INTEGRATED MANAGEMENT SYSTEM
PROCEDURE MANUAL

QUALITY CONTROL SHEET

<table>
<thead>
<tr>
<th>DOCUMENT</th>
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NOTES

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<table>
<thead>
<tr>
<th>Ed.</th>
<th>Paragraph</th>
<th>Reason for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>General</td>
<td>Adaptation to the UNE-EN-ISO 9001 standard.</td>
</tr>
<tr>
<td>11</td>
<td>General</td>
<td>Comments from AENOR and SGS audits, improvement to methods for incorporating software development control requirements.</td>
</tr>
<tr>
<td>13</td>
<td>General</td>
<td>Incorporation of INALSA into TYPSA Group’s Quality and Environment Management System.</td>
</tr>
<tr>
<td>16</td>
<td>General</td>
<td>Implementation of the experience obtained in the implementation stage of the R&amp;D Management System.</td>
</tr>
<tr>
<td>18</td>
<td>General</td>
<td>Adaptation to the new procedures for the monitoring and control of works (TPS group).</td>
</tr>
<tr>
<td>20</td>
<td>0.1. Presentation 1.2. Scope of application 9.1. Diagram of processes</td>
<td>Incorporates the presentation of TEyS. Included under ‘Services: Official documentation processing’.</td>
</tr>
<tr>
<td>22</td>
<td>General</td>
<td>Elimination of TECNOMA and BLIZZARD DESIGN into TYPSA Group’s Quality and Environment Management System. Incorporation of TPO-32 ‘Role of the BIM Manager’.</td>
</tr>
</tbody>
</table>

T-MSIG-Ed22-EN

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<table>
<thead>
<tr>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. INTRODUCTION ................................................................. 6</td>
</tr>
<tr>
<td>0.1. PRESENTATION ................................................................. 6</td>
</tr>
<tr>
<td>0.2. OFFICES AND DELEGATIONS ................................................................. 8</td>
</tr>
<tr>
<td>1. PURPOSE AND SCOPE ................................................................. 8</td>
</tr>
<tr>
<td>1.1. PURPOSE ................................................................. 8</td>
</tr>
<tr>
<td>1.2. SCOPE ................................................................. 8</td>
</tr>
<tr>
<td>2. NORMATIVE REFERENCES ................................................................. 10</td>
</tr>
<tr>
<td>2.1. INITIAL DATA ................................................................. 10</td>
</tr>
<tr>
<td>3. TERMS AND DEFINITIONS ................................................................. 10</td>
</tr>
<tr>
<td>4. INTEGRATED MANAGEMENT SYSTEM ................................................................. 10</td>
</tr>
<tr>
<td>4.2. DOCUMENTATION REQUIREMENTS ................................................................. 11</td>
</tr>
<tr>
<td>4.2.2. Integrated Management System Manual ................................................................. 13</td>
</tr>
<tr>
<td>4.2.3. Control of documents (UNE-EN-ISO 14001:2004:4.4.5; OHSAS 18001:2007:4.4.5; UNE 166002:2006:4.1.2.1) ................................................................. 13</td>
</tr>
<tr>
<td>4.2.4. Control of records (UNE-EN-ISO 14001:2004:4.5.4; OHSAS 18001:2007:4.5.4; UNE 166002:2006:4.1.2.2) ................................................................. 13</td>
</tr>
<tr>
<td>5. RESPONSIBILITY OF MANAGEMENT ................................................................. 15</td>
</tr>
<tr>
<td>5.1. MANAGEMENT COMMITMENT (UNE-EN-ISO 14001:2004: 4.2 AND 4.4.1; OHSAS 18001:2007: 4.2, 4.4.1 AND 4.6; UNE 166002:2006: 4.2.1) ................................................................. 15</td>
</tr>
<tr>
<td>5.2. FOCUS ON THE CLIENT (UNE-EN-ISO 14001:2004: 4.3.1, 4.3.2 AND 4.6; OHSAS 18001:2007: 4.3.1 AND 4.3.2; UNE 166002:2006: 4.2.2) ................................................................. 15</td>
</tr>
<tr>
<td>5.3. QUALITY, ENVIRONMENT, OHS AND R&amp;D POLICY (UNE-EN-ISO 14001:2004:4.2. Part 2; OHSAS 18001:2007:4.2; UNE 166002:2006:4.2.3) ................................................................. 16</td>
</tr>
<tr>
<td>5.4.1. Quality, Environment, OHS and R&amp;D Objectives (UNE-EN-ISO 14001:2004:4.3.3; OHSAS 18001:2007: 4.3.3; UNE166002:2006:4.2.4.1) ................................................................. 17</td>
</tr>
<tr>
<td>5.4.2. Integrated Management System Planning (UNE-EN-ISO 14001:2004:4.3.3; OHSAS 18001:2007: 4.3.3; UNE166002:2006:4.2.4.2) ................................................................. 17</td>
</tr>
<tr>
<td>5.5. RESPONSIBILITY, AUTHORITY AND COMMUNICATION ................................................................. 17</td>
</tr>
</tbody>
</table>
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5.2.</td>
<td>Management Representatives (UNE-EN-ISO: 14001:2004:4.4.1; OHSAS 18001:2007:4.4.1; UNE 166002:2006:4.2.5.4)</td>
</tr>
<tr>
<td>5.5.3.</td>
<td>Internal communications (UNE-EN-ISO 14001:2004:4.4.3; OHSAS 18001:2007:4.4.3; UNE 166002:2006:4.2.5.5)</td>
</tr>
<tr>
<td>5.6.2.</td>
<td>Information for the review (UNE-EN-ISO 14001:2004:4.6; OHSAS 18001:2007:4.6; UNE 166002:2006:4.2.6.2)</td>
</tr>
<tr>
<td>5.6.3.</td>
<td>Results of the review (UNE-EN-ISO 14001:2004:4.6; OHSAS 18001:2007:4.6, UNE 166002:2006:4.2.6.3)</td>
</tr>
<tr>
<td>6.</td>
<td>RESOURCE MANAGEMENT</td>
</tr>
<tr>
<td>6.2.</td>
<td>HUMAN RESOURCES</td>
</tr>
<tr>
<td>6.2.2.</td>
<td>Competence, training and awareness (UNE-EN-ISO 14001:2004:4.4.2; OHSAS 18001:2007:4.4.2; UNE 166002:2006:4.3.2.3)</td>
</tr>
<tr>
<td>6.3.</td>
<td>INFRASTRUCTURE (UNE-EN-ISO 14001:2004:4.4.1; OHSAS 18001:2007:4.4.1; PART 2; UNE 166002:2006:4.3.3)</td>
</tr>
<tr>
<td>6.4.</td>
<td>WORKING ENVIRONMENT (UNE 166002:2006:4.3.4)</td>
</tr>
<tr>
<td>7.</td>
<td>CARRYING OUT THE WORK</td>
</tr>
<tr>
<td>7.1.</td>
<td>PLANNING THE SERVICES (UNE-EN-ISO 14001:2004:4.4.6; OHSAS 18001:2007:4.4.6; PART 2)</td>
</tr>
<tr>
<td>7.2.</td>
<td>PROCESSES RELATED TO CLIENTS</td>
</tr>
<tr>
<td>7.2.1.</td>
<td>Determining service-related requirements (UNE-EN-ISO 14001:2004:4.3.1, 4.3.2 and 4.4.6; OHSAS 18001:2007:4.3.1, 4.3.2 and 4.4.6; UNE 166002:2006:4.4.2 and 4.4.3)</td>
</tr>
<tr>
<td>7.2.2.</td>
<td>Reviewing service–related requirements (UNE-EN-ISO 14001:2004:4.3.1 and 4.4.6; OHSAS 18001:2007:4.3.1 and 4.4.6)</td>
</tr>
<tr>
<td>7.2.3.</td>
<td>External communications (UNE-EN-ISO 14001:2004:4.4.3; OHSAS 18001:2007:4.4.3.1 and 4.4.3.2)</td>
</tr>
<tr>
<td>7.3.</td>
<td>DESIGN AND DEVELOPMENT</td>
</tr>
<tr>
<td>7.3.1.</td>
<td>Design and development planning (UNE-EN-ISO 14001:2004:4.4.6; UNE 166002:2006:4.4.4)</td>
</tr>
<tr>
<td>7.3.2.</td>
<td>Initial data for design and development (UNE-EN-ISO 14001:2004:4.4.6)</td>
</tr>
<tr>
<td>7.3.3.</td>
<td>Design and development and R&amp;D process results (UNE-EN-ISO 14001:2004:4.4.6; UNE 166002:2006:4.4.8 and 4.4.8.1)</td>
</tr>
</tbody>
</table>
CONTENTS

7.3.4. Design and development review (UNE-EN-ISO 14001:2004: 4.4.6).......................... 31
7.3.5. Design and development verification (UNE-EN-ISO 14001:2004: 4.4.6).................... 32
7.3.6. Design and development validation (UNE-EN-ISO 14001:2004: 4.4.6).................... 32
7.3.7. Control of design and development changes (UNE-EN-ISO 14001:2004: 4.4.6; UNE 166002: 2006 4.4.6.6 and 4.5.5)................................................................. 33

7.4. PURCHASES (UNE 166002:2006:4.4.7).......................................................................... 33
7.4.2. Information on purchases (UNE-EN-ISO 14001: 4.4.6; OHSAS 18001: 4.4.6, UNE 166002: 4.4.7.2)............................................................................................................ 34
7.4.3. Purchased product and service verification (UNE-EN-ISO 14001: 4.4.6, OHSAS 18001:4.4.6, UNE 166002:2006: 4.4.7.3)................................................................. 34

7.5. PRODUCTION AND SERVICE PROVISION ..................................................................... 35
7.5.2. Validation of processes for production and service provision. (UNE-EN-ISO 14001:2004: 4.4.6)................................................................................................. 37
7.5.3. Identification and traceability .................................................................................... 37
7.5.4. Client property........................................................................................................... 38
7.5.5. Preservation of product (UNE-EN-ISO 14001: 2004: 4.4.6)........................................ 38

7.6. CONTROL OF MONITORING AND MEASURING EQUIPMENT (UNE-EN-ISO 14001:2004:4.5.1: OHSAS 18001:2007:4.5.1; UNE-16600: 2.4.4.8.2)................................. 38

7.7. R&D ACTIVITIES NOT COVERED IN THE PREVIOUS POINTS (UNE 166002:2006: 4.4) .. 38
7.7.1. Tools (UNE-166002:2006:4.4.1).................................................................................. 39
7.7.2. Internal and external analysis (UNE 166002:2006: 4.4.1.4)...................................... 39

8. MEASUREMENT, ANALYSIS AND IMPROVEMENT ....................................................... 40
8.2. MONITORING AND MEASUREMENT ........................................................................ 40
8.2.1. Client satisfaction................................................................................................. 40
8.2.2. Internal System audits (UNE-EN-ISO 14001:2004:4.5.5; OHSAS 18001:2007:4.5.5; UNE 166002:2006:4.5.2)................................................................. 41
8.2.3. Process monitoring and measuring (UNE-EN-ISO 1401:2004:4.5.1 and 4.5.2; OHSAS 18001:2007:4.5.1 and 4.5.2; UNE 166002:2006:4.5.3)................................. 41
8.2.4. Monitoring and measurement of product (UNE-EN-ISO 14001:2004:4.5.1 and 4.5.2; OHSAS 18001:2007:4.5.1 AND 4.5.2; UNE 166002:2006: 4.4.8.2 and 4.5.4) . 42

