



Visual Acuity Examination

VAE-P11-1

Revision 01

Approval	Printed Name	Signature	Date
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Revision / Change Summary

Revision/Change	No.	Date	Description
Initial Issue	00	02/01/2024	Record of Visual Acuity form (Visual Acuity Test Record, Rev. 0).
Revision	01	06/04/2026	Issued as a complete procedure for administering, scoring, and recording the visual acuity examination required by P11-WP-1, Section 8.9. Defines examiner designation, test media and their control, test conditions and step-by-step administration for five tests (near vision, far vision, red/green color, blue/yellow color, and shades of gray, including the Köhler chart), acceptance criteria, the SNT-TC-1A (2024) restriction on pharmacological agents, line-by-line recording, restrictions, method-specific performance demonstration, and records. Form VAE-P11-1, Rev. 01 (Attachment A) keeps the layout of the Record of Visual Acuity, Rev. 0, and supersedes it.

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1.0 PURPOSE

- 1.1 This procedure establishes the requirements and method for administering, scoring, and recording the visual acuity examination required by the Prime Inspections, Inc. Written Practice, PII-WP-1, Section 8.9.
- 1.2 It is intended to produce vision examination records that are complete, repeatable, and verifiable by the Certifying Level III, the Quality Manager, Customers, and auditors.

2.0 SCOPE

- 2.1 This procedure applies to each individual who performs, interprets, or evaluates nondestructive testing (NDT) or inspection work for Prime Inspections, Inc., including personnel holding API, AWS, or PMI inspection credentials and trainees receiving training or on-the-job training. It does not apply to helpers who do not perform, interpret, or evaluate examinations.
- 2.2 This procedure applies to examinations administered by the Certifying Level III, by designated Visual Acuity Administrators, and by licensed professionals as described in Section 6.0.
- 2.3 Where a Customer specification or contract imposes additional or more restrictive vision requirements, those requirements shall also be met and recorded. The more restrictive requirement governs (PII-QC-1, Sections 1.2 and 4.2).
- 2.4 This procedure implements PII-WP-1, Section 8.9, and is more restrictive in some respects; for example, every person completes all five tests regardless of the methods held. If a requirement of this procedure conflicts with, or is less restrictive than, the revision of PII-WP-1 in force, the Written Practice governs and the Corporate Level III shall initiate a revision of this procedure.

3.0 REFERENCES

- 3.1 Prime Inspections, Inc. documents (current revision):
 - 3.1.1 PII-QC-1, Quality Control Manual, Section 11.0, Personnel Training and Certification
 - 3.1.2 PII-WP-1, Written Practice, Section 8.9, Visual Acuity Examination
- 3.2 Industry documents:
 - 3.2.1 ASNT Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing, 2024 Edition, including the Addendum effective May 2025 (PII-WP-1, Table 1-1, Reference 1.5.1). Paragraphs 8.2.1 and 8.2.1.1 govern pharmacological agents (Section 8.4.4); paragraph 8.2.3 governs expiration (Section 8.2.2).
 - 3.2.2 ANSI/ASNT CP-189, ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel, 2024 Edition, when contractually invoked
 - 3.2.3 ASME BPVC Section V, Nondestructive Examination, 2025 Edition, Article 9, T-923 (annual near-vision examination, J-1 letters)

- 3.2.4 API Standard 1104, Welding of Pipelines and Related Facilities, 21st Edition, Section 8.4.3, Vision Examinations
- 3.2.5 Köhler, “Eye Examination: Shades of Gray” chart, Rev. 1 (August 14, 2002), with the instructions printed on the chart
- 3.3 The manufacturer’s instructions supplied with each item of test media in use. These instructions shall be kept with the test media.
- 3.4 Table 3-1 cross-references the vision requirements of P11-WP-1 and P11-QC-1 to this procedure. The Corporate Level III shall update Table 3-1 whenever either document is revised.

Table 3-1 — Cross-Reference to P11-WP-1 (Revision 05) and P11-QC-1

Paragraph	Requirement	VAE-P11-1
P11-WP-1 §1.1, Note	Inspection personnel holding API, AWS, or similar credentials meet the same vision requirements as NDT personnel.	2.1
P11-WP-1 §8.9.1.1	Examination passed before performing, interpreting, or evaluating NDT or inspections, or receiving training or on-the-job training; includes trainees; excludes helpers.	2.1, 8.2.1
P11-WP-1 §8.9.1.2	Examination administered by the Certifying Level III, a designated Visual Acuity Administrator, or a licensed professional.	6.0
P11-WP-1 §8.9.1.3	Examination administered, scored, and recorded in accordance with VAE-P11-1 on Form VAE-P11-1.	Entire procedure; Attachment A
P11-WP-1 §8.9.1.4	Corrective aids recorded and worn when performing NDT.	8.4.2
P11-WP-1 §8.9.1.5	No eye drops or other pharmacological agents used to improve vision; examinee statement recorded.	8.4.4
P11-WP-1 §8.9.2; Table 8.9-1	All five tests, test media, and acceptance criteria.	7.0, 8.1, 9.0
P11-WP-1 §8.9.3; Table 8.9-2	Contrast capability by method, used to set restrictions.	11.2; Table 11-2
P11-WP-1 §8.9.4	Initial examination and intervals not exceeding 12 months; expiration 12 months after the examination date; current when certification examinations are taken.	8.2
P11-WP-1 §8.9.5	Line-by-line recording; no blanks, N/A, or pre-filled results; examiner signature; Certifying Level III review.	10.0
P11-WP-1 §8.9.6	Failure, restrictions, and method-specific performance demonstration.	11.0; Attachment B
P11-WP-1 §8.9.7; §11.1.1.1	Lapse: certifications suspended until a passing examination is recorded.	8.2.4
P11-WP-1 §8.9.8	Transition from Record of Visual Acuity, Rev. 0.	8.6
P11-WP-1 §9.6.1.7	Vision results entered on the certification record.	10.8
P11-WP-1 §9.6.4.3	Records of vision tests, noting corrective aids if used, maintained for the current and preceding certification periods.	12.3
P11-QC-1 §11.3	Vision examination policy, examiners, recording, restrictions, and records.	Entire procedure

Paragraph	Requirement	VAE-PII-1
PII-QC-1 §2.4.1, §11.2	Certification records maintained at the Corporate Office and available to Customers.	12.0

4.0 **DEFINITIONS AND ABBREVIATIONS**

4.1 The following terms apply to this procedure. NDT method abbreviations (RT, CR, DR, UT, PAUT, TOFD, AUT, MT, PT, VT, ET) are as defined in PII-WP-1.

