

**CERTIFIED IRRIGATION CONTRACTOR
EXAM DEVELOPMENT AND STATISTICAL DATA INFORMATION**

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Executive Summary

In June, 2008, the Irrigation Association® (IA) set out to conduct a scientific research study, a Job Analysis, to define the role of the Certified Irrigation Contractor (CIC). The mechanism for this study was a survey. IA worked with Schroeder Measurement Technologies, Inc. (SMT) to develop and conduct the Job Analysis study and survey that would describe the important tasks, knowledge and skills required for competence as an Irrigation Contractor. The results of the Job Analysis study provide the basis for making a valid claim of appropriate test score inference.

IA-CICs Job Analysis Process

IA appointed a committee of Subject Matter Experts (SMEs) to provide content expertise on the Irrigation Contractor profession. The committee was comprised of experts in the Irrigation Contractor field who represented a diversity of experience, geographic regions, and education. Approved textbooks, job descriptions and evaluations, and the existing CIC examination information were used to develop an exhaustive list of the tasks and knowledge elements required for competent practice. The committee revised and approved the list of tasks and knowledge elements, which was incorporated into a survey. The survey contained an importance scale to rate tasks and knowledge elements performed by an irrigation contractor. IA developed a demographic questionnaire to gather confidential data describing the survey respondents. SMT then converted the demographic questionnaire, tasks, and knowledge elements into an online survey instrument.

IA sent email invitations to participate in an online survey to 3,234 Irrigation Contractors. A total of 277 surveys were successfully completed, for a response rate of 9.68%. Approximately 98% of the respondents indicated the survey either completely or adequately described the important tasks and knowledge elements required for competent Irrigation Contractor practice.

SMT conducted a second meeting with a new committee of experts in the Irrigation Contractor profession to present the results of the survey for review. The goal of the meeting was to establish task element exclusion criteria to differentiate between the important and unimportant tasks and elements involved in the Irrigation Contractor professional practice based on respondents' ratings. Of the original 189 elements, 26 tasks and knowledge elements were removed because survey respondents listed them as infrequently performed and not very important in the profession. The committee included 163 tasks and knowledge elements on the final exam content outline. The committee also assigned the percentage of importance for each domain, which determines the percentage of test items per domain.

The approved tasks, knowledge, and skills establish the link between the competencies necessary to perform a Certified Irrigation Contractor's job and evaluation of competency.

Purpose of the Job Analysis Study

The Irrigation Association (IA) worked with Schroeder Measurement Technologies, Inc. (SMT) to develop a certification examination program meeting the above mentioned standards. A full-scale Job Analysis research study was conducted, starting in June, 2008, which included establishing and implementing a survey instrument that described the performance tasks and Knowledge, Skills, and Abilities (KSAs) required for the competent Certified Irrigation Contractor. Based on the job analysis,

IA will determine the content for its certification exams to be evaluated using written multiple choice items. Exam content is linked directly to the detailed content outline.

Statistical Data for CIC Examination Given in 2010

The information below is a summary of the exam statistics for the 2010 administrations of the CIC exam. Form A was administered on 12 occasions to a total of 102 candidates; Form B was administered on 11 occasions to a total of 108 candidates.

Summary Statistics Form 25 (A)

	<i>Raw Score</i>	<i>% Score</i>
<u>Descriptive Data</u>		
Score Range	63-157	36-90
Mean Score	119.13	68.07
Median Score	119.50	68.29
Standard Deviation	19.94	11.39
<u>Reliability Data</u>		
KR-20 Coefficient	0.93	
Kappa Coefficient	0.70	
* SEM: All Scores	5.38	3.07
* SEM: Pass-Fail Cutoff Score	6.21	3.55
<u>Pass - Fail Data</u>		
Pass-Fail Cut Score	129	74
Number (%) Passing	39	38.24
Number (%) Failing	63	61.76

All data are displayed as hundredths, except for the score range and select pass-fail statistics.

* Standard error of measurement

Summary Statistics Form 26 (B)

	<u>Raw Score</u>	<u>% Score</u>
<u>Descriptive Data</u>		
Score Range	72-164	41-93
Mean Score	113.41	64.44
Median Score	113.50	64.49
Standard Deviation	18.91	10.74
<u>Reliability Data</u>		
KR-20 Coefficient	0.92	
Kappa Coefficient	0.70	
* SEM: All Scores	5.49	3.12
* SEM: Pass-Fail Cutoff Score	6.83	3.88
<u>Pass - Fail Data</u>		
Pass-Fail Cut Score	126	74
Number (%) Passing	30	27.78
Number (%) Failing	78	72.22

All data are displayed as hundredths, except for the score range and select pass-fail statistics.

** Standard error of measurement*

Certification Statistics for 2010

Total number of CIC candidates:	210
Total CIC number passed:	69
Total CIC number failed:	141
Total number of Certified Irrigation Contractors:	644
Total number of IA certified professionals:	1,640