Sara Sae	SARA SAE ENGINEERING SPECIFICATION	
	SECTION SOP	Doc. No. SES-26-729
	ISSUE "A",	REV "1"
	DATE: 20-10-2011	Page 1 of 6

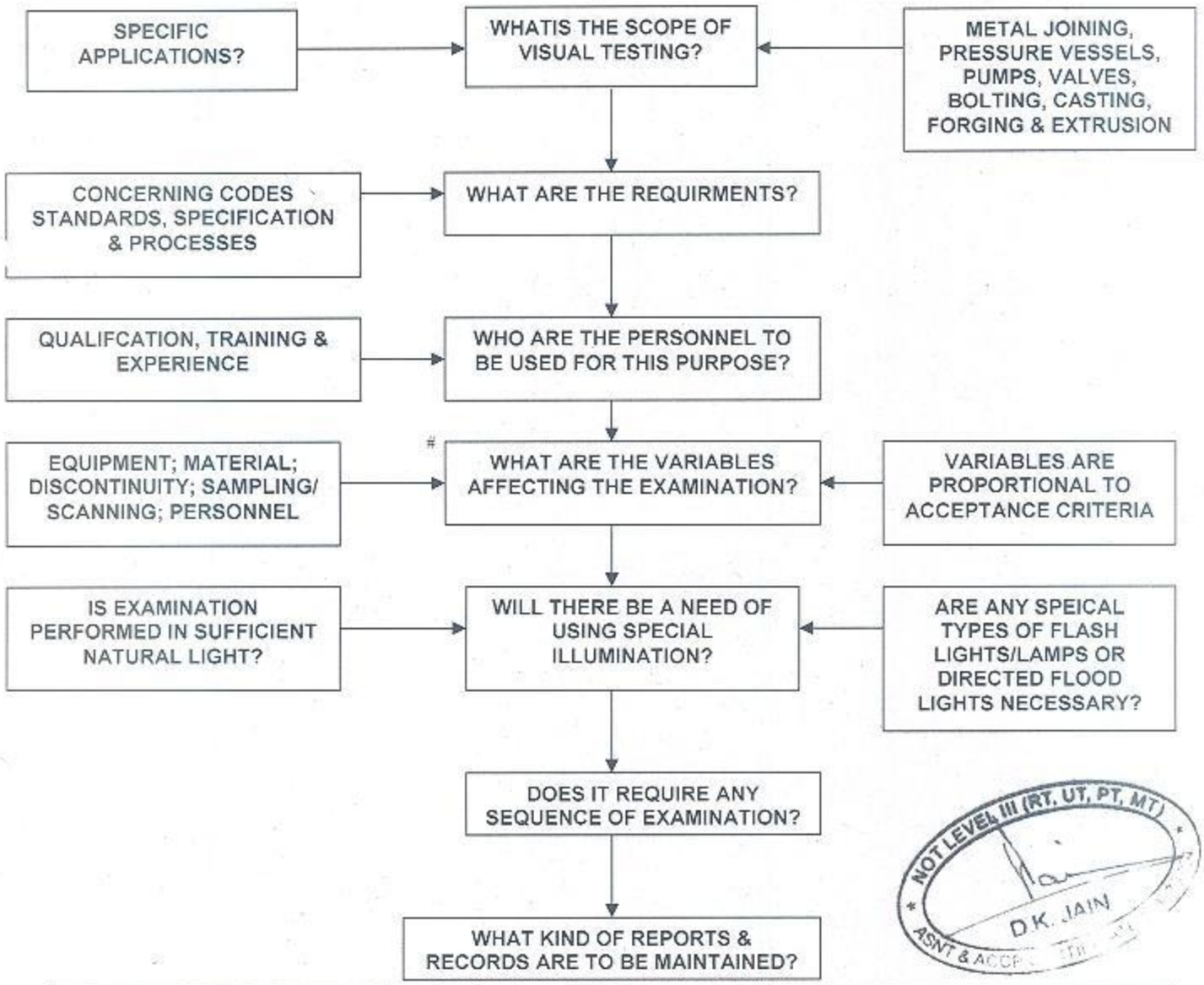
PROCEDURE

for

VISUAL EXAMINATION

(SSE/QAD/VE-93)

VISUAL EXAMINATION FLOWCHART



NOT LEVEL III (RT, UT, PT, MT) D.K. JAIN ASNT & ACCP

#

1.	EQUIPMENT VARIABLES	-	SCRATCH ON MIRRORS & MAGNIFIERS; LIGHT
2.	MATERIAL VARIABLES	-	IS IT PLASTIC OR SS OR SAME OTHER MATERIAL
3.	DISCONTINUITY VARIABLES	-	TYPES OF DISCONTIUITY
4.	SAMPLING/SCANNING VARIABLES	-	SAMPLING LOG (AS IN S.Q.C.)
5.	PERSONNEL VARIABLES	-	SUBJECTIVE/OBJECTIVE