Term	Definition
Corporate Level III (CLIII)	As defined in PII-WP-1: the Level III who develops, qualifies, and approves procedures. The Corporate Level III approves this procedure.
Certifying Level III	The Level III with certifying authority under PII-WP-1. It is a separate role from the Corporate Level III, although one person may hold both. PII-QC-1 assigns certification responsibilities to the NDE Level III.
Visual Acuity (VA) Administrator	A person designated in writing by the Certifying Level III, on Attachment C, to administer some or all of the tests in this procedure.
Examiner	The person who administers a test and records its result. The examiner signs Form VAE-PII-1 for the tests given.
Examinee	The person taking the examination.
Test media	The charts, plates, caps, step wedges, digital test images, and gray-scale charts used to administer the tests.
Corrective aid	Eyeglasses or contact lenses worn to correct vision. Tinted and color-filtering lenses are not corrective aids for Tests 3, 4, and 5.
Jaeger (J) notation	A near-vision print-size scale in which J1 is the smallest size and larger numbers indicate larger print. Jaeger sizes are not standardized between chart manufacturers, so each chart states its own test distance.
Snellen fraction	A far-vision result written as the test distance over the distance at which a person with standard vision can read the same line. 20/30 means the examinee reads at 20 ft what a person with standard vision reads at 30 ft. The metric equivalent is 6/9.
Pseudoisochromatic plates	Plates printed with colored dots in which a figure differs from its background in hue but is similar in brightness, so that the figure is hard to see, or is seen differently, by a person with a matching color vision deficiency. Ishihara and Hardy-Rand-Rittler (HRR) plates are examples.
Protan, deutan, tritan	Types of color vision deficiency affecting red, green, and blue sensitivity. Protan and deutan types are red/green deficiencies; the tritan type is a blue/yellow deficiency.
Farnsworth D-15	A color arrangement test in which the examinee places 15 colored caps in order from a fixed reference cap. The order is plotted on a circular score diagram.
Shades of gray	Differences in lightness without a difference in color, such as radiographic film density, digital image gray levels, and surface contrast.
Density step wedge	A strip of film or other transmissive material with discrete steps of increasing optical density.
Daylight-equivalent lamp	A lamp that approximates daylight, such as CIE Illuminant C or CIE Standard Illuminant D65, as specified by the test manufacturer.
Method-specific performance demonstration	A documented test in which a person who did not pass Test 3, 4, or 5 identifies known indications on actual method media under representative conditions (Section 11.4).

Term	Definition
Late entry	An entry added to a record after the examination, identified as a late entry, and signed and dated on the date it is made.
R, L, OU; OD, OS	Right eye, left eye, both eyes. OD and OS are the abbreviations for right eye and left eye used on eye-care reports.

5.0 **RESPONSIBILITIES**

5.1 **Corporate Level III (CLIII)**

5.1.1 Approve this procedure and its revisions, and keep it consistent with PII-WP-1.

5.2 **Certifying Level III**

5.2.1 Train and designate VA Administrators in writing (Attachment C) and keep a current list of designated administrators.

5.2.2 Approve test media before use, and approve any N/A entry, alternative media, or alternative acceptance criteria permitted by this procedure.

5.2.3 Review each completed Form VAE-P11-1 and enter the examination date and results on the certification record.

5.2.4 Determine and document restrictions, and conduct or approve method-specific performance demonstrations (Section 11.0).

5.3 **Visual Acuity Administrators**

5.3.1 Administer only the tests for which they are designated, in accordance with this procedure.

5.3.2 Record each result at the time of the examination and sign Form VAE-P11-1 as examiner.

5.3.3 Report any test not passed, and any condition that prevented a valid examination, to the Certifying Level III on the day of the examination.

5.4 **Quality Manager**

5.4.1 Control this procedure and its attachments as controlled documents (PII-QC-1, Section 7.0).

5.4.2 Maintain the schedule of examination due dates and notify each person and their supervisor at least 30 days before an examination is due.

5.4.3 Include vision examination records in internal quality audits (PII-QC-1, Section 13.3).

5.5 **Director of Operations, Operations Leads, Project Managers, and Field Supervisors**

5.5.1 Before assigning work, verify that each person's vision examination is current and that any restriction is observed (PII-QC-1, Section 8.3.1).

5.5.2 Do not assign NDT or inspection work to a person whose examination has expired.

5.6 Examinees

- 5.6.1 Bring to the examination the corrective aids normally worn for NDT or inspection work, and wear them when performing that work.
- 5.6.2 Answer the pre-examination questions on Form VAE-P11-1 truthfully.
- 5.6.3 Report to the Certifying Level III any change in vision or in corrective aids that could affect the ability to meet this procedure.

6.0 EXAMINERS

6.1 The examination shall be administered only by:

- 6.1.1 The Certifying Level III;
- 6.1.2 A VA Administrator designated in writing by the Certifying Level III for the tests administered; or
- 6.1.3 A licensed optometrist, ophthalmologist, physician, nurse practitioner, registered nurse, or physician assistant.

6.2 VA Administrator designation

- 6.2.1 Before designation, the candidate shall be trained by the Certifying Level III on this procedure, the manufacturer's instructions for each item of test media, test conditions, scoring, and the recording requirements of Section 10.0, and shall administer each designated test at least once under the observation of the Certifying Level III.
- 6.2.2 The designation shall be recorded on Attachment C and shall list the tests the administrator is authorized to give. It remains in effect until withdrawn by the Certifying Level III, who shall confirm the list of designated administrators at least annually.
- 6.2.3 No examiner shall administer a test to themselves.