8.3. CONTROL OF NON-COMPLIANT PRODUCTS (UNE-EN-ISO 14001:2004:4.5.3: OHSAS 18001: 4.4.7 AND 4.5.3.2; UNE 166002:2006:4.5.5)............................................ 42
8.4. DATA ANALYSIS (UNE 166002: 14001: 2004 4.5.1; OHSAS 18001:2007:4.5.1 AND 4.5.3.2; UNE 166002:2006:4.5.6)......................................................... 43
## CONTENTS

8.5. IMPROVEMENT (OHSAS 166002:2006:4.5.7) ................................................................. 44
   8.5.1. Continuous improvement (UNE 14001: 2004 4.2; 4.3.3 and 4.6, OHSAS 18001:2007:4.3.3 and 4.6; UNE 166002:2006:4.5.7.1) .................................................. 44
   8.5.2. Corrective actions (UNE-EN-ISO 14001:2004:4.5.3; OHSAS 18001:2007:4.5.3.1 and 4.5.3.2; UNE 166002:2006:4.5.7.2) ......................................................... 44
   8.5.3. Preventive actions (UNE-EN-ISO 14001:2004: and 4.5.3) 18001.2007: 4.4.7, 4.5.3.1 and 4.5.3.2, UNE 166002:2006:4.5.7.3) ...................................................... 44

9. ANNEXES ............................................................................................................................. 45
   9.1. ANNEX: PROCESS DIAGRAM .................................................................................. 46
   9.2. ANNEX: PROCESS FILE ......................................................................................... 47
   9.3. ANNEX: ENVIRONMENTAL ASPECTS ............................................................... 48
   9.4. ANNEX: ORGANISATION CHART .......................................................................... 48
   9.5. ANNEX: TYPSA GROUP’S QUALITY, ENVIRONMENT, OHS AND R&D MANAGEMENT POLICY ......................................................................................... 48
   9.6. ANNEX: LIST OF GENERAL PROCEDURES THAT DEVELOP AND COMPLEMENT THIS MANUAL ...................................................................................... 49
   9.8. ANNEX: ABBREVIATIONS AND DEFINITIONS ...................................................... 56
     9.8.1. Abbreviations .................................................................................................... 56
     9.8.2. Definitions ......................................................................................................... 56
   9.9. QUALITY, ENVIRONMENT AND R&D MANAGEMENT CERTIFICATIONS .......... 62
0. INTRODUCTION

0.1. PRESENTATION

Técnica y Proyectos, S.A. (TYPSA) is an independent consultancy firm which, since it was founded in 1966, has consolidated its position as one of the leading Spanish firms of consulting engineers and architects in the preparation of reports, studies and designs (hereinafter called 'desk work'\(^1\)) and in construction management and control in the various fields of engineering, buildings, architecture and environmental, with a broad national and global scope. Besides the comprehensive services typical of an engineering firm, which range from identifying problems to implementing solutions, including all the intermediate stages comprising feasibility studies, design and management, the firm has its own laboratories for performing environmental, chemical and bacteriological analyses.

TECNOFISIL is a Portuguese engineering company founded in 1988 whose activity focuses on the preparation of civil engineering studies and designs. In 2006 it was acquired by TYPSA and became part of the Group.

MEXTYPSA has been offering consulting services since 2008. The company plans and develops designs for infrastructure and facilities throughout the Republic of Mexico in the fields of architecture and buildings, structures, hydraulics, building services, roadways, ports, renewable energy and costs.

TYPSA Estadística y Servicios S.L. (TEyS) was incorporated in 2008. The company focuses on statistical, census and inventory reports for state, regional and local bodies, as well as offering official documentation processing services.

TYPSA Group has an Integrated Management System for Quality, the Environment, Occupational Health and Safety and R&D (hereinafter Integrated Management System, SIG for its Spanish name), in accordance, respectively, with the UNE EN ISO 9001, UNE EN ISO 14001, OHSAS 18001 and UNE 166002 standards. The System has been fully introduced in TYPSA, while TECNOFISIL, MEXTYPSA and TEyS have implemented only the part of the System dealing with UNE-EN ISO 9001 standard requirements for a Quality Management System.

TYPSA has an Occupational Health and Safety Management System it applies throughout the Spanish territory and which complies with current regulations. It is an effective method for managing the risks\(^2\) associated to its activity; the company was suitably certified by Cerne, a health and safety audit company, following a legal audit\(^3\) on its System under Art. 30, chapter V of R.D. 39/1997 of 17th January whereby the Regulations on Health and Safety Services were approved.

Furthermore, TYPSA has a Quality and Environment Management System in accordance with UNE-EN-ISO 14001, UNE-EN-ISO/IEC 17025 and UNE-EN-ISO/IEC 17020 standards which is applied in its laboratories in San Sebastián de los Reyes (Madrid) and Murcia.

\(^1\) Consultancy work: Tasks including (a) information processing: work with the purpose of compiling and sorting information; (b) studies: work leading to conclusions or recommendations, including sketches, diagrams and estimates; (c) designs: work which defines and determines the quality, specifications and budget of the works or products that are to be built, installed or assembled.

\(^2\) Risk: The likelihood of a dangerous event or exposure combined with the severity of the damage or deterioration to health it can cause.

\(^3\) Audit: A systematic, independent and documented process for obtaining 'audit evidence' and assessing it objectively in order to determine the degree of compliance with the 'audit criteria'. NOTE: Independent does not necessarily mean external to the organisation. In many cases, independence may be proven if the auditor is free from responsibilities in the activity that is being audited.
This document is applied to guarantee compliance by TYPSA laboratories with the environmental requirements laid down in the UNE-EN-ISO 14001 standard.

In accordance with the principles laid down in the aforementioned standards, TYPSA Group’s Integrated Management System focuses on:

- the client, by analysing and providing solutions to his or her needs;
- leadership, both from the point of view of its managers and those in charge of creating, managing, maintaining and improving the Integrated Management System and with a view to maintaining TYPSA Group’s leading position in its field;
- the staff, by promoting their professional development, making them active participants in the company’s success and providing them with the best possible means and conditions — including occupational health and safety (OHS) measures — to improve their performance within the company;
- processes⁴, by addressing them in a comprehensive way rather than as isolated or independent elements;
- continuous improvement⁵ in the fulfilment of its obligations and in the development and implementation of its ‘products’⁶ and ‘processes’;
- objective decision-taking;
- suppliers⁷, setting up relations that are mutually beneficial;
- suitable compliance with the legal requirements in force according to the place and time, as well as with any other voluntary commitment made by the TYPSA Group;
- ensuring and promoting OHS⁸; and
- respect for the environment⁹.

With regard to the last point, the following basic consideration must be made: the work carried out by TYPSA Group companies affects the environment in two different and clearly defined ways:

a) through the results of consultancy or construction supervision work, identifying the legal requirements regarding the environment and establishing or influencing on the measures required to minimise negative environmental impact and promote positive impact during the

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⁴ **Process**: Set of activities that interact with each other or are mutually related with each other and transform input into results.

⁵ **Continuous improvement**: Recurring process which establishes objectives and identifies opportunities for increasing the capacity for continuously meeting quality, environmental and OHS requirements through the reports and conclusions drawn from audits, data analysis, Management reviews and other means and which generally gives rise to corrective or preventive actions.

⁶ **Product**: The result of a process. In the ISO 9001 standard and this document, the term *product* applies exclusively to that which is made for or requested by a client.

⁷ **Supplier**: organisation or individual that provides a product to the TYPSA Group.

⁸ **Occupational health and safety (OHS)**: The conditions and factors that affect or may affect the health and safety of employees or other workers (including temporary workers and hired staff), visitors or any other person in the workplace. NOTE: organisations may be subject to legal requirements on the health and safety of people beyond their immediate workplace, or of those who are exposed to the activities being carried out in their workplace.

⁹ **The environment**: Environment in which an organisation operates, including the air, water, land, natural resources, flora, fauna, human beings, and the interactions among them. NOTE: In this context, the environment extends from the inside of an organisation to the global system.
execution of the works — a substantial part of their quality — which is guaranteed by compliance with the UNE-EN-ISO 9001 standard;

b) produced by office work in permanent facilities or temporary construction site offices. Compliance of the UNE-EN-ISO 14001 standard ensures legal requirements are met and guarantees proper environmental management.

0.2. OFFICES AND DELEGATIONS

The head office of both TYPSA and TYPSA Group are located at Calle La Gomera 9, 28703 San Sebastián de los Reyes (Madrid). Tel. (34) 91 722 73 00; Fax (34) 91 6517588; e-mail: madrid@TYPSA.es.

TYPSA Group has offices in Spain and abroad. For information on its office network, please refer to the Group’s website (www.typsa.com/eng).

1. PURPOSE AND SCOPE

1.1. PURPOSE

This document lays down and describes the minimum Integrated Management System requirements to be met by the TYPSA Group companies in order to:

a) demonstrate their capacity for providing products that satisfy the following requirements:
   a. Applicable legislation and regulations.
   b. Those specified by clients, including requirements for delivery and subsequent activities.
   c. Those not established by clients but necessary for a specified or planned use, if known by TYPSA Group.
   d. Any additional requirement, as determined by TYPSA Group, on account of the regulations voluntarily entered into by TYPSA Group.

b) increase customer satisfaction;

c) promote R&D tasks;

d) respect the environment; and

e) promote OHS by implementing measures and taking action as required to prevent work-related risks.

1.2. SCOPE

This document lays down the general framework for the development and application of the Integrated Management System and is mandatory for all the individuals who work for TYPSA Group or on its behalf in the following areas:

a) Managing the Integrated Management System.

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10 Quality: Set of characteristics corresponding to an organisation that make it capable of meeting both implicit and established requirements.
b) Consultancy services, studies and projects for the following:
   - Freshwater treatment and supply, sanitation and urban and industrial waste water treatment.
   - Water quality.
   - Noise and vibration control.
   - Management and treatment of solid urban and industrial waste.
   - Pollution control.
   - Study and recovery of contaminated soils.
   - Correction and regeneration of the environment.
   - Assessment of environmental impacts.
   - Regional planning.
   - Statistics, surveys and censuses.
   - Official documentation processing services.
   - Architecture.
   - Water, ports and coasts.
   - Transport infrastructure.
   - Agricultural engineering.
   - Industrial facilities.
   - Environment and forestry engineering.
   - Information and communication systems.
   - Environment laboratory (chemical and microbiological tests and analyses).
   - Health and safety.
   - R&D.

   c) The management, supervision, control and monitoring of building construction, hydraulic works, transport infrastructure and industrial facility works.

   d) The management and maintenance of infrastructure and facilities.

   e) Health and safety coordination both in the design stage and during construction.

In accordance with the annexes to the UNE-EN-ISO 9001 and 18001 standards, and what is laid down in 9.7. on the compatibility and correspondence between said standards and the UNE 166002 standard, the TYPSA GROUP combines in this document the Quality, Environment, OHS and R&D Management Systems in complete accordance with said standards.

