

CALIFORNIA DEPARTMENT OF TRANSPORTATION



Independent Assurance Program Annual Report Calendar Year 2015

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Independent Assurance Program

Annual Report

Calendar Year 2015

1. OVERVIEW

1.1 INTRODUCTION

Title 23 of the Code of Federal Regulations, Chapter I, Part 637, Subpart B, Section 637.205(a) (23 CFR637.205(a)), the Federal Highway Administration's (FHWA's) quality assurance procedures for construction require the following:

“Each STD [state transportation department] shall develop a quality assurance program which will assure that the materials and workmanship incorporated into each Federal aid highway construction project on the NHS [National Highway System] are in conformity with the requirements of the approved plans and specifications, including approved changes.”

Key components of this quality assurance program are “acceptance” and “independent assurance.” Independent Assurance (IA) programs may be project or system based. The California Department of Transportation (Caltrans) has chosen to implement a system based IA Program.

Agencies choosing to implement a system based IA Program are required by 23CFR637.207(a)(2)(iv) to submit an annual report. In fulfillment of this requirement, this report is being submitted concerning the activities of the Caltrans IA Program for calendar year 2015.

1.2 REPORT OVERVIEW

The Caltrans Independent Assurance (IA) Program provides a framework for assuring that the quality assurance program, as outlined in the Caltrans Construction Manual and in project specifications, is supported by qualified technicians and accredited laboratories. The Caltrans IA Program provides periodic evaluation of the performance of sampling and testing personnel, testing equipment, and testing laboratories.

The purpose of this document is to provide:

- A discussion of IA activities from January through December 2015
- 2015 Reference Sample Program (RSP) Information
- Goals for the IA Program in 2016

1.3 SUMMARY OF ACTIVITIES: CALENDAR YEAR 2015

- New IA Staff Certification – Three new IA staff were certified by Materials Engineering and Testing Services (METS) in 2015.
- District IA Staff Recertification – METS IA staff recertified 34 district IA and local assistance IA staff
- 2015 IA Annual Meeting – The 2015 IA Annual Meeting was held on January 13, 2016 in Sacramento, California.
- District Process Reviews – METS IA staff conducted IA process reviews in the 12 districts.
- Technician Qualifications – District IA staff and Local Assistance IA staff qualified a total of 2317 technicians in Caltrans, local agencies, and private laboratories
- Laboratory Accreditations – District IA staff and Local Assistance IA staff accredited a total of 397 Caltrans, local agency and private laboratories.
- Equipment Calibrations by METS IA Staff – METS IA staff did not perform calibrations for the 11 Caltrans laboratories. The calibrations were performed by a private calibration company through a service contract managed by METS.
- Reference Sample Program (RSP) - The Reference Sample Program sent out Samples for CTM 202, “Method of Test for Sieve Analysis of Fine and Coarse Aggregates” and CTM 217, “Method of Test for Sand Equivalent” was completed on November 2016. There were 336 laboratories that participated for this round of testing.
- Local Assistance IA staff – Local Assistance IA staff reviewed 111 Quality Assurance Plans (QAP) for cities and counties in 2015.

2. CALTRANS INDEPENDENT ASSURANCE (IA) PROGRAM

2.1 BACKGROUND

Since 1992, Caltrans has been committed to an Independent Assurance Program to fulfill 23 CFR 637 requirements. Procedures for the program are outlined in the 2005 Caltrans Independent Assurance Manual, which can be accessed in the following website address:

http://www.dot.ca.gov/hq/esc/Translab/ormt/IA_reports/2005_IA_Manual.pdf

In 1994, Caltrans shifted from a project based process for reviewing technicians, equipment and results to a system based process. In the system based process, a technician's qualifications are ascertained by written examinations, witnessed performance of tests, or results of testing on split samples of materials for corroboration of test results. Caltrans IA staff reviews equipment and laboratories annually; and laboratories participate in a statewide proficiency sampling program. 23 CFR 637.207(a) provides that this approach eliminates the necessity of project specific samples.

Independent assurance is an important and integral part of the Caltrans Quality Assurance Program, but separate from individual project quality assurance efforts. Independent Assurance is implemented by Materials Engineering and Testing Services (METS). The Division of Construction ensures individual project quality assurance. Quality assurance at the project level is outlined in the Construction Manual, which can be accessed in the following website address:

<http://www.dot.ca.gov/hq/construc/constmanual/>

In keeping with the requirement of the IA Program and 23 CFR 637, Section 6-305 of the Construction Manual instructs the engineer that:

“Field personnel who perform tests for compliance with the specifications must be qualified to conduct the proper tests method as indicated by the contract.”

