Zepher Field, and Yenni Courthouse during the ESF-1 evacuation. Over 17,000 citizens from Southeast Louisiana were evacuated due to Hurricane. He functioned as a principal field contact for DOTs. In the process, he worked shifts that exceeded 24 hours. This agency received several compliments on his resourcefulness and attitude. Alton’s dedication to this effort serves as an example of exemplary performance.

Francisco Gudiel Joins Materials Section Staff

In March, Joaquin “Francisco” Gudiel, P.E., joined the Materials and Testing Section as the Geotechnical and Physical Evaluations Engineer. In his new position, Francisco will be managing two gangs, each with a variety of different laboratory units. On the Geotechnical side, he will oversee operations of the Soils Testing Laboratory and the Aggregates Test-

ing Laboratory. His Physical Evaluations responsibilities will include the Physical Testing Laboratory, the Cementitious Materials Laboratory, the Concrete Laboratory, and the Adhesives Testing Laboratory. He replaces Richie Charoenpap, P.E., who was recently promoted to the Materials Testing & Evaluation Administrator position here at the Materials and Testing Section.

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NHI’s Highway Engineering Academy

During February and March, Richie Charoenpap had the opportunity to represent LADOTD by attending the Highway Material Engineer class held at Pennsylvania State University. The six-week class was hosted by the Northeast Center of Excellence for Pavement Technology. Candidates from transportation departments around the country attended the academy. States represented were Washington, Alabama, Idaho, Iowa and Louisiana. Members from the Federal Highway Administration and Turner Fairbank Highway Research Center also attended.



The course covered seven areas of Highway Materials Engineering: Statistic, Geotechnical, Aggregates and Unbound Base, Recycling Materials, Steel and Coating, Concrete, and Asphalt. Each course module was conducted by experts in their field. The FHWA Mobile Lab for Concrete and Asphalt was also present to demonstrate laboratory testing. The course also provided field trips to an aggregate quarry, a steel plant, a concrete plant, and an asphalt plant.

The course provided great information on highway materials design and construction. It discussed many aspects of highway materials during design and construction including common recurring problems and how to detect and correct these problems. It also covered how the materials perform under different environments and how the QA/QC program can improve the quality and durability of roads and bridges. Participants in the course discussed the ways they were doing things differently to best suit the situation in their states. Ideas were shared and brought back for discussion on implementation within our state. Charoenpap explained, “At the end of the course, I not only gained a better understanding of the highway materials, I also gained practical knowledge and friends from around the country.” 

by Richie Charoenpap, P.E., MBA

Materials Testing and Evaluation Engineer Administrator

LADOTD's Active Underground Storage Tank Program

In late summer of 2007, the Environmental Evaluation Unit (EEU) of the Materials and Testing Laboratory officially assumed responsibility for administering LADOTD's Active Underground Storage Tank Program (AUST). Until the fall of 2006, the AUST Program was administered through Operations under the leadership of Joe Modicut. During the interim period of 2006 and 2007, EEU assisted Operations' personnel by providing oversight of the AUST Program. The AUST Program, not to be confused with the Department's project related Underground Storage Tank (UST) Program, is centered around those underground fuel tanks the Department actually owns and operates statewide for routine fueling purposes.

During the interim period and shortly thereafter, the EEU was faced with what appeared to be an insurmountable task with respect to environmental compliance of the AUST Program. Evaluation of the program status revealed numerous compliance deficiencies ranging from inadequate record keeping to USTs remaining in place long past the time permitted under the UST regulations. In addition to this gloomy sense of realization, both US EPA and the Louisiana Department of Environmental Quality were in the midst of implementing a "stepped-up" UST facility inspection program as required per the federal Energy Act. Under this act and with respect to UST facilities, emphasis on cathodic protection, leak detection, and records for compliance testing ranked high on the regulatory agencies' inspection list. In each of these areas, DOTD was destined to fall short of the mark of compliance and would potentially be faced with millions of dollars in environmental fines.