The Quality System of TYPSA laboratories comprises the provisions laid down in the company’s own manuals and procedures as per the UNE-EN-ISO/IEC 17025 and 17020 standards.

Regardless of the formal certification of the new permanent work centres, which, in order to be assessed by the certification organisations, where applicable, need to have been in operation for minimum periods,

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11 Procedure: specified method, documented or otherwise, for carrying out a certain activity or process.
it is the TYPSA Group's policy for all its permanent centres to be certified in Quality and Environment Management.

2. STANDARDS FOR REFERENCE

2.1. INITIAL DATA

This document has been written in accordance with the requirements laid down in:

- UNE-EN-ISO 9001 'Quality Management Systems: Requirements';
- UNE-EN-ISO 14001 'Environmental Management Systems: Requirements and guidance on use';
- UNE-EN-ISO 14004 'Environmental Management Systems: General guidelines on principles, systems and support techniques';
- UNE-ISO 10005 'Quality Management Systems: Guidelines for Quality Plans';
- UNE 166000 'R&D management: R&D activity terminology and definitions';
- UNE 166002 'R&D management: R&D activity terminology and definitions';
- OHSAS 18001 "Occupational Health and Safety Management Systems: Requirements"; and
- OHSAS 18002 'Occupational Health and Safety Management Systems: Directions for implementing the OHSAS 18001 standard'.

3. TERMS AND DEFINITIONS

The definitions of the concepts laid down in the UNE-EN-ISO 9001, UNE-EN-ISO 9000, UNE-EN-ISO 14001, UNE 166000, OHSAS 18001 and UNE 166002 (hereinafter called the basic standards), adapted to the characteristics and peculiarities of the work carried out by TYPSA Group, are defined in footnotes on the page on which they appear for the first time and in alphabetical order in section 9.8. In particular, special mention is made of the fact that the broad sense given to the term client\(^\text{12}\) by the UNE-EN-ISO 9001 standard, fully assumed by TYPSA Group, includes the buyers and users of the products and services made and provided by TYPSA Group.

In accordance with the above, the terms product and process apply to those which are generated to satisfy clients' requirements and to those resulting from any of TYPSA Group's activities that may affect the environment, OHS or R&D activities.

When reference is made to the term product, it can also mean service, as specified in the ISO 9001 standard.

4. INTEGRATED MANAGEMENT SYSTEM

In order to facilitate the knowledge and application of the rules set in the UNE 166002, UNE-EN-ISO 9001, UNE-EN-ISO 14001 and OHSAS 18001 standards and, given that their requirements are compatible, the Integrated Management System includes the requirements of these standards with the following comments and observations:

\(^{12}\) Client: Organisation or environment that receives or is affected by the products or processes of TYPSA Group.
The chapters and sections of this Manual follow the UNE-EN-ISO 9001 table of contents, incorporating the necessary requirements in each chapter or section. Whenever necessary, a new sub-section has been introduced:

To enable their identification and fulfilment, chapters 4. , 5. , 6. 7. and 8. and their corresponding sections state within brackets the number and title of the corresponding section of the UNE-EN-ISO 14001, OHSAS 18001 and UNE 166002 standards where said chapters or sections are further explained or complemented. Furthermore, annexes 9.6. and 9.7. match the Manual sections with the UNE-EN-ISO 9001, 14001, OHSAS 18001 and UNE 166002 standards and with the general procedures of the Integrated Management System;


The processes and tools that TYPSA Group considers necessary for the development and application of its Integrated Management System have been grouped together and classified as follows:

- Direct or from production\textsuperscript{13}.
- Indirect, ancillary or support\textsuperscript{14}.
- Management\textsuperscript{15} or strategic processes.

The sequence and interaction of the above processes are given in sections 9.1. and 9.2. and those related to the completion and control of the corresponding tests and analyses by TYPSA laboratories are identified and laid down in the corresponding manuals and procedures.

The documented procedures that are set out in the Integrated Management System are accessible on the Group's intranet (www.TYPSA.net).

The environmental scope is defined in sections 1.1. and 1.2. of this Manual.

4.2. DOCUMENTATION REQUIREMENTS


The Integrated Management System is developed and documented\textsuperscript{16} in:

a) This Manual.

b) The Quality, OHS and R&D policy\textsuperscript{17} and objectives\textsuperscript{18}.

\textsuperscript{13} Processes associated with the contract with a direct influence on the product delivered to the client.

\textsuperscript{14} Processes required to carry out and measure operational processes efficiently.

\textsuperscript{15} Processes required to establish and measure the fulfilment of TYPSA Group’s environment and quality objectives.

\textsuperscript{16} Document: Minimum self-sufficient information for a specific objective, contained on any medium, generated by an individual and related to one single entity or logical group of several entities. The medium can be paper, magnetic disk, optical disc or electronic format, photograph or standard samples or a combination thereof.

\textsuperscript{17} Quality, Environment, OHS and R&D policy: An organisation’s general guidelines and intentions regarding the quality of its products and environment, OHS and R&D performance as formally stated by senior management, providing a framework for the organisation’s action and for establishing its objectives and goals.
c) The documented procedures listed in annex 9.6. These procedures can be supplemented by mandatory written instructions or other documents (memorandums or meeting minutes). The System is supplemented by guides with recommendations aimed at providing guidance on certain aspects.

d) The records stated in section 4.2.4.

e) With external communications, related to the Integrated Management System.

f) With the lists and summaries of the legal requirements applicable to each of TYPSA Group’s work centres.

g) The planned programmes and resources for fulfilling the aforementioned objectives and goals, whenever their characteristics require it.

h) With the Occupational Health and Safety Plan (hereinafter, PPRL, for its Spanish designation) and its main management and application tools, namely occupational risk assessment and preventive action planning.

TYPSA Group’s Integrated Management System (policy) can be consulted on the group’s website at www.typsa.com/eng (in the ‘Quality, Environment, OHS and R&D’ section under ‘Corporate Information’).

While this Integrated Management System Manual is distributed in computer readable form to all clients and interested parties who request it, the procedures are for internal use and are available to staff via their username and password in the Group’s intranet (http://www.TYPSAonline.com/calidad/), where this Manual is also available. Current versions of the System can be found only in the intranet.

The purpose and scope of the Integrated Management System procedures shall apply to the R&D activities within its purview.

Clients can examine the general procedures that apply to a specific contract at TYPSA Group's offices. Procedures specifically developed for a contract are included in the Group's Quality and Environment Plan in accordance with what is laid down in 7.1.

Whenever possible and to reduce the consumption of paper, the publication and querying of documents shall be computerised and printed on paper only when absolutely necessary.

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18 Quality, environment, OHS and R&D target: Detailed action requirement, to be quantified wherever possible, to be applied to an organisation or a part thereof, arising from the quality, environmental or R&D objectives, and which must be established and complied with in order to reach said objectives.

19 Record: Document containing the results obtained or providing evidence of the activities carried out.


21 Risk assessment: The process of assessing the risk or risks that arise from one or several hazards, taking into account the adequacy of existing controls, and deciding if the risk or risks are acceptable or not.

22 Assessment of occupational health and safety risks: Process aimed at estimating the magnitude of unavoidable risks, obtaining the necessary information so that the employer is in a position to make an appropriate decision on the need to take preventive measures and, in such case, on the type of measures to be taken.

23 OHS action planning: Establishing, designing and programming the activities and measures — including the necessary human, material and financial resources — that must be adopted in order to eliminate or control and reduce any risks deemed unavoidable following risk assessment.
4.2.2. Integrated Management System Manual

This is the Integrated Management System Manual. It follows the structure and norms of the UNE-EN-ISO 9001 standard. To enable the application of the UNE-EN-ISO 14001, OHSAS 18001 and UNE 166002 standards:

- chapters 4., 5., 6., 7. and 8., together with the requirements laid down by TYPSA Group for compliance with the UNE-EN-ISO 9001 standard, contain the requirements for compliance with the equivalent requirements of the UNE-EN-ISO 14001, OHSAS 18001 and UNE 166002 standards;
- where applicable, each chapter and section heading includes the title of the corresponding section in the UNE-EN-ISO 14001, OHSAS 18001 or UNE 166002 standard within brackets; and
- chapter 7.5. includes the annexes with the TYPSA Group policy, as well as glossaries and others.

4.2.3. Control of documents (UNE-EN-ISO 14001:2004:4.4.5; OHSAS 18001:2007:4.4.5; UNE 166002:2006:4.1.2.1)

TYPSA Group has and applies the procedures TPD-01 'Identification of documents and records', TPD-02 'Integrated Management System documentation control', TDP-04a 'Project documentation storage' and TPD04b 'Works documentation storage'. These procedures lay down the general methods for guaranteeing that the general Integrated Management System documents and those specifically related to consultancy work or work site management, control and monitoring, all of which are listed in section 4.2.1., comply with the requirements laid down in the basic standards.

The application of the aforementioned procedures by TYPSA Group personnel guarantees their control.

In accordance with the provisions laid down in 1.2., the control of the exclusive documents corresponding to the TYPSA S.A. laboratories is contained in its own manuals and procedures.

The Corporate Quality, Environment and OHS Department identifies and permanently updates the Manual, procedures and general formats of the Integrated Management System and those of the TYPSA, S.A. laboratories on the website http://www.TYPSA.net to guarantee the publication and updating of the modified documents.

These are reviewed and approved24 by the individuals indicated in this document or in the corresponding procedures.

TYPSA Group does not undertake to update any uncontrolled copies of Integrated Management System documents.

4.2.4. Control of records (UNE-EN-ISO 14001:2004:4.5.4; OHSAS 18001:2007:4.5.4, UNE 166002:2006:4.1.2.2)

Procedures TPD-03 'Records' and TDP-01 'Identification of documents and records' lay down the general requirements for the identification, collection, encoding, filing, storage, protection, retention time, retrieval and final destination of Integrated Management System records.

Below is a general list including but not limited to the records kept by TYPSA Group:

- The verification25 and approval of the Integrated Management System documents.

24 Approval: Formal action whereby an officially qualified body authorises the use of the document, service or process in a particular area for a specific use.
The results of the Integrated Management System reviews by Management and the resulting actions.

- The education, training, skills and experience of personnel.
- Initial design and development data\textsuperscript{26}.
- The review and verification of the design and development, and validation, whenever possible.
- The changes to the study and project documents approved by the client.
- The nature of the non-conformities\textsuperscript{27} and whatsoever subsequent action, including authorisations\textsuperscript{28}.
- Waste generated.
- Identification of environmental issues.
- Consumption of natural resources.
- Communications, complaints or claims from clients.
- The unique identification of the product, when traceability\textsuperscript{29} is a client requirement.
- Repair\textsuperscript{30}, corrective\textsuperscript{31} or preventive\textsuperscript{32} actions.
- Audit reports.
- Inspection reports.
- The results of the calibration and verification\textsuperscript{33} of the measuring equipment.
- The validity of the measurement results if the measuring equipment is found to be non-compliant with the requirements.
- The different activities and performances in OHS (documentation on accidents, incidents, health surveillance, delivery of personal protective equipment, meetings of SST, etc.).