District	Certified IA Staff						Number of Technicians Qualified						Accredited Laboratories																				
	2015			2014			2013			2015			2014			2013			Caltrans				Local Agencies				Private				Total		
	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013	2015	2014	2013			
1	2	2	2	36	56	56	11	11	12	0	0	2	3	4	5	14	15	19															
2	3	4	4	116	158	158	9	8	8	1	1	14	14	14	15	24	23	24															
3	2	3	3	122	219	251	9	11	11	0	0	0	18	17	20	27	28	31															
4	4	5	5	349	301	264	7	8	8	0	0	0	21	22	21	28	30	29															
5	2	1	1	170	155	143	12	11	11	1	1	13	13	14	26	25	26																
6	3	3	3	238	224	239	5	5	5	0	0	2	26	27	26	31	32	33															
7	2	2	3	166	253	193	15	16	16	0	0	0	18	22	15	33	38	31															
8	5	3	2	245	475	386	6	2	8	3	0	1	30	42	28	39	44	37															
9	1	1	1	28	28	36	1	1	1	0	0	0	7	3	5	8	4	6															
10	2	2	2	141	208	215	6	6	6	0	0	0	16	15	17	22	21	23															
11	2	2	2	96	104	150	8	8	19	0	0	0	21	21	37	29	29	56															
12	2	2	2	173	253	145	4	5	3	0	0	1	17	25	26	21	30	30															
Total for all Districts	30	30	30	1880	2434	2236	93	92	108	5	2	8	204	225	229	302	319	345															
Total for HQ IA	1	1	1	0	15	32	0	0	0	0	0	1	0	2	3	0	2	4															
Total for Local Assistance IA	4	4	4	437	395	389	0	0	0	21	21	21	74	65	68	95	86	89															
Total for Districts and Headquarters	35	35	35	2317	2844	2657	93	92	108	26	23	30	278	292	300	397	407	438															

TABLE 1: IA PROGRAM DATA FOR 2015

3. CALTRANS IA PROGRAM IN 2015

3.1 NEW INDEPENDENT ASSURANCE STAFF CERTIFICATION

Three new IA staff were certified in 2015, two from District 2 and one from District 10.

3.2 ANNUAL RECERTIFICATION OF STATEWIDE IA STAFF

METS IA staff recertifies statewide IA staff on an annual basis. In 2015, METS IA staff recertified 35 district IA staff and Local Assistance IA staff.

3.3 2015 INDEPENDENT ASSURANCE ANNUAL MEETING

The IA Annual Meeting was held on January 13, 2016 in Sacramento, California. All IA staff and some District Materials Engineers were in attendance. Attendance by IA staff is mandatory for IA recertification. The following topics below were presented and discussed in the meeting.

- Overview of the IA program in 2015
- Overview of the Reference Sample Program in 2015
- IA Database development
- Joint Training and Certification
- Portable Skid tester
- IA Manual Revision
- District and Local Assistance IA issues

3.4 DISTRICT IA PROCESS REVIEWS

The Caltrans Independent Assurance Manual requires METS IA staff to conduct an annual/peer review to evaluate district compliance with Caltrans Independent Assurance Program policies. The review consists of an examination of IA documents, records and procedures. These reviews are intended to promote statewide uniformity in the Caltrans IA Program.

Random IA files in the district were reviewed by METS IA staff in 2015. It was observed that most districts have a combination of both electronic and hardcopy filing system. The electronic data appears to be current and accurate compared to hardcopy files that requires updates. METS IA staff will continue to conduct process reviews in 2016.

3.5 LABORATORY ACCREDITATION

In 2015, statewide IA accredited a total of 397 Caltrans, local agency and private laboratories. This is a 2.5 percent decrease from 2014 which was 407 laboratories.

In 2015, there were no laboratories which had their accreditations revoked.

3.6 TECHNICIAN QUALIFICATION

Statewide IA staff qualified a total of 2317 technicians in 2015. This is a decrease of about 18.5 percent from technicians qualified in 2014 which was 2844 technicians.

There were 11 technicians disqualified in 2015. 5 were reinstated as it was determined by SRL upper management that the infractions was not based upon sound engineering judgment. The remaining 6 disqualifications were upheld. The IA Coordinator will review the tester disqualification process to determine if future disqualifications warrants guidance from METS.

3.7 CALTRANS LABORATORIES – EQUIPMENT AND CALIBRATION

Historically, a METS IA staff person calibrated all large Hveem related testing equipment in the district laboratories. This was to assure that all Caltrans' large testing equipment was calibrated uniformly. Since the adoption of Superpave, Caltrans has moved away from the Hveem mix design. METS developed a calibration contract to perform calibration on larger testing equipment in the district laboratories.

For smaller equipment, District IA staff is responsible for verifying the calibration of all testing equipment in accredited Caltrans laboratories. In some districts, District IA staff is directly responsible for calibrating equipment in the district and field laboratories. In other districts, District IA staff reviews the calibration records of district and field laboratories whose equipment is calibrated by private calibration companies.