The first order of business for the EEU, in light of the program status, seemed to suddenly ring out loud and clear...GET HELP!!! Without a doubt, if DOTD were to survive the potential onslaught of fines and penalties, quick action in the form of partnering with the environmental consulting com-

munity was a must. EEU developed a three-prong approach to address the current and immediate future status of the AUST Program. The first prong was to hire an environmental consultant firm to conduct compliance inspections at each DOTD facility regardless of whether the USTs were active or not. The inspections would mimic those normally conducted by the regulatory agencies and would, therefore, identify areas of deficiencies. The results of the inspections, along with necessary corrective actions and associated cost estimates would be published in report form and later used in the second prong of the approach. Under the second prong, a consultant contract would again be let to perform all corrective actions as identified in the previous inspection contract. The third and final prong of the approach would be to place an environmental consultant on retainer contract to assist DOTD in maintaining program compliance via scheduled facility testing and performing upgrades and corrective action as necessary. Once the plan of action was fully developed, it was presented to LDEQ where it received input and concurrence.

By late 2007, the compliance inspection report was completed, and by April of 2008, the corrective action contract was in place and is currently in progress. Work under the corrective action contract was divided into three phases. First, the USTs that were still in place, but out of service, were removed per LDEQ closure protocol. In some instances, above ground storage tanks (ASTs) were used as replacements. Secondly, upgrades to all system equipment including tanks have been nearly completed to date. The third phase of the corrective action plan entails compliance testing of the UST systems and is currently being implemented with a scheduled completion date of May 2009. Jesco Environmental, Inc. was the consulting firm who performed the compliance inspections and is currently implementing the corrective actions for the program.

Throughout the implementation of the entire plan, close communication with LDEQ has been maintained in an effort to demonstrate DOTD's commitment to addressing its obligations regarding the AUST Program. Our level of commitment and quality of work has facilitated a reduction in program deficiency and regulatory fines. In the remaining time under the corrective action contract, facilities where petroleum products have been released into the environment will be further assessed and remediated as required. As we approach the close of this prong of the action plan, we solicit the continued support of the various district personnel throughout the Department where AUSTs are in place. This effort can be further enhanced by participation in available UST training classes and by individual commitment to being better stewards of the environment. EEU strongly believes when it come to the AUST Program, quality definitely matters. 

by Joubert Harris, Environmental Impact Manager

Francisco Gudiel (cont. from page 3)

Francisco brings a diverse background to his new position, both professionally and personally. He came to Materials from the Project Management Section, but has worked in a P.E./Construction Gang in District 02, spent several years in the Bridge Design Section, and also worked in private industry. A native of El Salvador, he came to the United States in 1980 to attend LSU. He graduated with a Bachelor of Science degree in Civil Engineering in 1984.

Francisco and his wife, Tania, have three sons, and he actively participates in their many activities. He is also active in his church, is a member and a former President of the Louisiana Society of Professional Engineers in Civil Service, and is a member of ASCE. 

MatLab Updates

Building Construction – The entire Matlab did a fantastic job of moving equipment and people out of Building No. 1 and then working resourcefully in a temporary environment. The planning, coordination, and cooperation were excellent! Some of our folks received the coveted “Team of the Quarter” award. Congratulations to: Danny Bell, Richie Charoenpap, Joubert Harris, Paul Hendricks, Lodrick Price, Terry Matherne, Alan Muse, and Charles Templeton.

ASTM - ASTM standards are now available for everyone in the Department on the LTRC website! Spread the word around. <http://www.ltrc.lsu.edu/library.htm>

QA Manual – The Application of Quality Assurance Specifications for Asphaltic Concrete Mixtures, which complement the 2006 Standard Specifications, has been published at www.dotd.la.gov. Go to “Construction,” then to “Materials,” and then to “QAM Asphalt.”

Special Surface Finish for Concrete - An in-depth materials analysis of Special Surface Finish for Concrete resulted in the implementation of a new testing procedure, DOTD TR 610, which analyzes the material through FTIR (Fourier Transform Infrared Spectroscopy). This procedure allows us to have a much better material fingerprint. We can then compare between standards and the project samples for acceptance purposes.

SiteManager Materials – We are in the process of training district construction personnel on the use of the new Pay Items for change order purposes. The new Pay Items started with the March letting. We also trained district lab personnel on the Mix Design process during the months of March and April. The final review process for all materials templates is underway. We are also in the process of associating the templates to materials and assigning specification values to the templates.