The minimum retention period for environment and quality records begins with the completion of the contract and shall last three years as a general rule, except in those cases in which a greater retention

\textbf{Document check (review)}: Checking a document or logical set of documents to ensure that there are no overlaps, voids, contradictions or conceptual or formal errors and that they comply with the instructions received for their preparation and are coherent with the initial data.

\textbf{Initial data}: Initial data for a work or for the design and development thereof: external determinants which must be known for the corresponding implementation, such as requirements issued by other interested parties; legislation; by-laws; applicable standards; requirements laid down by the client; physical, environment and socio-economic specifications of the environment and, where applicable, an environmental impact study.

\textbf{Nonconformity}: Failure to meet a specified requirement.

\textbf{Concession}: Authorisation for the use of a non-compliant product or document or for continuing with the next stage of a non-compliant process.

\textbf{Traceability}: Capacity for reconstructing the history, application or location of an entity through the registered identifications.

\textbf{Repair action or repair}: Action taken on a non-compliant product to reduce the non-conformity to acceptable values, even though it is not compliant with the requirements that were originally specified.

\textbf{Corrective action}: Action taken to eliminate the causes of non-conformity, fault or whatsoever other undesirable situation in order to prevent its recurrence.

\textbf{Preventive action}: Action taken to eliminate the causes of a potential non-conformity, fault or whatsoever other undesirable situation in order to prevent its occurrence.

\textbf{Verification of measuring equipment}: Confirmation of compliance with the specified requirements through the examination and provision of objective evidence.
period is agreed upon with the client. The specific nature of certain record procedures shall also be taken into account.

5. MANAGEMENT RESPONSIBILITIES

5.1. MANAGEMENT COMMITMENT (UNE-EN-ISO 14001:2004: 4.2 AND 4.4.1; OHSAS 18001:2007: 4.2, 4.4.1 AND 4.6; UNE 166002:2006: 4.2.1)

The President fully assumes the Integrated Quality and Environmental Management System principles and communicates his full backing to all the individuals working for TYPSA Group or on its behalf and demonstrates his commitment and compliance with the requirements laid down in the basic standards by means of the following:

a) the definition and publication of the Quality, Environment OHS and R&D Objectives and Policy (see section 5.3.) in accordance with the provisions laid down in section 5.4.1.;

b) the transmission and circulation among all the individuals working for TYPSA Group or on its behalf of the commitment to satisfying client requirements in accordance with the provisions laid down in section 5.2.;

c) the allocation of the necessary resources in accordance with the provisions laid down in chapter 6.;

d) attendance and sharing of the meetings for setting objectives and for monitoring and reviewing their effectiveness and that of the Integrated Management System, as per section 5.6.;

e) allocating the technical means and necessary authority to the directors, managers and persons responsible in order to:

a. start up actions to prevent the appearance of non-conformities related to the environment, OHS, the services provided to clients or to the Integrated Management System itself;

b. recognising, indicating and registering any nonconformity or complaint issued by clients which affects quality, OHS or the environment, and notifying the corresponding director, manager or person responsible;

c. monitoring the processing of nonconformities until the fault or unsatisfactory situation has been corrected.

5.2. FOCUS ON THE CLIENT (UNE-EN-ISO 14001:2004: 4.3.1, 4.3.2 AND 4.6; OHSAS 18001:2007: 4.3.1 AND 4.3.2; UNE 166002:2006: 4.2.2).

With regard to this section, and, in accordance with the provisions laid down in chapter 3. above, from the environment point of view, the TYPSA Group understands the term client to cover society in general and, from the quality and R&D points of view, any organisation contracting, applying or affected by its products or services (hereinafter interested parties); and, from the point of view of OHS, the personnel

34 Evidence: Information whose truthfulness can be demonstrated objectively since it is based on facts obtained via observation, measurement, testing or other means.

35 Review: Activity carried out to guarantee the convenience, adaptation and effectiveness of the matter under review to reach the objectives that have been established.
and those doing work for the Group in addition the above. Chapters 5.6. and 7.2. and sections 8.2.1. 8.5.1. and 7.3.2. contain the measures established by TYPSA Group to guarantee the fulfilment of the legal requirements laid down in its policy regarding the determination, satisfaction and continuous improvement of the needs of its clients, the environment and those concerning OHS.

For the legal requirements applicable in the environment, the Integrated Management System procedure TPA-01 'Identification and assessment of environmental aspects and legal requirements' describes the method used by TYPSA Group for identifying:

- the environmental legislation and its requirements applicable to the Group's activities and services; and
- other non-legislative environmental requirements which the TYPSA Group has endorsed.

It also describes the method followed for evaluating legal compliance periodically.

Within the field of OHS, OHS Services are responsible for identifying and constantly updating the applicable legal requirements and revising them annually through the PPRL.

5.3. QUALITY, ENVIRONMENT, OHS AND R&D POLICY (UNE-EN-ISO 14001:2004:4.2: PART 2; OHSAS 18001:2007:4.2; UNE 166002:2006:4.2.3)

The President determines the Quality, Environment, OHS, R&D and Sustainable Development Policy and the corresponding commitment to compliance, which is stated in annex 9.5.

By applying this Manual and the procedures listed in annex 9.6., we are complying with said policy, in accordance with the following basic principles:

a) Work is assigned to duly trained, motivated and skilled personnel who are equipped with the appropriate resources.

b) It is essential that all TYPSA Group staff know and understand this document and its annexes so they may be aware of the importance of quality, respect for the environment and OHS. To this end, all members of staff receive a copy of the Integrated Management System Policy, Manual and General Procedures.

c) All personnel are responsible for knowing and applying the part of the Integrated Management System that concerns their work.

d) Directors and managers are responsible for their staff carrying out the work that may affect quality or OHS or generate a significant environmental impact, in accordance with the provisions laid down in the Manual, the procedures or instructions in force when the contract is signed and the applicable OHS conditions.

e) Responsibility shall not be delegated. Any individual who delegates his or her duties shall remain responsible for said duties.

The revised Integrated Management System contains, as a permanent feature to be taken into consideration, the revision of the policy content, checking that it adapts to the purposes of the organisation; the inclusion of a commitment to comply with the above-mentioned requirements and improving the efficiency of the Integrated Management System itself. It also marks the references for defining goals. The policy is circulated to all staff by publishing it on the company intranet and placing a printed copy on the notice board of any permanent or temporary office, as well as by handing out to every new Group employee a set of documents for compulsory reading.

5.4.1. Quality, Environment, OHS and R&D Objectives (UNE-EN-ISO 14001:2004:4.3.3; OHSAS 18001:2007: 4.3.3; UNE166002:2006:4.2.4.1)

TYPSA Group Senior Management establishes yearly quantitative and qualitative goals which are consistent with the defined policy, the legal requirements and other requirements signed by TYPSA Group and with the specific characteristics of each general or regional area, delegation, division or department.

The degree of compliance with the objectives is reviewed in the annual Integrated Management System review meetings attended by the Quality Committee and presided by the President. The R&D Committee, presided by the Corporate Technical Director is in charge of monitoring R&D objectives in accordance with what is stated in section 5.6.

5.4.2. Integrated Management System Planning (UNE-EN-ISO 14001:2004:4.3.3.; OHSAS 18001:2007: 4.3.3; UNE 166002:2006:4.2.4.2)

The following was established during the Quality Committee's review or follow-up meetings mentioned in 5.6.:

- a) The individuals or areas responsible for implanting the Integrated Management System and the objectives.
- b) The calendar or programme for implementation.
- c) The specific and measurable human, financial and material means required to fulfil the objectives.

The Committee — presided over by the President — approves the changes to the basic Integrated Management System documentation when reviewing the System and, sometimes, during System follow-up meetings. This is done regardless of any urgent memorandums on specific mandatory System aspects being issued by the Quality, Environment and OHS Unit.

The specific planning required for a contract or work assignment has been established in 7.1.

With regard to OHS, every year the Annual Health and Safety Action Planning (PAAP for its Spanish designation) is presented to Senior Management in a specific document for approval. Said document includes the general OHS planning for the whole year.

5.5. RESPONSIBILITY, AUTHORITY AND COMMUNICATION


Section 9.4. features the TYPSA Group organisational chart. Each unit has a director, manager or person responsible whose authority and responsibility for managing and applying the requirements of the Integrated Management System to the assigned tasks is laid down in this Manual and in the Integrated Management System documents listed in annex 9.6.

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36 Quality Committee: executive and control body comprising the President and the corporate, global and regional directors.
TYPSA Group considers that a single individual can have several technical or management roles as long as they do not interfere or constitute a conflict of interest with the assigned roles of monitoring, supervising, reviewing and verifying.

The specific functions and responsibilities of staff that manage, carry out or verify work related to Quality, Environment, OHS and R&D Management is laid down in this document, in the general procedures stated in annex 9.6 or in those specific to the work which are included in the quality plans stated in 7.1.

With respect to R&D work, the R&D Management Committee and the project team assume the responsibility and authority assigned to the Quality Committee, the project managers and Technical Team Leaders (TRA)

5.5.2. Management Representatives (UNE-EN-ISO: 14001:2004:4.4.1: OHSAS 18001:2007:4.4.1; UNE 166002: 4.2.5.4)

The President allocates the responsibility and authority corresponding to a Management representative, as per section 4.4.1 of UNE-EN-ISO 14001, OHSAS 18001 section 4.4.1 and UNE-EN-ISO 9001 section 5.5.1, to the Corporate Director of Quality, Environment and OHS. Likewise, he allocates the responsibility and authority corresponding to a Management representative, as per section 4.2.5.4 of UNE 166002, to the Corporate Technical Director, equipping both with the technical and economic means necessary for the following:

a) Guaranteeing that the Integrated Management System is compliant with the current UNE-EN-ISO 9001, UNE-EN-ISO 14001, OHSAS 18001, UNE-EN-ISO 17020, UNE-EN-ISO 17025 and UNE 166002 standards applicable at any given time.

b) Ensuring compliance with this Manual and the corresponding guides and procedures.

c) Ensuring that the processes required for the development and application of the Integrated Management System are established, implemented and maintained.

d) Ensuring that the Integrated Management System complies with the basic regulations and norms applicable in each place and time.

e) Ensuring TYPSA Group's continued commitment to continuous improvement in all aspects related to quality, the environment and OHS.

f) Analysing and assessing the Integrated Management System on a regular basis and informing the President and the other members of Senior Management of the performance, effectiveness and efficiency\textsuperscript{37} of the Integrated Management System and on the necessary improvements.

g) Ensuring that awareness of the client's requirements is encouraged at all levels within the TYPSA Group.

h) Informing the President and the other corporate and global directors of the operation and effectiveness of the Integrated Management System and of the needs for improvement in their areas of responsibility.

i) Preventing the delivery or execution of a product with critical or major nonconformities (see 8.3.) until the nonconformity is corrected or reduced to levels that are acceptable to the client.

j) Verifying the selection and implementation of corrective or preventive actions, and validating their effectiveness.

k) Maintaining the Integrated Management System Procedures and Manual up to date.

\textsuperscript{37}Efficiency: Ratio between the result obtained and the resources used.
The Quality Committee and the R&D Management Committee designate the Quality\(^{38}\) and Environment\(^{39}\) or R&D Managers respectively. Management designates the members of the Health and Safety Service, providing them with the necessary authority to analyse and investigate the compliance and effectiveness of the Integrated Management System, and provide the Quality, Environment and OHS or Technical Corporate Director, as appropriate, with the information required to develop their work.