6.3 Examinations by licensed professionals

- 6.3.1 A licensed professional may record results on Form VAE-P11-1 or on the professional's own report. A report is acceptable only if it identifies the examinee, the date, each test performed, the test media, the measured result of each test, whether corrective aids were used, and the professional's name, license number, and signature.
- 6.3.2 The Certifying Level III shall compare the report with this procedure before accepting it, transcribe the accepted results onto Form VAE-P11-1 with the note "Transcribed from attached report," and attach the report. Any required test not shown on the report shall be administered under this procedure and recorded on the same form.

6.4 The person who administers a test shall sign as its examiner. When tests are given by different examiners, the second examiner shall record the tests given, name, title, signature, and date in the Remarks line. The Certifying Level III may countersign as reviewer but shall not sign as examiner for a test they did not administer.

7.0 **TEST MEDIA AND EQUIPMENT**

- 7.1 Only the test media listed in Table 7-1 and approved by the Certifying Level III shall be used.

Table 7-1 — Test Media and Equipment

Test	Test Media	Supporting Equipment
1 Near vision	Jaeger near-vision chart that shows J1 and states its test distance	Measuring tape or fixed cord to set the distance; occluder
2 Far vision	Snellen chart, or an equivalent letter chart such as a Sloan-letter or tumbling-E chart, rated for the test distance used	Test distance measured and marked on the floor; occluder
3 Red/green color	Ishihara plates (14-, 24-, or 38-plate edition), or HRR plates (4th edition or later)	Daylight or daylight-equivalent lamp; score sheet; manufacturer's answer key
4 Blue/yellow color	HRR plates (4th edition or later), or Farnsworth D-15 test	Daylight-equivalent lamp; score sheets
5 Shades of gray	7-step density step wedge; 7-step digital gray-level test image with the steps arranged out of order; 7-step printed gray-scale chart; or the Köhler "Eye Examination: Shades of Gray" chart (25 readings), printed or displayed	Film illuminator, interpretation monitor, or even white light, as applicable (Section 9.5.2). Köhler chart: normal working light and a viewing distance of 30 to 50 cm (12 to 20 in.)

7.2 **Control of test media**

- 7.2.1 Each item of test media shall be given a unique identification number, entered on the Test Media Control Log (Attachment E), and recorded on Form VAE-P11-1 each time it is used.
- 7.2.2 Color plates and D-15 caps shall be stored closed and away from light when not in use, handled by the edges, and kept free of fingerprints, stains, and moisture.
- 7.2.3 Test media shall be inspected before each use. Media that are faded, stained, scratched, or damaged shall be removed from service. Color plates and D-15 tests shall also be removed from service at any replacement interval stated by the manufacturer, and that date shall be entered on Attachment E.
- 7.2.4 Photocopies, printouts, scans, and screen displays of color plates, D-15 caps, and Jaeger or Snellen charts shall not be used. A digital gray-level test image used for Test 5 shall be a controlled file approved by the Certifying Level III and shall be displayed at 100 percent zoom with the window and level settings approved by the Certifying Level III. The Köhler chart is designed for use as a print or on a screen: prints shall be made from the controlled file at 100 percent scale on plain white paper with no contrast, toner-saving, or darkening settings, and screen displays shall be at 100 percent zoom.
- 7.2.5 Answer keys and score sheets shall be kept out of the examinee's view. The Köhler chart readings shall be kept on a separate answer key, and the chart shall not be left with or given to examinees.

- 7.2.6 Before a gray-scale medium is first used, the Certifying Level III shall record on Attachment E its step increment: the density difference between steps of a step wedge, the gray-level difference between steps of a digital test image, or the reflectance difference between steps of a printed chart. A medium shall be used with the same increments for every examinee. The Köhler chart has no uniform step increment; instead, before each new print or display is first used, the Certifying Level III shall compare it with the controlled reference print or file, confirm that every cell is reproduced without loss of contrast, and record the comparison on Attachment E.

8.0 **GENERAL EXAMINATION REQUIREMENTS**

- 8.1 Every person shall complete four of the five tests in Table 8-1, depending on the methods held. Table 8-1 states the acceptance criteria of P11-WP-1, Section 8.9, in measurable terms; Section 9.0 gives the procedure for each test, and Section 11.0 applies when a test is not passed. When more than one test medium is used for the same test, the examinee shall meet the criterion for each medium used.

Table 8-1 — Required Tests and Acceptance Criteria

Test	Capability	Test Media	Acceptance Criteria	Record As
1	Near vision	Jaeger chart	J1 at not less than 12 in. (30.5 cm), in at least one eye, natural or corrected	Smallest J size read, each eye (e.g., R J1, L J2)
2	Far vision	Snellen chart or equivalent	20/30 or better, in at least one eye, natural or corrected	Snellen fraction, each eye (e.g., R 20/25, L 20/30)
3	Red/green color	Ishihara or HRR plates	Ishihara: Table 9-1. HRR: all symbols on screening plates 7 through 10 correct, each eye (Section 9.4.2)	Ishihara plates read normally (e.g., 11 of 11), or HRR plates correct for each eye (e.g., R 4 of 4, L 4 of 4)
4	Blue/yellow color	HRR plates or Farnsworth D-15	HRR: all symbols on screening plates 5 and 6 correct, each eye (Section 9.4.2). D-15: Section 9.4.4.4	HRR plates correct for each eye (e.g., R 2 of 2, L 2 of 2), or D-15 Pass or Fail with score sheet
5	Shades of gray	7-step wedge, image, or chart; or Köhler chart	7-step media: at least 5 of the 7 steps distinguished. Köhler chart: at least 20 of the 25 readings correct	Steps distinguished (e.g., 6 of 7), or Köhler readings correct (e.g., 23 of 25)

8.2 **Frequency and currency**

- 8.2.1 tests in Table 8-1 shall be completed before a person first performs, interprets, or evaluates NDT or inspection work, receives training, or begins on-the-job training, and at intervals not exceeding 12 months thereafter.
- 8.2.2 The examination expires 12 months after the examination date. When the tests are given on different dates, the earliest test date is the examination date. This is more restrictive than SNT-TC-1A (2024), 8.2.3, under which a vision examination expires on the last day of the month of expiration (P11-WP-1, §8.9.4.1 and Annex A).
- 8.2.3 The examination shall be current when certification examinations are taken.