All calibration records are reviewed by IA staff, whether they are directly responsible for calibration of the equipment or not. To assist in uniformity of calibration practices, a separate Caltrans calibration manual will be developed in 2016 detailing proper calibration procedures.

In 2015, large equipment calibration for all district laboratories was done through a service contract managed by METS.

3.8 CALTRANS REFERENCE SAMPLE PROGRAM (RSP) IN 2015

The Caltrans Independent Assurance Manual, Section 2.4.4, "Proficiency Testing" states,

"The laboratory shall participate in all required proficiency sample to be accredited."

It is the laboratory's responsibility to maintain active status in proficiency testing of reference samples by testing and reporting the results. Reference sample results are

evaluated using a statistical evaluation system for determining the numerical ratings of each test method as detailed in the Caltrans Independent Assurance Manual.

In 2014, samples for CTM 309, “Method of Test for Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt” were distributed to 168 participating laboratories. The statistical analysis was completed and the report was posted on the Caltrans internet site in December 2015.

In November 2015, proficiency sample testing for CTM 202, “Method of Test for Sieve Analysis of Fine and Coarse Aggregates” and CTM 217, “Method of Test for Sand Equivalent” was completed. There were 336 laboratories that participated for this round of testing. The report will be finalized in March 2016.

3.8.1 GOALS FOR RSP IN 2016

The following table gives an approximate time line for the 2016 RSP sample distribution:

2016	Test Method
January - April	CTM 227 (Cleanness Value)
May - August	CTM 202/217 (Coarse Gradation/Sand Equivalent)
September - December	CTM 309 (Rice Specific Gravity)

TABLE 2: PROPOSED RSP SAMPLES FOR 2016

3.9 LOCAL ASSISTANCE INDEPENDENT ASSURANCE PROGRAM

Chapter 16, Section 16.14, “Quality Assurance Program,” of the Caltrans Local Assistance Procedure Manual, states “local agencies must follow Caltrans Quality Assurance Procedures (QAP) for all projects on the NHS”. Therefore, for local agency projects on the NHS, Caltrans IA staff is responsible for providing IA services to local agencies.

Five Local Assistance IA staff positions were filled in December 2008. Implementation of the Local Assistance IA program began in March 2009. Local Assistance IA staff interacts on a regular basis with the District Local Assistance Engineer (DLAE).

The accreditation statistics for the Local Assistance IA staff are found on Table 1. In addition to providing IA services, the Local Assistance IA staff review local agency Quality Assurance Program (QAP) manuals for compliance with Caltrans Local Assistance requirements. In 2015, 111 local agency QAP manuals were reviewed by Local Assistance IA staff.

4. CALTRANS INDEPENDENT ASSURANCE HIGHLIGHTS FOR 2015

4.1 INDEPENDENT ASSURANCE MANUAL REVISIONS

The Caltrans Independent Assurance Manual revisions are completed and an updated manual will be released in 2016. The highlights of the main changes are as follows:

- Clarification on materials covered by Independent Assurance Program
- Plain language for consistency with Caltrans recent specification revisions
- Two-year qualification period for testers
- Use of internet for access to the Caltrans Independent Assurance Manual and supporting documents, e.g., QA-related references, glossary, appendices, forms, etc.

4.2 AASHTO ACCREDITATIONS OF CALTRANS DISTRICT MATERIALS LABORATORIES

In the past, the main Transportation Laboratory in Sacramento was accredited by AMRL and CCRL, and the district laboratories were under the umbrella of the Sacramento Accreditation. Caltrans is moving towards having all districts and regional laboratories receive AASHTO accreditation. In 2015, Districts 1, 2, 3, 5, 6, 8(SRL), 9, and 10 are AASHTO accredited. District's 4 and 11 are currently not AASHTO accredited.

4.3 CERTIFICATION PROGRAMS IN 2015

4.3.1 INERTIAL PROFILERS

In 2015, METS IA staff certified 36 inertial profiler (IP) units and 98 IP operators.

4.3.2 CTM 233: GAMMA-GAMMA TEST METHOD

In 2015, METS IA accredited 2 laboratories and certified 15 testers in CT 233.

4.3.3 CA PORTABLE SKID OPERATOR CERTIFICATION PROGRAM

In 2015, METS IA certified 4 portable skid tester operator. METS staff also calibrated 3 portable skid testers.

5. CALTRANS INDEPENDENT ASSURANCE GOALS FOR 2016

The METS IA Program staff will be working on the following endeavors in 2016:

- Completion of the revision of the Independent Assurance Manual

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- Revising the CA Portable Skid Testing Certification Program
- Update written exams for CT and AASHTO test methods
- Incorporating the Joint Training and Certification Program to the Caltrans Independent Assurance Program