5.5.3. Internal communications (UNE-EN-ISO 14001:2004:4.4.3; OHSAS 18001:2007:4.4.3; UNE 166002:2006:4.2.5.5)

The following areas provide relevant information on the Integrated Management System and its effectiveness to all TYPSA Group staff:

a) The Corporate Administration Department, the Corporate Human Resources Department and the Health and Safety Service provide information and documentation to new employees when they join the Group.


c) Managers provide information while carrying out their work and disseminate information on the Integrated Management System which they receive from their managers and deliver to the teams they manage.

d) the President provides information during the annual general meeting on the state of the TYPSA Group and in the regular System follow-up meetings held with corporate and business areas and technical departments.

e) Senior Management informs during the annual meetings held with each division, department, area, regional and area office.

f) The workers’ representatives, if any.

The President, together with the corporate departments, applies a proactive recognition and reward system; Senior Management holds annual meetings with each work team (divisions, departments, and

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\(^{38}\) Quality Coordinator: Person responsible for managing quality in the work centres assigned. The coordinator is assigned to a certain regional area and is responsible for carrying out internal audits; providing support in the field of quality in the preparation of projects and technical proposals; maintaining the System within his or her regional area and adapting it, where necessary, to the special features of the area; managing suggestions for improvement, incidents and non-conformities that affect or involve people from the regional area; teaching training courses on the Integrated Management System to the regional area staff who request it; informing the Corporate Quality Department of the degree of implementation of the System and the data required for the review or follow-up to the Integrated Management System.

\(^{39}\) Environmental Coordinator: Person in charge of environmental management in his or her assigned work centre. Their job is to identify environmental aspects, monitor consumption, identify environmental legislation and assess the degree of compliance with the requirements; document how waste is managed and those who manage it (as suppliers); define specific objectives and periodically assess their compliance; spark staff interest in environmental issues, in particular those related to saving energy and water and decreasing waste; and carry out internal audits and prepare reports for reviewing and monitoring the system.
regional and area offices). The participation of personnel in the identification of weak points and in proposing ideas or suggestions for improvement on any matter affecting the efficiency, quality or sustainable development of the work is encouraged through the application by the President and corporate and global directors of a proactive recognition and reward system, which is applied accordingly.

Any Group employee may make proposals for improvement through the incidents, improvement and queries tools on the intranet, as well as through any other direct means of communicating with their immediate superior. Employees can also present their proposals in the annual meetings with Senior Management.

R&D proposals are collected and processed following procedures TPV-01 and 02.

TYPSA Group’s personnel have been informed through training talks and courses that they can communicate or request the information they consider relevant from any of their hierarchical superiors, the Corporate Technical Director, the Corporate Quality, Environment and OHS Director, the Quality and Environmental Management Coordinators or the OHS coordinators and delegates when they consider that:

- a) their suggestions for improvement have not been taken into account;
- b) they need information about the Integrated Management System; or
- c) the methods used and measures taken for the application and implementation of the Integrated Management System are not effective.

In addition to the foregoing, all workers are guaranteed participation and consultation in matters related to OHS through their OHS representatives and delegates — if any — and especially through the Health and Safety Committees of the various work centres.


Once a year, the Quality Committee reviews the Integrated Management System for Senior Management at a meeting presided by the President, to:

- a) analyse and review the effectiveness of the Integrated Management System and the compliance with legal requirements, with the commitments made to the client and those acquired with other interested parties;
- b) assess the opportunities for improvement and the need to make changes to the Integrated Management System, the policy, the objectives and the targets;
- c) review the goals and objectives of the Integrated Management System and incorporate the new goals and objectives; and
- d) plan the actions and human, material and economic means, including maintenance, to ensure that they are carried out under the necessary conditions as specified for their fulfilment.

This review is complemented with other follow-up meetings (at least once a year), aimed exclusively at doing a follow-up of the Integrated Management System and its objectives.

Regardless of the above meetings, the Corporate Technical Director and the Corporate Quality, Environment and OHS Director permanently assess the effectiveness of the Integrated Management System and its compliance with the objectives, reporting their findings to the other members of the
committee in accordance with the provisions laid down in section 8.3. If significant deviations are detected, the President and the person responsible for the affected area are informed. An extraordinary meeting is held to establish the necessary corrective actions and provisions.

A record of the minutes of these meetings is kept and disseminated to all staff via the TYPSA intranet.


The Corporate Quality, Environment and OHS Department and the Corporate Technical Department include the following information in the corresponding report for the review of the Integrated Management System:

a) the results of the audits and the assessments of compliance with legal requirements and with all other requirements to which TYPSA Group subscribes;
b) the results of the consultation and participation;
c) feedback from the client, other interested parties and their communications, complaints and claims;
d) the execution and conformity of the processes and products;
e) the status of nonconformities, accident investigations, corrective and preventive actions and recommendations for improvement;
f) the monitoring of the actions resulting from the reviews previously carried out by Senior Management;
g) changes in circumstances, in TYPSA Group’s organisation, the scope of the work or the requirements, including legal requirements and others which may affect the Integrated Management System;
h) the degree of fulfilment of the objectives and goals;
i) the type and scope of the products provided by clients;
j) environment\(^{40}\) and OHS performance\(^{41}\);
k) the maintenance of the facilities and vehicles and the monitoring of the operations or processes that may have a significant environmental impact;
l) relevant environment communications from external interested parties;
m) the specifications and trends of the processes and products; and
n) recommendations for improvement.

5.6.3. Results of the review (UNE-EN-ISO 14001:2004:4.6; OHSAS 18001:2007:4.6, UNE 166002:2006:4.2.6.3)

During the Integrated Management System review, the following is established:

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\(^{40}\) **Environmental performance**: Measurable results of the company's management of its environmental issues.

\(^{41}\) **OHS performance**: Measurable results of an organisation's management of its OHS risks. NOTE 1: Measuring the OHS performance includes measuring the effectiveness of the organisation's control mechanisms. NOTE 2: In the field of OHS management systems, results can be measured with respect to the OHS policy, the company's OHS goals and other OHS performance requirements.
a) the maintenance or modification of the policy and the rest of the documents of the Integrated Management System;
b) the actions resulting from changes to the policy (where applicable);
c) the necessary corrections for the proper compliance and adaptation of the applicable legal requirements in force at each place and time and in the specific area of the Integrated Management System;
d) the quality and Environment objectives and targets;
e) changes to TYPSA Group’s organisation or to the scope of the services it offers;
f) the standards and requirements applicable to the Integrated Management System and to the services offered; and
g) the necessary resources.

The Committee documents the results and actions arising from the reviews and issues the corresponding reports or minutes with the appropriate conclusions, which are considered as Integrated Management System records.

6. RESOURCE MANAGEMENT


Depending on the workload and the needs indicated by their staff, the directors and managers shall notify their immediate superior of the financial, human or material resources needed to manage, execute, verify or audit the work, apply the Integrated Management System, meet goals and clients’ requirements.

The Director concerned reviews and resolves the applications. If new staff are needed, he or she will work together with the Corporate Human Resources Director to recruit them.

The human resources necessary to complete the work or products required by the clients and/or interested parties are laid down in the Quality Management Plans in accordance with the provisions laid down in 7.1. and 7.7.

Senior Management allocates as many resources as needed to meet the goals set forth in its Integrated Management System policy, both material (including technological and financial resources) and human. These are specified in the OHSP and programmed every year in the Annual Health and Safety Action Planning.

6.2. HUMAN RESOURCES


TYPSA Group’s staff are the company's most valuable asset. It is therefore in the greatest interest of Senior Management for the staff to have the knowledge, capacity and experience required to develop their work and for them to be personally and professionally satisfied in order to ensure they meet corporate goals in accordance with the policy.

In accordance with the above and in order to motivate and encourage company staff and help them realise the importance of satisfying clients’ needs, respecting the environment, promoting OHS practices and seeking innovative solutions, Senior Management organises meetings with all staff and has also set
up a prize award system to recognise outstanding innovative ideas and proposals. This encourages all staff to participate and fosters their creativity and teamwork through R&D tools as specified in section 4.4.1 of UNE 166002 as set out in section 7.7 of this document.

TYPSA Group assumes the concept of comprehensive OHS, which involves the participation of all staff in preventive tasks, assuming all health and safety–related obligations and responsibilities. Even so, the technical aspect of OHS Management services is managed by in–house OHS services, external OHS services and company staff who collaborate. OHS plans include the organisational structure of OHS services.

6.2.2. Competence, training and awareness (UNE-EN-ISO 14001:2004:4.4.2; OHSAS 18001:2007:4.4.2; UNE 166002:2006: 4.3.2.3).

Procedure TPR-01 'Training' lays down the general measures set by TYPSA Group to detect, identify and satisfy staff training needs and ensure that workers are aware of the need and importance of their activities, of how they help meet quality and Environment goals and of the possible consequences of disregarding procedures. To ensure this:

a) Directors and managers analyse the competence and training needs of their staff, assess the effectiveness of the training given and provide their corporate and global directors with training plans.

b) When new employees join the Group, the Corporate Human Resources Department distributes the TYPSA Group guide and the list of mandatory Integrated Management System documents.

c) The Corporate Quality, Environment and OHS Department and OHS Services provide respectively the general and specific training on quality, environment, R&D, and OHS needed for TYPSA Group staff to perform their tasks in accordance with the provisions of the Integrated Management System.

d) All TYPSA Group staff must observe procedure TPR-02 'Training and information on workplace risks' to ensure they are adequately informed and trained in OHS.

e) The Corporate Operations and Human Resources Department keeps continually updated records of the qualifications, experience and training of staff, as well as the minimum skills required for the various work posts.

The effectiveness of the training given is assessed:

a) by the attendees themselves, through surveys upon completion of the training course; and

b) by the managers or direct superiors of the attendees, no more than six months from the completion of the training course, by analysing how staff apply the acquired knowledge to their work and how the training has helped to improve the effectiveness of their work.

The results of the above tasks are sent to the Training Department as stipulated in 5.6.

In addition, organisational TPO procedures set out the role of the heads of division, department, section, project managers, technical coordinators, heads of unit and division coordinators, notably:

a) Division, department and section heads, coordinators and the Corporate Technical Department who work together to inform on the purchase of books and subscriptions to magazines as well as on training needs, the availability or need for means and resources and the tasks inherent to the management of knowledge.
b) Contributing to training their staff, spreading their knowledge and experience, to keep them up to date on the latest developments and the latest practices within their field.

c) Feeding the Integrated Management System with knowledge, including the remarkable innovations and activities of the projects developed.

d) Taking part in associations, attending conferences, publishing and giving conferences in order to maintain TYPSA Group's quality image in the market.

6.3. INFRASTRUCTURE (UNE-EN ISO 14001:2004:4.4.1; OHSAS 18001:2007:4.4.1: PART 2; UNE 166002:2006 4.3.3)

To carry out its work, TYPSA Group requires only infrastructure for consultancy work, such as office computers, air conditioning and ergonomic work posts, except for TYPSA laboratories and their associated R&D activities, which require special equipment and facilities as laid down in the corresponding manuals, procedures and instructions.