8.2.4 A person whose examination has expired shall not perform, interpret, or evaluate NDT or inspection work until a passing examination is recorded. Certification status during a lapse is governed by P11-WP-1.

8.2.5 The Certifying Level III may require re-examination at any time, including after a reported change in vision or corrective aids.

8.3 **Examination area**

8.3.1 The examination shall be given in a quiet area free of distractions, direct sunlight, and glare, with enough room for the far-vision test distance.

8.3.2 Illumination for each test shall be as stated in Section 9.0 and in the manufacturer's instructions for the test media.

8.4 **Examinee preparation**

8.4.1 Confirm the examinee's identity.

8.4.2 Ask which corrective aids the examinee wears when performing NDT or inspection work. Give each test with the aids the examinee wears for that kind of viewing, and record each result in the form column that shows whether a corrective aid was used. A person who passes a test with a corrective aid shall wear it when performing NDT or inspection work.

8.4.3 The examinee shall not wear tinted lenses, color-filtering lenses, or colored contact lenses for Tests 3, 4, and 5. This does not apply to daylight filters on the test lamp.

8.4.4 Ask whether the examinee has used eye drops or any other medication to improve vision that day, and record the answer on Form VAE-P11-1. Eye drops and other pharmacological agents that improve or enhance visual acuity at any distance shall not be used to meet any test (SNT-TC-1A (2024), 8.2.1 and 8.2.1.1; P11-WP-1, §8.9.1.5). Prescription spectacles and contact lenses worn as corrective aids are not affected (Section 8.4.2). If such an agent was used that day, reschedule the examination.

8.4.5 If the examinee reports a condition that prevents normal testing that day, such as eyes dilated during an eye appointment, reschedule the examination.

8.4.6 Explain each test before it is given. Do not show test media to the examinee before the test, and do not coach, prompt, or confirm answers during a test.

8.5 Tests may be given in any order. Record each result as soon as the test is completed.

8.6 A Record of Visual Acuity (Visual Acuity Test Record, Rev. 0) remains valid until its expiration date only for a test on which it shows a measured result that meets Table 8-1. Any other test shall be administered under this procedure before the person next performs work that depends on it (Tests 1 and 2: any NDT or inspection work; Tests 3, 4, and 5: a method for which Table 11-2 requires that capability), and in all cases within 30 calendar days after the effective date of P11-WP-1 Revision 05 (P11-WP-1, §8.9.8).

9.0 TEST PROCEDURES

9.1 Test 1 — Near Vision

- 9.1.1 **Purpose.** Test 1 confirms the ability to see fine detail at a normal working distance, such as image quality indicator wires, small indications, and fine instrument markings.
- 9.1.2 **Conditions.** Light the chart evenly and without glare. Set the test distance to the distance stated on the chart, but not less than 12 in. (30.5 cm), measured from the eye to the chart, and hold the chart square to the line of sight.
- 9.1.3 **Steps.**
- 9.1.3.1 Seat the examinee with any corrective aids in place (Section 8.4.2).
- 9.1.3.2 Cover the examinee's left eye with the occluder without pressing on the eye.
- 9.1.3.3 Have the examinee read aloud, starting with a larger line and continuing to the smallest line the examinee can read. The examinee shall not move the chart, lean closer, or squint.
- 9.1.3.4 A line is read when more than half of its characters (letter or number charts) or words (paragraph charts) are read correctly. Record the smallest J size read as the right-eye result.
- 9.1.3.5 Cover the right eye, repeat the test, and record the left-eye result.
- 9.1.4 **Acceptance.** The examinee passes when J1 is read in at least one eye.
- 9.1.5 **Meaning of results.** J1 is the smallest print on the chart. A result of J2 or higher means that larger print was needed at the test distance.

9.2 Test 2 — Far Vision

- 9.2.1 **Purpose.** Test 2 confirms distance vision used across a work area, such as reading gauges, markings, and instruments.
- 9.2.2 **Conditions.** Place the chart at the distance for which it is rated, normally 20 ft. (6 m), measured and marked on the floor. Light the chart evenly and without glare, with the 20/30 line at about the examinee's eye level.
- 9.2.3 **Steps.**
- 9.2.3.1 Position the examinee at the marked distance with any corrective aids worn for distance viewing.
- 9.2.3.2 Cover the left eye with the occluder.
- 9.2.3.3 Have the examinee read each line, starting above the 20/30 line and continuing to the smallest line the examinee can read, without squinting or leaning forward.
- 9.2.3.4 A line is read when more than half of its letters are read correctly. Record the Snellen fraction of the smallest line read as the right-eye result.

9.2.3.5 Cover the right eye and repeat the test, having the examinee read each line from right to left. Record the left-eye result.

9.2.4 **Acceptance.** The examinee passes when 20/30 or better is read in at least one eye.

9.2.5 **Meaning of results.** 20/20 is standard distance vision. A larger second number means weaker distance vision; for example, 20/40 is weaker than 20/30. A smaller second number, such as 20/15, is better than standard.

9.3 **Test 3 — Red/Green Color Differentiation**

9.3.1 **Purpose.** Test 3 screens for red/green color vision deficiency, the most common type. Red/green differentiation is used, for example, to see red penetrant indications on white developer, colored display elements, and color-coded markings.

9.3.2 **Ishihara plates, conditions.** Give the test in a room lit by daylight or by a daylight-equivalent lamp, and avoid direct sunlight. Hold the plates 75 cm (about 30 in.) from the examinee, tilted so that the plate surface is at right angles to the line of sight. Allow no more than 3 seconds for each numeral plate and no more than 10 seconds for each line-tracing plate. Give the test with both eyes open unless the manufacturer's instructions direct otherwise, and present the plates in the order and manner the instructions give for the edition.

9.3.3 **Ishihara plates, steps.**

9.3.3.1 Record the edition and identification number of the plate book.

9.3.3.2 Show the first plate and ask the examinee to read the number. The first plate is designed to be read correctly by everyone and is used to explain the test. If the examinee cannot read it, stop the test and refer the examinee to the Certifying Level III.