Changing of the Guard in the Physical Evaluations Unit

The Physical Evaluations Unit at the Materials and Testing Section has undergone several significant personnel changes in the past several months. This unit, which consists of the Physical Testing Lab, the Metals Lab, the Concrete Lab, the Adhesives Lab, and the Cement Lab, is responsible for a wide variety of types of materials used in the construction of our roads and bridges.

The personnel changes started with the retirement of Don McMahon from his position as the Engineering Technician (ET) DCL over the Physical Evaluations Unit in December 2008. Don retired with over 27 years of state service, most of which has been at the Materials and Testing Section. He worked in all of the laboratories in the Physical Evaluations Unit and was promoted to the Engineering Materials Manager position in the unit in 2000. He was “walked over” to the ET DCL in 2002. During this time, he assisted the Physical Evaluations Engineer in managing the day-to-day operations of the labs, but he also served as the subject matter expert in these fields. Don worked on the Test Procedures Committee and assisted the Joint AASHTO/ASTM Harmonization Task Group, a panel charged with resolving the numerous differences in the two major cement specifications, AASHTO M85 and ASTM C150. Upon his retirement, Don is looking forward to doing some traveling and plans to spend more time with his grandchildren.

With Don’s departure, Alton Booth was selected as the new ET DCL over the Physical Testing Lab, the Metals Lab, and the Concrete Lab. Alton has been with the Department almost 27 years, the past 22 working in the Physical Evaluations Unit. Over the years, Alton has worked in each of the different labs within the unit and has an excellent knowledge of the testing procedures; he also has an uncanny knack of keeping the older pieces of testing equipment working. He has successfully demonstrated a wide variety of test procedures for the AASHTO Materials Reference Laboratory (AMRL) and the Cement

and Concrete Reference Laboratory (CCRL) inspectors and transferred that knowledge to the districts by performing the District Lab Inspections for concrete for the past several years. He is a member of the American Concrete Institute (ACI), and often travels to private labs around the state to observe testing for product evaluations such as admixtures for portland cement concrete.

The ET 5 position vacated by Alton’s promotion was filled by the promotion of Tasha Rowe. Tasha has worked for DOTD since 2001, and virtually all of it has been in the Physical Evaluations Unit. Her Laboratory assignments varied depending on the work loads and the needs of the Unit, and her broad range of experience will be a valuable asset in performing her new duties.

In the months leading up to Don’s retirement, the Materials and Testing Section’s administration worked to create a new position to more effectively monitor the quality assurance program for Portland cement and fly ash. A new ET DCL position was created in the Physical Evaluations Unit, and it is responsible for the Cement Lab and the Adhesives Lab. After advertising and interviewing, Tim Perault was chosen for this position. Tim has more than 35 years with the Materials and Testing Section, the majority of which has been in the Cement and Adhesives labs. Tim has worked for several years with the Joint AASHTO/ASTM Harmonization Task Group, and his knowledge of the specifications and test procedures for cement has helped that group move closer to its goal of one common cement specification. His expertise will be well suited for his new position.

In the Cement Lab, another major change came with the retirement of Ivory Smith, who had served as the ET 5 in that lab for more than seven years. With just under 30 years of state service, Ivory worked as a stock clerk and a Weights and Standards truck scale officer before entering the ET field. She worked

in the Soils Testing Lab for several years before transferring to the Physical Evaluations Unit. As with many retirees, Ivory is hoping to travel and spend time with her sons and grandchildren.

With Ivory's retirement, Carly Spaulding was selected to replace her as the ET 5 in the Cement Lab. Carly has spent her entire eight-year career with DOTD working in the Cement Lab and is very knowledgeable of the cement specifications and test procedures. Her determination and work ethic will prove to be vital to the unit accomplishing its mission.

In an effort to further our succession planning goals, the Materials and Testing Section hired one of its

co-op student workers, McArthur "Mac" Whitmore, Jr., as an Engineer Intern Applicant upon his graduation from Southern University last summer. His degree in Mechanical Engineering will be well suited to learn the operations of the Physical Evaluations unit. Mac's mentor in this effort will be Khiet Ngo, P.E., who has been the Physical Evaluations Engineer for many years. As Khiet is eligible for retirement, he is training Mac to hopefully one day take his place. With Mac's abilities and his earnest desire to do a good job along with the help of all of the technicians in the unit, it appears that the Physical Evaluations Unit will be in good hands for many years to come. 