If an infrastructure is required for any R&D activity not included in the above point, it shall be determined whether to purchase it or adapt an existing infrastructure.

6.4. WORKING ENVIRONMENT (UNE 166002:2006 4.3.4)

With the exception of TYPSA's laboratory work and its associated R&D activities, which require specific environmental conditions for certain tests as laid down in the corresponding manuals, procedures and instructions, the human element is central to TYPSA Group's work. Consequently, the required working environment is that of an office, as stated above.

7. CARRYING OUT THE WORK


The general methods used by TYPSA Group to plan the work and identify the environmental impacts and issues are defined in procedures TPG-02 'Planning and starting work', TPA-01 'Identifying and assessing environmental issues and legal requirements', TPA-02 'Operational control' and TPG-05 'Concluding work', as well as the specific procedures laid down in each contract, which are defined and documented in the corresponding Quality and Environment Management Plan, which is prepared in accordance with the provisions laid down in TPG-03 'Quality plans'.

When doing contract work, the quality objectives comprise always knowing the requirements of the service and the procedures that all the staff involved should follow to fulfil said requirements. The ultimate goal is then to satisfy clients both while the work is being done and once it has been completed, fulfilling the services agreed to in the contract both objectively and demonstrably, as well as proving TYPSA Group's technical competence in the subject field of the contract to all the organisations involved. Also, learning and improving for the future, detecting potential imbalances and occasional non-compliances in our daily work or procedures or solutions that may improve future work, and feeding them back to the organisation through timely reports.

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42 Working environment: Set of conditions under which the work is performed. These include physical, social, psychological and environmental factors such as temperature, recognition systems, ergonomics and atmospheric quality.
Risk assessments are carried out to identify the operations and activities linked to OHS hazards and risks. The assessments are used to determine the controls required to manage or eliminate the risks or prevent their negative consequences or reduce them as much as possible. These assessments form the base of corrective measure planning, which in turn determines the activities and controls needed to avoid the risks, including those related to purchased property, equipment or services.

Quality and Environment Management Plans lay down or refer to the modifications or exceptions to this Manual, if any, as a result of the scope of the services, legal requirements, standards, clients’ needs or TYPSA Group’s requirements for the work.

The Quality and Environment Management Plan is structured on the basis of the Organisation Manuals and Contractual Procedures.

The Organisation Manual lays down or refers to the following:

a) The definition of the work, which identifies the requirements of the product or service and contains or refers to:
   a. the scope of TYPSA Group’s services or work (e.g. the tender documents or similar document, TYPSA Group’s technical proposal and the contract signed with the client);
   b. the general or specific agreements for the work signed between TYPSA Group and its possible associates;
   c. the reference to the documents that contain the definition of the scopes of the services and works corresponding to the other parties involved, such as clients, contractors and independent inspection agencies;
   d. other basic details stemming from the rules or legal or statutory requirements of the job;

b) the work plan, which lays down the tasks required for the development, execution, monitoring and approval of the consultancy work or the design stages, the technical documentation that is to be produced, the partial deliveries to the client, including the checking of documents and verifications, design and construction reviews and validations, those responsible for carrying them out and all the milestones in which the approval or comments of the client are expected;

c) the organisation and the means it contains or refers to:
   a. the general organisation chart and the relations between the various parties involved including the client or owner, TYPSA Group and other companies (such as engineering firms and independent inspection agencies);
   b. TYPSA Group’s nominal organisation for the work;
   c. organisations outside TYPSA Group with interfaces and the scope thereof;

d) TYPSA Group's suppliers for the work; and

e) the special computer equipment, measuring equipment, mobile material and other that TYPSA Group will use during the execution of the contract.

The Procedure Manual lays down or refers to the documented procedures that are applicable to the work and, in particular, to the following:

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43 Interface: Information shared by two or more organisations. Includes the document that links them.
a) procedures which are required by basic standards and form part of TYPSA Group’s procedures;

b) procedures provided by the client, or newly produced or adapted specific procedures (owing to the fact that a necessary issue was not considered in the previous point);

c) inspection point programmes corresponding to the contractor and to TYPSA Group in the control and monitoring work;

d) the anticipated environmental issues;

e) environmental legislation; and

f) OHS issues and their legal requirements.

In particular, if TYPSA Group shares the work with another company, either the project manager or the unit manager — as appropriate — will define the scope and responsibilities of each one. In these cases, all matters related to OHS are regulated by compliance with the procedures established in TPG-04 ‘Subcontracting and purchasing’ and TPH-03 ‘Business activity coordination’.

In the consultancy work, this scope comprises the following:

a) the planning of works, which is included or referenced in the Quality and Environment Management Plan;

b) the list of activities and documents containing the corresponding specialities and documents to be generated in order to fulfil the contract and the quality and environmental requirements;

the exact nomenclature of the documents indicated in this System may vary according to the provisions laid down in the particular technical terms and conditions of the contract.

In the case of the TYPSA, S.A. laboratories, the work planning methods are included in the corresponding procedures.

The necessary records to provide evidence that the processes and the resulting product meet the requirements are specified in the corresponding procedures.

7.2. PROCESSES RELATED TO CLIENTS

7.2.1. Determining service-related requirements (UNE-EN-ISO 14001:2004:4.3.1, 4.3.2 and 4.4.6; OHSAS 18001:2007:4.3.1, 4.3.2 and 4.4.6; UNE 166002:2006:4.4.2 and 4.4.3.)

The technical, environment, quality, OHS, cost and time-related requirements for the service requested by the client or interested party are first defined during the preparation of the technical proposal. Procedure TPG-01 ‘Control of technical proposals’ defines the tasks and records related to this activity. In the case of R&D projects, this is done during the idea selection process, according to procedure TPV-01.

In this stage, the head of division or regional manager for the area concerned or — where appropriate — the R&D Management Committee appoints the author, who analyses the needs and requirements expressed by the client or interested party in his request for work or for a proposal, in order to identify the following:

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44 Inspection: Measuring, examining, testing or contrasting one or several entity characteristics using a standard and comparing the results obtained with the specified requirements in order to determine the conformity of each specification.
- the areas within TYPSA Group that will take part in the technical proposal or in the selection and analysis of R&D ideas;
- the client’s requirements and the scope of the work that is to be carried out;
- the work that will be carried out directly by TYPSA Group and that which will be subcontracted to third parties;
- legal and regulatory requirements related to the work;
- environmental requirements related to the site on which the work is to be carried out;
- OHS requirements related to the work;
- additional requirements determined by TYPSA Group; and
- the methods or processes necessary for satisfying the requirements indicated above.

The author prepares the proposal in accordance with the instructions given in the client’s request for proposal or terms and conditions, whether given verbally or in writing.

Section 7.5.1. and procedures TPA-01 'Identification and assessment of environmental issues and legal requirements' and TPA-02 'Operational control' sets out the identification of the environmental issues related to the activities, products and services that TYPSA Group can control and influence and which may generate significant environmental impacts.

Before we can identify the hazards that may affect TYPSA Group processes and activities and determine which of these can be found in each specific process or activity, we must consider that OHS affects TYPSA Group processes from the following fields:

a) OHS as part of the portfolio of products TYPSA offers its clients in the design or construction stage, where it analyses, plans, controls and monitors or coordinates OHS through OHS studies, OHS monitoring and control or OHS coordination.

All aspects related to this field of OHS, comprising all aspects related to quality standard 9001 and environmental standard 14001, where TYPSA Group professionals provide all their experience and knowledge on OHS, including OHS management in accordance with OHSAS 18001 standards.

b) OHS in terms of what affects its own activity with reference to its own staff.

TYPSA Group considers the following aspects to be essential for OHS:

a) Any work-related aspect or factor which may damage the health of its employees or other persons (e.g. staff who perform activities for the Group).

b) Complying at all times with current OHS legislation.

c) Avoiding damages and losses in production and profit as a result of poor OHS management.

d) Avoiding damaging the public image of TYPSA Group.

e) Continually improving TYPSA Group’s OHS conditions.

Sections 4.2.3. and 4.2.4. and chapters 5., 6., 7. and 8. of this Manual describe TYPSA Group's processes and interactions, stating who is responsible for what and presenting the necessary measures foreseen in the Integrated Management System to ensure:

a) the effective operation and control of the processes;
b) the availability of the resources and documents required to support in the operation and monitoring of said processes;

c) the monitoring, measurement and analysis of said processes;

d) the implementation of the actions required for achieving the planned results and the continuous improvement of said processes.

e) There is a control on the purchase or subcontracting of any good or service that may affect OHS.

The methodologies of the different OHS specialities for risk assessment state the hazards and risks related to TYPSA Group processes and activities which may affect their staff's safety or health. They also explain how the activities associated to those risks will be identified, what evaluation criteria will be followed and the control measures needed to eliminate or reduce them. As a general rule, TYPSA Group encounters the following OHS risk types:

a) Security risks (accidents): Because most of TYPSA Group's work and production — including most site work and activities — take place inside an office, the potential risks are those attributable to the administrative, technical and management work that is usually carried out in an enclosed workplace under controllable and programmable safety conditions and which therefore entails a minimal risk of accidents and a low accident rate. Some field or site work activities such as surveying, site work monitoring, inspecting and data collecting entail a higher risk from the safety standpoint because they require numerous trips.

b) Ergonomic and psychosocial risks (fatigue or dissatisfaction): Most TYPSA Group staff activities generate a high level of mental stress. Moreover, since most activities take place in an office, the risks are mainly ergonomic and psychosocial.

c) Health hazards: with the exception of TYPSA's laboratory work and of field and site work, TYPSA Group staff activities are carried out under quite controlled conditions. Therefore, health hazards tend to be related to the control of environmental conditions in indoor workplaces.

The possible hazards and risks linked to critical aspects such as especially sensitive staff are regulated in specific procedures such as TPH-02 ‘Risk assessment of especially sensitive staff’. On the other hand, any aspects requiring special controls, such as change management, are regulated in the different procedures of the Integrated Management System. Risk assessments are carried out by competent OHS staff in accordance with legal requirements and are used to plan corrective measures.

TYPSA Group will identify the features of new jobs, activities or tasks that may have an influence on OHS to determine the risks or hazards that they can produce.

7.2.2. Reviewing service–related requirements (UNE-EN-ISO 14001:2004: 4.3.1 and 4.4.6; OHSAS 18001:2007: 4.3.1 and 4.4.6)

Once the proposal has been prepared, the author will:

- Check that the requirements of the product or service to be provided have been clearly defined; that TYPSA Group has the capacity to meet the requirements set forth and that the proposal meets the requirements of the specifications — or equivalent document. If they do not, the author checks that the exceptions have been stated in a proposal review sheet which will be filled in and filed together with the proposal.
Send the proposal and the proposal review sheet to the corresponding manager so he or she may sign both documents.

Any omissions or faults detected during the preparation or review of the proposal on the lists or in the summaries of the applicable environmental legislation as per 4.2.1. are notified to the Corporate Technical Director or the Corporate Quality, Environment and OHS Director for their updating.

If the proposal is accepted, the project manager, head of unit or laboratory manager, as applicable (hereinafter called project manager45) checks prior to the signing of the contract that no situations affecting TYPSA Group's capacity for complying with the terms and conditions of the contract have occurred and that said contract does not include additional undertakings regarding the proposal presented.

