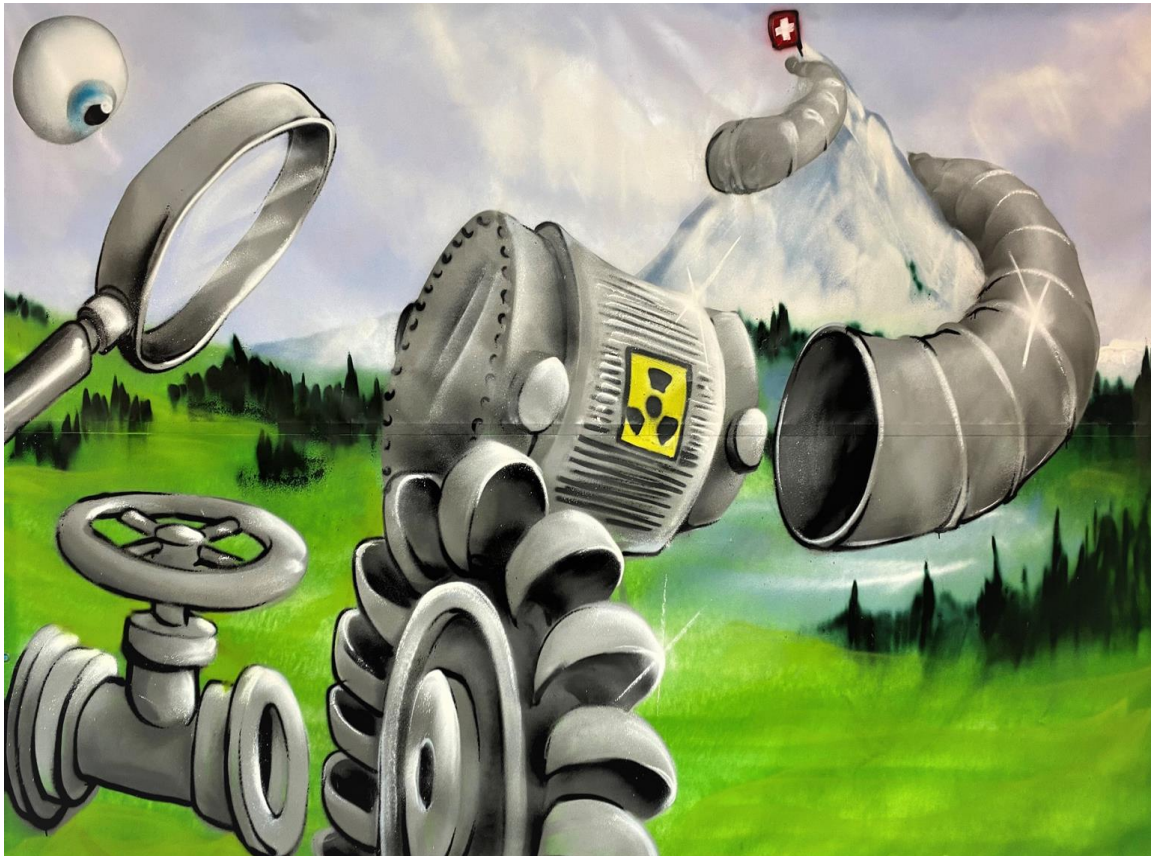


## SVS Technical inspection department



### Versions :

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## 1 Introduction

The SVS inspection department is active in the following industries:

- Nuclear power
- Hydropower
- Pharmaceutical industry
- Metal construction
- Railway industry
- Pipeline construction

The aim of this department is to give a customer an indication of the conformity of a product. The inspection can take place before, during and after manufacture as well as during operation. The inspection department is independent and can thus call on the services of other departments to provide highly reliable statements.

### 1.1 Activities by industries

This table shows our main activities.

Industry	Type of product	Materials	Manufacturing process	NDT	other testings
Nuclear power	Transport and storage casks	steel stainless steel aluminium	forging mechanical processing welding assembly corrosion protection	VT UT PT MT LT	pressure test mechanical tests
Hydropower (new construction and repair)	Pressure pipelines	steel	mechanical processing welding assembly corrosion protection	VT MT UT	mechanical tests pressure test
	Power plants	steel stainless steel	mechanical processing welding assembly corrosion protection	VT MT UT	mechanical tests test of procedure
	Turbines	martensitic stainless steel	forging mechanical processing welding	VT PT UT	mechanical tests test of procedure checking of balancing and profiles
Pharmaceutical industry	Piping and equipment	steel stainless steel	welding bending shaping etching	VT PT RT LT	test of procedure pressure test ferrite content
Metal construction	Bridges, buildings and other	steel	mechanical processing welding assembly	VT MT UT	mechanical tests test of procedure

Industry	Type of product	Materials	Manufacturing process	NDT	other testings
			corrosion protection		
Railway industry	Vehicles	steel stainless steel aluminium	mechanical processing welding assembly	VT UT PT MT RT	mechanical tests test of procedure

## 2 Technical inspection activities

### 2.1 Review of the design and manufacturing processes

With over fifteen years of experience in the manufacture of components with welded joints, especially in the fields of hydropower, pressure vessels, piping, nuclear power, and pharmaceuticals, we can provide technical support and give a technical opinion on the drawings, manufacturing, repair and testing procedures submitted by the manufacturer or subcontractor. This technical review is based on the project's reference documents, standards or guidelines.