INTRODUCTION

THE first step in carrying out NDE is the Visual inspection. It is usually carried out by experienced plant personnel, frequently, giving them instantaneous results. It is done by means of naked eye or various scientific aids such as mirrors, magnifiers etc. Environmental factors such as lighting and cleanliness play an important role in the examination of the surface. Appropriate and adequate physics & physiology of vision (and light) are instrumental in getting the correct results in visual testing.

Visual examination is generally used to determine such things as the surface condition of the part, alignment of the mating surface, shape or evidence of leaking.

1. SCOPE

THIS procedure is made to be used exclusively by M/S SARA SAE PVT. LTD. And shall cover the direct visual examination method for Steel castings. / Forging/ Weld Joint

2. PERSONNEL QUALIFICATION AND CERTIFICATION

The personnel undertaking visual examination should be experienced persons, drawn from the quality control and/or production department. They should have complete knowledge of the methods of production of the component parts subjected to visual examination. In case of sub-assembly or component part, they must know where the part fits and what function it performs in the final assembly/end use. They should also have some basic knowledge of the metallurgy of the materials used in the object.

3. HEALTH & SAFETY

Visual examination personnel shall have an annual visual examination to assure natural or corrected near distance acuity such that they are capable of reading standard J 1 letters on standard Jaeger Test type chart for near vision or equivalent methods. The examination should de required by M/s SARA SAE PVT. LTD.

The personnel should be further safeguard against any physiological, electrical, mechanical and chemical hazards arising out of testing conditions and environment.

4. AIDS

The following equipments and aids may be used to enhance sensitivity of the method:

- Lighting equipment
- Mirrors
- Magnifiers

5. PROCEDURE

- Visual examination is to be carried out by naked eye.
- It is to be performed under ambient conditions.
- Magnifiers and mirrors to be used to aid in examination.
- Surface condition available is as cast.
- Method for surface preparation is sand blasting.
- One time inspection is carried out after surface of the casting is prepared by sand blasting.

DIRECT VISUAL EXAMINATION

Direct visual examination shall be used and the eye should be within 24 inch of the surface to be examined and at an angle not less than 30deg. to the surface to be examined. Mirrors may be used to improve the angle of vision, and aids such as magnifying lens may be used to assist examinations. The specific part, component, or section thereof, under immediate examination, shall be illuminated, if necessary with flashlight or other auxiliary lighting, to attain a minimum of 150 LUX (15 fc) for general examination and a minimum of 500 LUX (50 fc) for the detection or study of small anomalies. .

The personnel chosen for this purpose should be careful to give as objective a view as possible to the possible failure/non failure of the part.

6. EVALUATION

An examination checklist shall be used to plan visual examination and to verify that the required visual observations were performed. This checklist establishes minimum examination and inspection requirements and does not indicate the maximum examination which M/s SARA SAE PVT. LTD. May perform in process.

Before carring out the inspection, it must be ensured that the surface is free from rust, scales and other deposits. The following defects must be checked for, during visual examination of each casting.

Type I	-	Hot Tears and Cracks
Type II	-	Shrinkage
Type III	-	Sand Inclusions
Type IV	-	Gas Porosity
Type V	-	Veining
Type VI	-	Rat Tails
Type VII	-	Wrinkles, Laps, Wares, Folds and Coldshuts
Type VIII	-	Cutting Marks
Type IX	-	Scabs
Type X	-	Chaplets
Type XI	-	Weld Repair Areas
Type XII	-	Surface Roughness

7. DOCUMENTATION

A written report shall be prepared.

a) The date of the examination procedure used, and results shall be certified by M/s SARA SAE PVT. LTD. The illuminators, instruments, equipment, tools etc. shall be identified in the report to the extent that they or their equivalents can be obtained for future examinations.

b) Even though dimensions, etc., were recorded in the process of visual examination to aid in the evaluation, there need not be documentation of each viewing or each dimensional checks specified by the referencing code section.

Records shall be maintained as required by the referencing code sections.

8. ACCEPTANCE CRITERIA

This depends upon the end use of the component part or subassembly, the limitations of which shall be as per the referencing code section/drawings. In case none exists, ASME Section VIII / MSS Standard Practice SP - 55/ IS 8092 shall be applicable.