Otherwise, the head of unit notifies his or her global or regional director, who may assume the role or negotiate directly with the client.

The signing of the contract provides evidence of its review.

Any changes to the legal requirements or to quality and environmental standards arising during the work are registered and approved by the project manager. They are reported to the client and carried out only if the corresponding authorisation is received, except if TYPSA Group is in charge of the project management and therefore responsible for said changes.

The Integrated Management System provides a continuous revision of OHS hazard identification and risk assessment through:

- analyses for preparing the Annual Health and Safety Action Planning (PAAP);
- continuous monitoring of the planned corrective measures and controls that have been established;
- periodic reviews of the risk assessments;
- assessments of the effectiveness of integrating the OHS actions included in the annual reports;
- the results of monitoring the different aspects of OHS as laid down in the procedures of the Integrated Management System (emergencies, accident investigation, tidiness and cleanliness, etc.); and
- the annual reviews done by the team in charge of the Integrated Management System.

7.2.3. External communications (UNE-EN-ISO 14001:2004:4.4.3; OHSAS 18001:2007:4.4.3.1: and 4.4.3.2)

Any individual receiving verbal or written communication from the client or interested parties which is directly or indirectly related to a specific contract (e.g. information about the service or the execution of the work; modifications, satisfaction and client's attitude, including complaints), informs the corresponding project manager to be registered, analysed and replied to in the shortest possible term.

If the communication or query is related to the Integrated Management System, the project manager reports the results of the analysis and the corresponding actions to the Corporate Quality, Environment and OHS Department, which, after the corresponding analysis, takes the final decision on the need and scope of the response which shall be made by the project manager.

45 If the client has assigned TYPSA Group the project management, the role is assigned to the head of unit.
The fulfilment and effectiveness of the above actions is ensured through the application of sections 5.6 , 7.2.1. , 7.2.2. and 8.3. and complemented with the client's capacity for password access via http://www.typsa.com/eng to the updated information about a project (documents, plans, calculations and measurements, references, etc.) and about work controls and supervision (progress, regular reports, certificates, photographs, etc.).

Notwithstanding the above, the client's opinion is also analysed and assessed as stated in section 8.2.1. of this Manual.

TYPSA Group does not systematically transmit information on its significant environmental aspects to anyone outside the project. Notwithstanding the above, the Group will transmit this information to the outside whenever it deems it necessary and relevant. To do this, the Group will use the means and tools commonly used to communicate with interested parties such as its web page, the TYPSA news bulletin or the Annual Management Report.

All aspects relating to external OHS relations and communications are laid down in the different procedures of the Integrated Management System, and especially in TPH-03 'Business activity coordination'.

7.3. DESIGN AND DEVELOPMENT

Procedure TPP-01 'Design and development control' lays down the general control measures applicable during the preparation of the designs and section 7.5. states those corresponding to the preparation of studies and reports.

All individuals involved in the preparation of a project carry out their tasks in accordance with:

- this document;
- procedure TPP-01 'Design and development control'; and
- the procedures, guides and instructions laid down in the corresponding Quality Plan and the legal requirements and standards laid down in the technical specifications of the contract or selected by TYPSA Group from among those which are applicable.

7.3.1. Design and development planning (UNE-EN-ISO 14001:2004: 4.4.6; UNE 166002:2006:4.4.4)

The design and development planning begins during the proposal writing stage. Following the award, the project manager updates and maintains the planning in the project's Quality and Environment Management Plan (see 7.1. ).

7.3.2. Initial data for design and development (UNE-EN-ISO 14001:2004: 4.4.6)

The project manager is responsible for monitoring and updating the initial data of the design and development of the project. At the start of the work, the project manager will also create a computer directory available to all staff for storing the documentation linked to the data or the indications as to where they can be consulted, in accordance with procedure TPD-04a 'Project documentation storage and processing'. The directory will be continually updated.

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46 With respect to works management and supervision, TPS procedures describe the methodology to be applied in the monitoring of the service. It is considered that these works do not generally imply a design load. If the work includes design (modifications, additions, etc.) or any other work involving design, then procedure TPP-01 must be followed.
The project manager must identify the applicable environmental legislation and requirements in accordance with procedure TPA-01.

The project manager shall inform the corresponding technical team leader of any changes made to the initial data — especially those made by the client — so that they can be applied once their effect on both the completed work and the pending work has been analysed.

Finally, the project manager stores the initial data in the project report or equivalent document in the case of studies.

7.3.3. Design and development and R&D process results (UNE-EN-ISO 14001:2004: 4.4.6; UNE 166002:2006:4.4.8 and 4.4.8.1)

In the cases in which the purpose of the contract is the preparation or management of a project, the final design and development results are included in the report, annexes, plans, terms and conditions and budgets.

Depending on the features and requirements of the clients or interested parties of the R&D project, the project manager selects one or more of the methods required in section 4.4.8.1 to inform the head of division.

7.3.4. Design and development review (UNE-EN-ISO 14001:2004: 4.4.6)

Design and development reviews are carried out in accordance with procedure TPP-01 Design and development control by an expert (hereinafter called the design and development review manager) in a meeting with the project manager and the persons responsible for the participating technical specialities.

Based on a list of staff trained as design reviewers, the project manager assigns a project reviewer and establishes the stages or milestones at which the design and development reviews are to be made in the Quality and Environment Management Plan.

If the term for execution is very short, the design and development review can be carried out together with the design verification described in section 7.3.5. as long as the design is simple and those responsible have experience doing similar work. If one of the design stages overlaps with the construction stage, the design will be reviewed before the works acceptance.

Whatever the case, the reviewer may request technical support as he or she considers appropriate.

The design and development reviews are carried out in conjunction with checklists and the results are documented as minutes which contain the comments and actions requested.

Any faults or nonconformities directly affecting the quality of the work are corrected as stated in 8.3. Any notable design and development issues and the actions required to avoid the repetition of nonconformities, problems and weak points found during the execution of other projects are distributed

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47 Design and development review: Complete, documented and systematic examination of the evidence generated during the various design and development stages, carried out at least at the end of each stage to assess and confirm (a) compliance with requirements regarding cost, term, quality and the environment, (b) the effectiveness of the production process and the actions aimed at minimising the environmental impact, (c) the client's satisfaction with the completed work and the actions given to identify and solve problems, where applicable, and propose corrective or preventive actions.

48 Fault: Failure to meet a reasonable expectation or requirement associated with an anticipated use, including those related to safety.
among the affected personnel to improve the effectiveness of future work, as per 8.5.2. and 8.5.3., as applicable.

7.3.5. Design and development verification (UNE-EN-ISO 14001:2004: 4.4.6)

Design and development verification\(^{49}\) is carried out in two stages when preparing studies and designs. In the first, the technical documents generated are checked by a technician other than the author but with equal or higher technical training. He or she makes sure that the documents, including those arising from the applicable environmental legislation, meet the initial data; that they are consistent and complete; and that the interrelationships\(^{50}\) have been satisfactorily resolved. Subsequently, and prior to delivering the documentation to the client, the TRA of the activity subject to verification together with the other TRA it interacts with, the project manager and the project quality manager (if the project manager is not in charge of quality) verify that the changes to the initial data have been resolved as well as the interrelationships occurred after the check date\(^{51}\).

If necessary, during the check or the verification and under the authority of the project manager, the following can be carried out:

- Alternative calculations.
- Models or model tests, in which case the verification includes the checking of the studies, calculations and reports generated.

The above tasks are carried out using checklists in accordance with TPP-01 'Design and development control'.

The results of the check and verification tasks are recorded in the lists of documents and activities or on the document itself if the client allows it. If any faults or deficiencies are detected during the check or verification which may affect other project documents, the project manager reports to the affected staff and determines the required actions to solve them.

7.3.6. Design and development validation (UNE-EN-ISO 14001:2004: 4.4.6)

If the scope of the work is limited to preparing the design, TYPSA Group understands that the concept of design and development validation\(^{52}\) is included in the design and development review and verification as per the above sections.

If TYPSA Group is responsible for preparing the design and managing, controlling or monitoring the works, the design and development is validated by the head of unit by means of reports aimed at the Corporate Technical Department, where they will be analysed and filtered and sent to the areas that can make use of their content. The reports show the omissions or faults detected in the project and in the

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\(^{49}\) **Design and development verification**: Confirmation, through the examination and provision of objective evidence, of the fact that the result of one stage of the project meets the requirements of the initial data corresponding to said stage.

\(^{50}\) Checking releases the document internally, which means that the technical area in charge validates it so it can be integrated into the project.

\(^{51}\) If the verification is positive, the product (set of documents which constitute a project or a part thereof corresponding to a stage or delivery) is approved.

\(^{52}\) **Design and development validation**: Confirmation through the provision of evidence that the executed design complies with the requirements laid down for its use or application.
results of the final tests as well as possible improvements to be implemented in future works (known as feedback reports).

The requested recommendations and actions shall be documented and registered in corrective, preventive or repair action proposals as per the provisions laid down in 8.3., 8.5.2. and 8.5.3., as applicable.

7.3.7. Control of design and development changes (UNE-EN-ISO 14001:2004: 4.4.6; UNE 166002: 2006 4.4.6.6 and 4.5.5)

Any changes or modifications to the design and development approved by the client or interested party shall be documented, verified and approved by the same bodies that perform the corresponding functions for the original document or data.

If, owing to force majeure, the individuals or bodies that reviewed and approved the initial requirements cannot review or approve the changes, the project manager shall ensure that the individuals or bodies that are to review and approve the changes have access to and are familiar with the initial requirements and reasons why the change has been requested.

The project manager shall ensure that the changes are notified to all the affected personnel and that the corresponding records are issued.

7.4. PURCHASES (UNE 166002:2006:4.4.7)


The generic term of purchase comprises any type of business in which TYPSA Group purchases goods or services related to its activity from a supplier.

There are two different types of purchase, based on the contractual relationship that regulates the transaction, and two categories, based on the how the product or service purchased is linked to or depends on the services or products that the Group has agreed to provide its client.

According to the type, there are lease contract services or contracts for the sale of goods. Depending on how the purchase is linked to the Group's contract with the client, we talk of subcontracts when the product or service provided is part of the Group's agreement with the client, or (conventional) contracts if this is not the case.

Based on the ISO 9001 standard definition of the term purchase and in accordance with the nature of the goods and services provided by TYPSA Group, the Integrated Management System gives special importance to the subcontracting process. As a service provider aimed at client satisfaction, the Group strives for the product the subcontractor receives to meet the client's requirements.

Suppliers are selected based on the ability to meet the order requirements (including those related to Quality, Environment and OHS Management) they have demonstrated in the past, either in relation to TYPSA Group or by means of their general references, keeping a database of registered acceptable suppliers (which serves as a criterion for selection, assessment and reassessment) in accordance with procedure TPG-04 'Subcontracts and purchases'.

TYPSA, S.A. laboratory purchases are carried out in accordance with its own procedures.
7.4.2. Information on purchases (UNE-EN-ISO 14001: 4.4.6; OHSAS 18001: 4.4.6, UNE 166002: 4.4.7.2)

The project manager or technical team leader, as applicable, determines the products or services that are to be purchased, the term, the Quality, Environment and OHS requirements and acceptance criteria, and designates the person responsible for preparing the purchase documentation.