### 2.2 Monitoring the production

The purpose of production monitoring is to help the end customer of a product to ensure that the product ordered meets his expectations as well as the specifications of the contract and the applicable standards.

Manufacturing surveillance involves monitoring the entire manufacturing process of a product. This monitoring is done through workshop or on-site inspections, document reviews, review of non-destructive and destructive testing reports, and finally, review of final documentation.



Supplier audits can also be performed to ensure that the manufacturer has the necessary processes in place to produce the product. These audits are carried out by the SVS Operational Certification Department. During these inspections, certain destructive tests may be performed by the SVS Materials Testing Department.

Below is a non-exhaustive list of the main operations we assist in workshops, laboratories or construction sites.

- Acceptance of the forged or cast primary parts
- Mechanical tests: Tensile, impact strength, hardness, CTOD ...
- Welding: Verification of parameters, welding filler metals, qualifications and certifications, tracking of control coupons from production ...
- Heat treatment: checking of curves, and of position of thermocouples ...
- Non-destructive testing and dimensional accuracy testing (including hydraulic turbine profiles)
- Pressure and leak tests
- Corrosion protection: measurement of thickness and absence of porosity of the coating ...
- Final acceptance of the parts
- Review of final documentation



After each inspection, a detailed report is provided to the customer.

### **2.3 Operability**

Operability is an assessment of the condition of a facility and its ability to continue operation. It requires that inspectors, material testers, and outside engineering companies perform the necessary calculations. We take care of finding and managing the resources needed for the requested project.

### **2.4 Validations and document review**

Validation and document verification involves assessing whether a document conforms to a reference document or several reference documents. Reference documents can be standards, rules, guidelines, safety dossiers or customer specifications. Reference documents must be validated by the customer and submitted to us.

### **2.5 Expert opinions**

In case of damages or doubts about the quality of execution of an equipment, a pipeline, a machine-welded element of a structure or any other object with welds, our inspectors can bring their expertise to determine the condition, to find the causes of non-conformity, to assist and accompany the customer to give him an impartial and objective opinion about the condition of his object.

## **3 Inspectors**

The department consists of twelve inspectors employed by SVS. Our inspectors have extensive experience in welding, fabrication, destructive and non-destructive testing, and document review.

Our inspectors have various qualifications in welding technology:

- International welding engineer (IWE)
- International welding technologist (IWT)
- International welding inspector (IWI)

Our inspectors have different certificates according to EN ISO 9712:

- Visual testing (VT 2 or VT 3)
- Penetrant testing (PT 2 or PT 3)
- Magnetic particle testing (MT 2 or MT 3)
- Ultrasonic testing (UT 2 or UT 3)
- Radiographic testing (RT 2 or RT 3)
- Leak testing (LT 2 or LT 3)



Due to the large variety of profiles, we are fluent in the following languages:  
French, German, Swiss German, English, Italian and Spanish.

## 4 Mobility and travel

Mobility is an essential parameter of technical inspection work. Inspectors travel throughout Switzerland, Europe and the world. The organization of the service allows a high reactivity as well as the deployment of the most suitable inspector for the job. Our usual intervention period is three days and a maximum of two weeks, subject to specific sanitary requirements (vaccinations, COVID) or obtaining a visa.



## 5 Subsidiaries

The SVS has five subsidiaries in Switzerland that provide technical inspection services, as well as one in the United States (SWI).

The subsidiaries are as follows:

Basel (BS), Yverdon-les-Bains (VD), Oberhasli (ZH),  
Bellinzona (TI), Sierre (VS).  
Pittsburgh (PA, USA).

## 6 DRAGON inspection database

The development of our DRAGON database has led to exponential efficiencies in document management, inspection management, people management and traceability. Our customers can access all the documentation of their projects through a web app. This allows us to provide a high level of quality and greater transparency to maintain our customers' trust.

All data interact with each other, each manufacturing document like a procedure can be validated and tracked using DRAGON based on a standard, a safety record, or multiple documents. The same procedure can also serve as the basis for a manufacturing inspection. DRAGON makes it possible to combine all data into one project. The documents are classified and stored in the database, which is located on a secure server (hosted) in Switzerland. Each inspector has an iPad

and, using the DRAGON mobile application, can directly record his findings and assess the compliance of a project based on the documents assigned to the project.

At the end of each inspection or project, a complete report is prepared on the operations followed and the documents reviewed. This report serves as evidence for monitoring the project. All documents can be forwarded to the customer to create a complete manufacturing file.

With our DRAGON system, all documents and data are centralized so that any document or information, such as a material certificate, a plan, an inspection record, or an inspection report on a specific item, can be easily found. The management of non-conformities of a project is also greatly simplified.