9.3.3.3 Show each plate and write the examinee's answer for each plate on the score sheet, including "nothing seen." On line-tracing plates, have the examinee trace the line as the manufacturer directs, without touching the plate surface. Do not indicate whether an answer is correct.

9.3.3.4 After the last plate, score each assessment plate against the manufacturer's answer key and notes for the edition, including the notes for plates designed to be read only by persons with a red/green deficiency (for example, on the 14-plate edition, plate 9 is recorded as abnormal only when its numeral is read more easily than those on plate 8). Count the assessment plates read normally (Table 9-1).

9.3.3.5 Plates after the assessment range classify the type of red/green deficiency or are line-tracing plates. They may be given as the manufacturer directs and recorded, but they are not used for acceptance under Table 9-1.

- 9.3.4 **Ishihara plates, acceptance.** The examinee passes when the number of assessment plates read normally meets the pass value in Table 9-1 for the edition used. Any lower score does not meet Test 3, including a score between the pass value and the manufacturer's deficient value.

Table 9-1 — Ishihara Acceptance by Edition

Edition	Assessment Plates	Pass: Plates Read Normally	Manufacturer's Deficient Value
14-plate	1 through 11	10 or more	7 or fewer
24-plate	1 through 15	13 or more	9 or fewer
38-plate	1 through 21	17 or more	13 or fewer

Note: Values are from the manufacturer's instructions for each edition. If the instructions supplied with the plate book in use state different values, those instructions govern and the Corporate Level III shall revise Table 9-1.

- 9.3.5 **HRR plates.** When HRR plates are used, Tests 3 and 4 are given together under Section 9.4.2, and the red/green result is recorded on the Test 3 line.
- 9.3.6 **Meaning of results.** The figures on each plate are hidden from, or seen differently by, a person with a red/green deficiency. Ishihara plates do not screen for blue/yellow deficiency and shall not be recorded for Test 4.

9.4 **Test 4 — Blue/Yellow Color Differentiation**

- 9.4.1 **Purpose.** Test 4 screens for blue/yellow (tritan) color vision deficiency, which Ishihara plates do not detect. Blue/yellow differentiation is used, for example, with color palettes on phased array and other imaging displays and in judging coatings, discoloration, and corrosion products.
- 9.4.2 **HRR plates, conditions and steps.**
- 9.4.2.1 Illuminate the plates at 10 to 60 foot-candles with a daylight-equivalent lamp approximating CIE Illuminant C. Place the plates about 30 in. (75 cm) from the examinee and turn the pages at about 3-second intervals. Test each eye separately, as the manufacturer directs, and record the results for each eye.
- 9.4.2.2 Use demonstration plates 1 through 4 to explain the test; they are not scored. For each plate, the examinee states how many symbols are seen, what each symbol is (circle, cross, or triangle), and where it is, and then traces each symbol with a pointer or brush. Turn the pages by the tabs; do not touch the plates with fingers.
- 9.4.2.3 Give screening plates 5 through 10. Plates 5 and 6 screen blue/yellow vision, and plates 7 through 10 screen red/green vision. Mark a symbol correct only when it is correctly named and located.

9.4.2.4 If any symbol on plates 7 through 10 is missed, give diagnostic plates 11 through 20 and grade the red/green result as mild, medium, or strong using the manufacturer's score sheet. If any symbol on plates 5 or 6 is missed, give diagnostic plates 21 through 24 and grade the blue/yellow result. Then give screening plates 5 through 10 a second time with the book rotated 90° or 180° so the symbols appear in different locations.

9.4.2.5 For each eye, Test 3 is passed when all symbols on plates 7 through 10 are correct, and Test 4 is passed when all symbols on plates 5 and 6 are correct. A person who is correct on all six screening plates, or who makes no errors on the diagnostic plates and is correct on all six screening plates on the rotated second presentation, has normal color vision as defined by the manufacturer. If only one eye meets a criterion, record both results and refer the examinee to the Certifying Level III (Section 11.0).

9.4.3 **Farnsworth D-15, conditions.** Illuminate the test with a daylight-equivalent lamp approximating CIE Illuminant C, as specified by the manufacturer, at a comfortable working distance of about 16 in. (40 cm). The test is not timed, but note on the score sheet if the examinee takes more than about 2 minutes.

9.4.4 **Farnsworth D-15, steps and acceptance.**

9.4.4.1 Remove the 15 loose caps and mix them in random order on the open lid or a neutral surface. The reference cap stays fixed in the tray.

9.4.4.2 Instruct the examinee to place next to the reference cap the loose cap closest to it in color, then the cap closest to that one, and so on until all caps are placed. The examinee may rearrange the caps until satisfied.

9.4.4.3 Close the tray, turn it over, and record the cap numbers in the order placed. Plot the order on the circular score diagram by connecting the cap numbers in sequence, and attach the score sheet to Form VAE-P11-1.

9.4.4.4 Test 4 is passed when the pass criterion in the manufacturer's instructions for the test set in use is met. Where those instructions state no pass criterion, Test 4 is passed only when the caps are placed in numerical order with no crossings on the score diagram.

9.4.5 **Meaning of results.** Lines that cross the score diagram, roughly parallel to one another, indicate the axis of a color deficiency: protan, deutan, or tritan. The D-15 is a coarse test designed to separate normal or mildly deficient color vision from moderate or severe deficiency, so HRR plates are preferred for Test 4 when available.

9.5 Test 5 — Shades of Gray

9.5.1 **Purpose.** Test 5 confirms the ability to distinguish small differences in gray tone, such as density differences on radiographic film, gray-level differences in digital images, image quality indicator visibility, and surface contrast in visual, magnetic particle, and penetrant examination.