MatLab Updates

Asphalt Plant Equipment—Mike Elliot of LTRC Training is visiting asphalt plants around the state to help contractors calibrate and document calibration for plant lab equipment. He has developed the HMAC Lab Equipment Manual for this purpose, and it is available on the web at www.dotd.la.gov (Go to Construction, then Materials, then HMAC Lab Equip Manual).

Profiling – New test tracks are ready and certification is ongoing. Inertial profilers that are approved and certified for asphalt IRI are also certified for concrete.

Promotions – Alton Booth ET DCL, Tim Perault ET DCL, Cassandra Collins ET 5, and Tasha Rowe ET 5. Congrats!

Retirements – Don McMahon ET DCL and Ivory Smith ET5. Thanks for all of your contributions. Good luck in your retirement.

Concrete Anchor Systems QPL – QPL 40 has been updated to state that cartridge and injection shall not be used for sustained load applications.

Test Procedures – The new concrete test procedures for slump, TR 207, and air, TR 202, both with an effective date of 8/08, may be used on existing projects with a change order.

District Labs – Welcome Darrell C. Deville, District 07's new lab engineer!

Cement, Fly Ash, Slag, and Silica Fume – We now require a Certificate of Compliance, not a Certificate of Delivery. Please check your paperwork!

Environmental Evaluations Unit – The Hazardous Communication Program has been developed and is currently being implemented in all districts across the state.

The Best Paint for Your Buck (continued from page 1)

response to the proven conclusion that inorganic zinc paint systems are superior^{1,3,4} to organic zinc systems when it comes to corrosion protection. Organic paint systems, however, may be reserved for existing steel or damaged areas on new steel after shipment to the field. One of the main reasons why organic zinc systems are used in the field is due to the ease in application (when environmental conditions such as humidity or temperature cannot be controlled) as opposed to inorganic zinc systems. In other words, inorganic zinc systems are much less forgiving than organic zinc systems when it comes to applying them in a specific environment. Consequently, organic zinc paint systems are utilized only in the field, whereas inorganic zinc paint systems are used solely in the fabrication shop where the environment can be controlled. This specification shows that inorganic zinc paint systems are preferred over organic zinc paint systems regarding LADOTD's primary coating of new structural steel.

To understand where LADOTD obtained their coatings requirement, it is necessary to refer back to a meeting in Baton Rouge on October 28, 2004. In this meeting of coating experts from LADOTD, FHWA, and other states' DOTs, there was a survey where each participating state was asked what type of systems they specified for shop and field when coating new structural steel. In general, most states that participated in the survey did require an inorganic zinc paint system as the primary coating system. As a result, LADOTD's procedure for coating steel, primarily with inorganic zinc primers, is the norm compared to other states' departments of transportation.

In Louisiana, our harsh environment requires a fairly unique requirement for paint—one that can handle the extreme heat, moisture, and marine (salt-rich) conditions. Therefore, our performance specifications⁵ for coating systems are and should be exceptionally difficult to achieve in order to ensure the protection and longevity of new structural steel from detrimental factors, particularly corrosion. In fact, LADOTD's performance requirements for inorganic zinc are much more stringent⁵ than that of organic zinc, in general. It has been demonstrated^{1,3,4} consistently that inorganic zinc systems outperform organic zinc paint systems in a corrosive environment. To allow the use of organic zinc paint systems at the current specification as our sole primary system would not only lower the standards in which we qualify coating systems, but also increase the long-term cost when we factor in the price of repairs and maintenance of our structural steel. 

by Tuan Tran, Chemical EI

1 Ault, J. and Farschon, C. "20-Year Performance of Bridge Maintenance Systems," *JPCL*. Vol 1/ Number 1, January 2009 edition, pg 16.

2 *Louisiana Standard Specifications for Roads and Bridges*, 2006 Edition, Section 811.08, pg. 676-678.

3 Calle, L. and MacDowell, L. "35 Years of Corrosion Protection at the Kennedy Space Center," NASA YA-C2-T, Kennedy Space Center, 2003.

4 "Environmentally Acceptable Materials for the Corrosion Protection of Steel Bridges," Publication No: FHWA-RD-96058, January 1997.

5 *Louisiana Standard Specifications for Roads and Bridges*, 2006 Edition, Section 1008.07, pg. 802.

Quality Matters

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