9.5.2 **Media and conditions.** Present the media under conditions representative of the examinee's work:

- 9.5.2.1 Film interpreters: 7-step density step wedge on a film illuminator, with ambient light subdued so that there are no reflections or glare on the viewing surface.
- 9.5.2.2 CR and DR interpreters: 7-step digital gray-level test image, or the Köhler chart displayed at 100 percent zoom, on an interpretation monitor, with ambient light subdued so that there are no reflections or glare on the screen (Section 7.2.4).
- 9.5.2.3 Personnel who interpret both film and digital images: either of the above, as directed by the Certifying Level III.
- 9.5.2.4 All other personnel: any of the above, a 7-step printed gray-scale chart under even white light without glare, or the Köhler chart, printed or displayed, under normal working light without glare.
- 9.5.2.5 Media with more than 7 steps may be masked to present 7 steps. Media with a different number of steps may be used only with acceptance criteria approved in writing by the Certifying Level III.

9.5.3 **Steps.**

- 9.5.3.1 Confirm that the media is clean, unscratched, and not faded, and record its identification number.
- 9.5.3.2 Mask any step numbers or labels, and do not tell the examinee how many steps the media contains.
- 9.5.3.3 For a digital gray-level test image, use a controlled image with the steps arranged out of order, and have the examinee identify the steps in order from lightest to darkest.
- 9.5.3.4 For a step wedge or printed chart, present the media in a random orientation, such as reversed or rotated, and have the examinee point to each boundary between steps that look different. Count only boundaries indicated at actual step edges.
- 9.5.3.5 Record the number of distinct steps correctly identified, for example "6 of 7." Steps that the examinee cannot tell apart, or places out of order, count as one step.
- 9.5.3.6 For any repeat presentation, use a different orientation or a different controlled image.

9.5.3.7 For the Köhbl chart, place the chart or screen 30 to 50 cm (12 to 20 in.) from the examinee's eyes under the lighting of Section 9.5.2. Point to the 25 cells in a random order, not row by row, and have the examinee read the digits in each cell. Record the number of cells read correctly, for example "23 of 25." A cell counts as correct only when every digit in it is read correctly. If the examinee may have memorized the chart, use a 7-step medium instead.

9.5.4 **Acceptance.** The examinee passes a 7-step medium when at least 5 of the 7 steps are distinguished, and passes the Köhbl chart when at least 20 of the 25 readings are correct.

Note: SNT-TC-1A leaves the means of demonstrating shades-of-gray differentiation to the employer. The 5-of-7 criterion and the step increments recorded under Section 7.2.6 are established by Prime Inspections, Inc. and approved by the Certifying Level III. The 20-of-25 criterion is the passing grade printed on the Köhbl chart.

9.5.5 **Meaning of results.** A result of 7 of 7 means every step was seen as distinct. Each step that merges with its neighbor lowers the count by one. On the Köhbl chart, each cell misread lowers the count by one.

10.0 **RECORDING RESULTS**

10.1 Each examination shall be recorded on Form VAE-P11-1, Record of Visual Acuity (Attachment A), printed from the current controlled master. Result fields shall not be pre-printed, pre-filled, or copied from a previous record.

10.2 The examiner shall record each result in ink, or in the controlled electronic form, when the test is completed. Each test shall be recorded on its own line of the TESTS table with:

10.2.1 The test media, its identification number, and its edition where applicable;

10.2.2 The measured result, in the form shown in Table 8-1; and

10.2.3 The result entered in the column that applies: Meets without eye correction, Meets with eye correction, or Does not meet. For near and far vision, enter the right-eye and left-eye results on the R and L lines.

10.3 No line shall be left blank, and a required test shall not be marked N/A. A result recorded for one test shall not be used to represent another test. N/A may be entered only for a field that does not apply, such as an unused test medium option or the result for an eye that cannot be tested, with a written reason in the Remarks line of the form, initialed by the Certifying Level III.

10.4 Results obtained with Ishihara plates shall not be recorded for Test 4.

10.5 Score sheets used for Tests 3 and 4 shall be attached to the form and noted in the Remarks line.

10.6 Corrections shall be made with a single line through the incorrect entry, initialed and dated by the person making the correction, so that the original entry remains legible. Correction fluid, correction tape, and overwriting shall not be used.

- 10.7 Information added after the examination shall be entered as a late entry: identified as “Late Entry,” signed, and dated on the date it is made. Original entries shall not be altered.
- 10.8 The examiner shall complete and sign the examiner certification. The Certifying Level III shall review the form for completeness, sign the Certifying Level III review line, and enter the examination date, expiration date, and results on the individual’s certification record.
- 10.9 A copy of the completed form shall be given to the examinee on request.

11.0 EVALUATION OF RESULTS AND RESTRICTIONS

- 11.1 The examiner shall tell the examinee the result of each test privately and shall report any test not passed to the Certifying Level III on the day of the examination.
- 11.2 Table 11-1 states the action required when a test is not passed. Table 11-2 identifies the contrast capability each method depends on.

Table 11-1 — Action When a Test Is Not Passed

Test Not Passed	Required Action
1 Near vision	The person shall not perform, interpret, or evaluate NDT or inspection work. The person may be re-examined after obtaining corrective aids or eye care.
2 Far vision	The Certifying Level III shall evaluate the person’s assigned duties and document any restriction on the certification record. The person may be re-examined after obtaining corrective aids or eye care.
3, 4, or 5 Color or shades of gray	The person shall not perform any method for which Table 11-2 requires the capability not passed, unless the person passes a method-specific performance demonstration for that method (Section 11.4).

Table 11-2 — Contrast Capability by Method

Method	Color (Tests 3 and 4)	Shades of Gray (Test 5)	Basis
RT: film, CR, DR	Not required	Required	Density and gray-level differences in the image, including IQI visibility
UT: thickness	Not required	Not required	Numeric thickness readout. The Certifying Level III may require Test 3 or 4 for instruments with colored displays.
UT: flaw detection (A-scan)	Required	Not required	Colored gates, cursors, and display elements
PAUT, TOFD, AUT	Required	Required	Color-palette and gray-scale imaging
MT: visible	Required	Not required	Particle color against the part surface or contrast coating
MT and PT: fluorescent	Required	Not required	Yellow-green indications under UV-A
PT: visible	Required	Not required	Red indications on white developer
VT	Required	Required	Discoloration, heat tint, corrosion products, and coating condition
ET	Required	Not required	Colored impedance-plane and strip-chart displays

Method	Color (Tests 3 and 4)	Shades of Gray (Test 5)	Basis
Other methods	As determined by the Certifying Level III	As determined by the Certifying Level III	Recorded in the certification file

- 11.3 A result affected by a testing error, such as incorrect lighting, damaged media, or instructions the examinee misunderstood, may be voided by the Certifying Level III and the test repeated after the error is corrected. The voided result, the reason, and the repeat result shall all be recorded. A repeat of Test 3 or 4 shall be given on a later day or with a different test medium. The rotated second presentation of HRR screening plates under Section 9.4.2.4 is part of the test and is not a repeat.

11.4 Method-specific performance demonstration

- 11.4.1 The Certifying Level III may qualify a person who did not pass Test 3, 4, or 5 for a specific method through a documented demonstration using actual method media under representative conditions.
- 11.4.2 The person shall correctly identify known indications, such as penetrant indications on developer, magnetic particle indications on a reference specimen, colored display elements on the instrument to be used, or image quality indicator wires and known discontinuities on radiographic film or digital images.
- 11.4.3 The media, viewing conditions, indications presented, responses, and determination shall be recorded on Attachment B, approved by the Certifying Level III, and attached to Form VAE-P11-1. Any restriction shall be stated on the certification record.
- 11.4.4 A demonstration applies only to the methods and conditions demonstrated and shall be repeated at each annual examination for as long as the test remains not passed.
- 11.5 Restrictions shall be communicated to the Director of Operations and the person's supervisor as restrictions on work only. Test scores and details of any vision condition shall be shared only with those who need them for certification, work assignment, or audit.

12.0 RECORDS

- 12.1 The following records shall be filed in the individual's certification file at the Corporate Office (P11-QC-1, Sections 2.4.1 and 11.2):
- 12.1.1 Form VAE-P11-1 with attached score sheets;
- 12.1.2 Any licensed professional's report accepted under Section 6.3; and
- 12.1.3 Attachment B demonstration records.
- 12.2 Attachment C designation records and Attachment E test media logs shall be maintained by the Quality Manager.

- 12.3 Vision examination records, noting corrective aids if used, shall be retained for the current and preceding certification periods (P11-WP-1, Section 9.6.4.3), or longer where required by contract or the Prime Inspections, Inc. records retention policy.
- 12.4 Records shall be made available to Customers and authorized auditors on request through the Quality Manager.

13.0 ATTACHMENTS

- 13.1 Attachment A — Form VAE-P11-1, Record of Visual Acuity
- 13.2 Attachment B — Method-Specific Performance Demonstration Record
- 13.3 Attachment C — Visual Acuity Administrator Designation Record
- 13.4 Attachment D — Vision Test Chart Guide (illustration only; not a test medium)
- 13.5 Attachment E — Test Media Control Log



RECORD OF VISUAL ACUITY

All NDT and inspection personnel, including trainees, are required to pass an eye examination at least every 12 months, with or without corrective lenses, to assure (1) far vision acuity of 20/30 or better, (2) near vision acuity of Jaeger J1 at not less than 12 inches, and (3) red/green or blue/yellow color differentiation and shades of grey differentiation (P11-WP-1, Section 8.9). Tests are required depending on methods.

This form is to be completed by the eye examiner at the time of the examination in accordance with procedure VAE-P11-1. The eye examiner may be a Prime Inspections Inc. Certifying Level III, a Visual Acuity Administrator designated in writing by the Certifying Level III, an Optometrist, Medical Doctor, Nurse Practitioner, Registered Nurse, or a certified Physician's Assistant, and must indicate his or her title below. Enter the measured result for every test in the column that applies. Do not leave a line blank or pre-fill results.

Printed name of person taking exam		Personnel Number		
Corrective lenses worn for work: ☐ None ☐ Glasses ☐ Contact lenses Examinee initials: _____				
Eye drops or other medication used today to improve vision: ☐ No ☐ Yes (reschedule the examination)				
	TESTS	Meets without Eye correction	Meets with eye correction	Does not meet
1	Far Vision (Test 2) 20/30 or better, at least one eye Snellen chart ID: _____ Distance: _____ ft	R L	R L	R L
2	Near Vision (Test 1) J1 at not less than 12 inches, at least one eye Jaeger chart ID: _____ Distance: _____ in.	R L	R L	R L
3	Color and Shades of Grey Perception a. Red/green differentiation (Test 3) ☐ Ishihara ☐ HRR Edition: _____ ID: _____ <i>Enter plates read normally, or HRR 7-10 correct (R and L)</i> b. Blue/yellow differentiation (Test 4) ☐ HRR ☐ Farnsworth D-15 ID: _____ <i>Enter HRR plates 5-6 correct (R and L), or D-15 result. Not Ishihara.</i> c. Shade of Grey (Test 5) ☐ Wedge ☐ Image ☐ Chart ☐ Köhler ID: _____ <i>Enter steps seen of 7 (at least 5), or Köhler readings correct of 25 (at least 20)</i>			

Restrictions: ☐ None ☐ Restricted from: _____ Demonstration (Att. B): ☐ Attached ☐ N/A

Remarks (N/A reason, score sheets, transcribed report, second examiner): _____

I certify that I, _____, administered an eye exam to _____, on _____ (expires _____), which demonstrated the vision capabilities indicated above, with each result recorded at the time of the examination. (Check the title you hold.)

Signature of Eye Examiner: _____

☐ Certifying Level III (ASNT) ☐ Visual Acuity Administrator ☐ Optometrist
☐ Medical Doctor ☐ Nurse Practitioner ☐ Registered Nurse
☐ Certified Physician's Assistant

State License / ASNT Number / VA Administrator Designation Date: _____

Certifying Level III Review Signature: _____ Date: _____

ATTACHMENT B — Method-Specific Performance Demonstration Record

PRIME INSPECTIONS, INC.

METHOD-SPECIFIC PERFORMANCE DEMONSTRATION RECORD

VAE-PII-1, Attachment B, Rev. 01 | Reference: VAE-PII-1, Section 11.4

1. Person and Test Not Passed

Name		Employee No.	
Form VAE-PII-1 Examination Date		Test Not Passed	☐ 3 Red/green ☐ 4 Blue/yellow ☐ 5 Gray

2. Demonstration Conditions

Method and technique	
Reference media (description and ID)	
Viewing conditions (white light or UV-A reading, illuminator, or monitor)	
Date and location	

3. Indications Presented

No.	Known Indication (type and location)	Response	Correct
1			☐ Yes ☐ No
2			☐ Yes ☐ No
3			☐ Yes ☐ No
4			☐ Yes ☐ No
5			☐ Yes ☐ No
6			☐ Yes ☐ No
7			☐ Yes ☐ No

4. Determination

☐ Qualified for the method above without restriction ☐ Qualified for the method above with restriction: _____ ☐ Not qualified for the method above

Certifying Level III (print)	Signature	Date

This demonstration applies only to the method and conditions recorded. Repeat it at each annual examination while the test remains not passed (VAE-PII-1, Section 11.4.4). State any restriction on the certification record.

ATTACHMENT C — Visual Acuity Administrator Designation Record

PRIME INSPECTIONS, INC.

VISUAL ACUITY ADMINISTRATOR DESIGNATION RECORD

VAE-PII-1, Attachment C, Rev. 01 | Reference: VAE-PII-1, Section 6.2

1. Designee

Name		Title	
Employee No.		Date Designated	

2. Training Completed (Section 6.2.1)

Topic	Date	Cert. Level III Initials
VAE-PII-1 requirements, including Sections 8.0, 10.0, and 11.0		
Manufacturer's instructions for each item of test media		
Test conditions: distance, illumination, and viewing		
Scoring and acceptance criteria for each test		
Recording rules: no pre-filled results, corrections, and late entries		
Supervised administration of each designated test		

3. Tests Authorized

☐ 1 Near vision ☐ 2 Far vision ☐ 3 Red/green color ☐ 4 Blue/yellow color ☐ 5 Shades of gray
--

4. Statements

Designee: I have been trained on VAE-PII-1 and will administer and record vision tests only in accordance with it.

Designee Signature	Printed Name	Date

Certifying Level III: The designee has completed the training above and is designated to administer the tests authorized.

Certifying Level III Signature	Printed Name	Date

5. Annual Confirmation or Withdrawal (Section 6.2.2)

Date	Action and Tests Affected	Confirmed / Withdrawn	Cert. Level III Initials
		☐ C ☐ W	
		☐ C ☐ W	
		☐ C ☐ W	
		☐ C ☐ W	

VAE-P11-1, Attachment D — Vision Test Chart Guide

VAE-P11-1 · ATTACHMENT D

Vision Examination

five tests

All five tests at least every twelve months. Each result is recorded on its own line.

ILLUSTRATION ONLY — NOT A TEST MEDIUM

REQUIREMENTS
ADMINISTRATION
RECORD

PII-WP-1 \$8.9
VAE-P11-1 \$9
VAE-P11-1 ATTACHMENT A

01

26

Light falls evenly

20/200

H

20/100

D K

20/70

N C R

20/50

Z S H V

20/40

O D K N

20/30

R H S Z D V

20/25

C N O K H R S

20/20

V Z D R N C O K

► J1

down to the smallest line that can be read clearly

EYE TO CARD ≥ 12 IN (30.5 CM)

02

J1

at not less than 12 in (30.5 cm), in at least one eye.

20/30 or better, in at least one eye.

03

ISHIHARA 14-plate: 10 or more of plates 1–11 [other editions: Table 9-1]. HRR: plates 7–10 correct, each eye.

Red / green

04

Blue / yellow

7-step media: at least 5 of 7 steps distinguished. Köhler chart: at least 20 of 25 readings correct.

05

Shades of gray

Small differences in gray tone.

06

Far vision

SNELLEN CHART

DETAIL AT A DISTANCE.

20/30 reads at 20 ft what standard vision reads at 30 ft. A larger second number means weaker vision.

07

Red / green

PSEUDOISOCROMATIC PLATES

ISHIHARA 14-plate: 10 or more of plates 1–11 [other editions: Table 9-1]. HRR: plates 7–10 correct, each eye.

08

Blue / yellow

HRR PLATES OR FARNSWORTH D-15

Blue and yellow color differentiation.

09

Shades of gray

7-STEP MEDIA OR KÖHLER CHART

Small differences in gray tone.

10

Near vision

JAEGER NEAR-VISION CHART

FINE DETAIL AT INSPECTION DISTANCE.

J1 is the smallest print. A higher J number means larger print was needed.

11

Red / green

ISHIHARA 14

The figure is hidden from, or seen differently by, a red/green deficient eye. Ishihara does not screen blue/yellow.

12

Blue / yellow

Lines that cross the ring trace a confusion axis: protan, deutan, or tritan. HRR plates are preferred.

13

PRIME INSPECTIONS, INC.

CRITERIA AS STATED IN VAE-P11-1, WHICH IMPLEMENTS P11-WP-1 \$8.9. FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR THE TEST SET IN USE.

14

PRINTED COLORS, SIZES, AND TONES ARE NOT CALIBRATED. THIS PLATE SHALL NOT BE USED TO EXAMINE ANYONE.

Illustration only. Printed colors, sizes, and tones are not calibrated, and this page shall not be used to examine anyone. Section 9.0 governs.

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ATTACHMENT E — Test Media Control Log

PRIME INSPECTIONS, INC.
TEST MEDIA CONTROL LOG

VAE-P11-1, Attachment E, Rev. 01 | Reference: VAE-P11-1, Section 7.2

Media ID	Test No.	Description (type, edition, manufacturer)	Serial / Lot	In Service	Replace By	Step Increment or Print Check (Test 5, §7.2.6)	Storage Location	Inspections (date / initials)	Removed (date / reason)

Assign an ID to every chart, plate book, D-15 test, step wedge, printed gray chart, Köhler chart print, and controlled digital test image before use. "Replace By" is the replacement date stated by the manufacturer, where one is stated. Remove from service any item that is faded, stained, scratched, or damaged (Section 7.2.3).