If significant environmental impacts are generated during the application of the goods or services purchased by TYPSA Group and the suppliers do not have the ISO14001 or EMAS certificates, they are notified of the environmental requirements and procedures they have to apply.

The products and services that may generate a significant environmental impact during their manufacture or application are verified in accordance with what is laid down in section 7.4.3 below.

Health and Safety Services provide the purchase team with the necessary advice and information on OHS to purchase any product or hire any service, as long as it complies with the legal requirements for marketing and use.

The requirements for work equipment and machinery are determined by risk assessment criteria. Special consideration is given in certain Integrated Management System procedures to purchases closely related to OHS issues, especially those relating to emergencies or personal protection equipment.

Subcontract templates for hiring a service or product as part of the client's assignment to TYPSA Group contain specific quality, environment and OHS information and requirements which are generally required of the supplier.

7.4.3. Purchased product and service verification (UNE-EN-ISO 14001: 4.4.6, OHSAS 18001:4.4.6, UNE 166002:2006: 4.4.7.3)

The application of this section of the standard at the TYPSA laboratories is laid down in the corresponding procedures.

The products or services to be purchased, as well as their requirements and inspection criteria, will be determined and assessed in the R&D project analysis and selection stage.

In the case of studies and projects or the subcontracted part thereof, the verification is carried out in accordance with what is laid down in 7.3.5 as part of the design.

The remaining products (test equipment, consumables, cleaning services, maintenance, etc.) that may affect the service quality, OHS or generate an environmental impact are verified before they are made available to the client by the user and subject to regular controls, where applicable, by a TYPSA Group technician as indicated in the purchase documents and in 8.2.4. or by an approved independent team.

Should it be possible to separate the service under contract into even parts and for the parts to be received separately, the decision shall be left to the project manager if it corresponds to a contract, or to the technical purchase manager if it is a generally applicable good or service, taking into account the type of product supplied, the use that is to be made thereof and the possibility of carrying out partial verifications.

In the cases in which the client or TYPSA Group wishes to verify the product or service at the supplier's facilities, the supplier is notified by means of the purchase documentation.

If, owing to urgency, a product that may affect quality, OHS or generate a significant environmental impact is used without the inspection or control laid down in the above sections, the product is identified
directly or indirectly by the technical purchasing manager, ensuring its traceability and the possibility of recovering it and replacing it if the result of the controls is negative.

Whatever the case, the level and intensity of the control depends on the supplier's capacity and experience, on the inspections\(^{53}\), controls and tests that have been carried out previously and on the evidence provided. The corresponding records are generated according to 4.2.4. and the supplier database is updated.

7.5. PRODUCTION AND SERVICE PROVISION


Project design and development control measures are as per section 7.3.

Construction supervision, control or monitoring work is controlled as per sections 8.2.3. and 8.2.4. and as per the following procedures: TPS-01 'Initial works control and monitoring tasks'; TPS-02 'Quantitative deadline control', TPS-03 'Quality control', TPS-04 'Control of the contractor's documentation, management of modified and complementary documents', TPA-01 'Identification and assessment of environmental aspects' and TPA-02 'Operational control'. Control procedures for construction supervision, control or monitoring work shall be adapted to the contract in its Quality and Environment Management Plan.

Equivalent procedures to those described above shall be applied to control subcontracted integrating or testing works for systems or equipment designed by TYPSA Group.

Specific measures to control production and service provision and the processes associated with a specific contract are specified in the corresponding Quality and Environment Management Plan as mentioned in 7.1.

The analyses and tests performed by TYPSA, S.A. laboratories are controlled as per the provisions specified in the corresponding manuals and procedures.

Environmental impact during the construction of the designed work is minimised by incorporating environmental concepts at the design review and verification stage, as indicated in section 7.3. ‘Design control’.

Work performed by TYPSA Group, or by organisations controlled by the Group, is associated with environmental aspects\(^{54}\) that can generate one or more of the following environmental impacts\(^{55}\):

- heat or cold generation;
- alterations to the landscape, flora or fauna;
- alterations to historical, artistic or cultural heritage;

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\(^{53}\) **Inspection**: Measuring, examining, testing or contrasting one or several entity characteristics using a standard and comparing the results obtained with the specified requirements in order to determine the conformity of each specification.

\(^{54}\) **Environmental aspect**: Element of an organisation’s activities, products or services that can interact with the environment.

\(^{55}\) **Environmental impact**: Any change to the environment whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects.
alteration or pollution of the atmosphere, soil, surface or ground water;
consumption of water, energy, natural resources and manufactured products;
light, noise, vibration or odour emissions;
gas emissions;
discharges to the ground, drains or surface water;
generation of gaseous, liquid or solid waste (routine or accidental);
radioactive contamination (routine or accidental);
noise pollution (routine or accidental).

TYPSA Group considers environmental impacts to be significant if they:
give rise to criminal or administrative penalties;
damage TYPSA Group's public image;
increase the cost of the relevant insurance policies due to the probability of occurrence; or
become very significant due to their type, quantity or duration.

The link between tasks, environmental aspects and their impact is shown in annex 9.3. During the construction, operation and dismantling of the work site, system or equipment designed, environmental aspects are analysed. Potential impacts identified during the design or construction phase are indicated in the design documentation. Legal environmental requirements are implemented; studies, environmental impact statements and environmental integration annexes are prepared and incorporated into the control measure specifications to be applied during execution of the work, all as per the provisions in section 7.3.

Other aspects to be controlled during the execution of the works include the direct environmental aspects generated by TYPSA Group's own activity, such as waste generated in the Group's offices or work vehicle fuel consumption or the consumption of natural resources.

The procedures followed to identify environmental issues are specified in 7.2.1. Paragraphs 4.2.3. and 4.2.4. and chapters 5. , 6. , 7. and 8. of this Manual describe the processes and their interactions, determine the staff responsible and present the measures provided in the Integrated Management System to make sure that:

a) processes are efficiently operated and controlled;
b) resources and documents required for operation and monitoring of the said processes are available;
c) processes are monitored, measured and analysed;
d) actions required to achieve the planned results and the continuous improvement of the said processes are implemented; and
e) the purchase or subcontracting of any goods or services that may generate a significant environmental impact or affect the quality of the services requested by the clients is controlled.

TYPSA Group will define the environmental issues arising from new jobs or tasks which it can control, in order to determine which might produce significant impacts.

As indicated in paragraph 5.6. in this document, the environmental issues generated by new jobs or tasks over which TYPSA Group can exercise control are analysed in the Senior Management's Integrated Management System review meetings, in order to determine which might produce significant impacts.
The types of controls used by the Integrated Management System for OHS are specified in section 7.2.

7.5.2. Validation of processes for production and service provision (UNE-EN-ISO 14001:2004: 4.4.6)

In study and design work, the so-called special processes\(^{56}\) are mainly carried out during survey campaigns to obtain the geotechnical data necessary for the design. These campaigns are outsourced as per section 7.4. and are controlled directly by qualified personnel in the Department of Geotechnical Engineering.

TYPSA laboratory tests are validated\(^{57}\) as per the provisions in the corresponding manuals and procedures.

In construction supervision, control or monitoring, equipment or system integration or maintenance work, special processes are performed by the works contractor, appointed by the client or by the supplier selected by TYPSA Group.

Where necessary, TYPSA Group supervises the execution and implementation of the special processes checking that they are performed:

- in accordance with current regulations or procedures reviewed and approved by the contractor, the client or TYPSA Group, as appropriate. The special processes that are not covered by these rules or procedures will be evaluated prior to use on site by analysing the information supplied by the contractor. The results will be documented, recorded and identified as quality records;
- by staff trained and assessed by any of the methods set out in paragraph 6.2. or similar, in the case of contractor’s or supplier’s staff; and
- with equipment maintained and controlled with the required frequency as specified in the instructions for use.

In all cases, the control of contractors or suppliers is performed as per section 7.4.3.

7.5.3. Identification and traceability

Documents generated by TYPSA Group shall be identified as per point 4.2.3.

Traceability of materials and equipment for measurement and testing is carried out and controlled as per section 7.6.

Where traceability is a client requirement in construction supervision, control or monitoring work, the applicable procedures shall be laid down in the Quality Plan.

\(^{56}\) Special process: Production or service provision process in which the quality of the product essentially depends on the worker's training and the equipment used. Inspections or controls carried out during or at the end of production realization cannot guarantee that there are no faults during subsequent use of the product or provision of the service. Special processes shall be subject to supervision and shall be carried out a) by qualified staff, b) following approved procedure, c) with approved equipment and materials.

\(^{57}\) Validation: Confirmation by inspection and using objective evidence to confirm that the requirements for a specific intended use or application have been met.
7.5.4. Client property

To date, TYPSA Group's clients have never supplied physical products to be included in the contracted work. However, documents, criteria or data can be supplied which are controlled depending on their nature and origin, as described in 4.2.3  and 7.3.

Should a future client supply other property or services covered by this section of the UNE-EN-ISO 9001 standard, TYPSA Group would define and document the methods required to ensure control in the corresponding Quality Management Plan.

Samples delivered by clients to TYPSA laboratories for analysis are controlled in accordance with UNE-EN-ISO/IEC 17025 standard requirements.

7.5.5. Preservation of product (UNE-EN-ISO 14001: 2004: 4.4.6)

Given that the 'products' provided by TYPSA Group are the documents that make up the designs, studies or reports, they are controlled as per 4.2.3.

7.6. CONTROL OF MONITORING AND MEASURING EQUIPMENT (UNE-EN-ISO 14001:2004:4.5.1: OHSAS 18001:2007:4.5.1; UNE-16600: 2.4.4.8.2)

TPM-03 'Control of measuring equipment' specifies the methods required to:

- link the tests or measurements with the instruments used;
- ensure that the measuring equipment gives reliable measurements by identifying them and setting maintenance, calibration and control programmes; and
- generate and maintain records of the condition and calibration status of measuring equipment.

If regular adjustment, monitoring or calibration processes show that measuring equipment does not comply, the procedure covers actions to:

- identify the tests where measurements may have been affected;
- assess the effect on the acceptance of the tested elements with supporting evidence;
- apply the corresponding corrective measures or provisions, if necessary; and
- record the entire process.

In processes involving construction supervision, control and monitoring, manufacturer inspection or monitoring or integration, or system or equipment testing, TYPSA Group ensures that the contractor or supplier, as applicable, has procedures in place that are equivalent to those indicated above and that they are followed within the scope assigned by the client at all times.

7.7. R&D ACTIVITIES NOT COVERED IN THE PREVIOUS POINTS (UNE 166002:2006: 4.4)

This Manual and Group V R&D Management Procedures reflect the general methods for measuring correct R&D System Management and for developing R&D projects. In addition, provisions are made to ensure that the R&D Committee and the project teams fulfil their obligations, including:

R&D COMMITTEE:

- Use of R&D tools (technology forecasting, technology prospecting, creativity, and external and internal analysis).
- Identifying and analysing threats and opportunities.
Analysing and selecting R&D ideas.
Planning, monitoring and control of the project backlog.
Technology transfer.
Monitoring, control and use of procedures for the documentation of results.
Protection and use of results.
Measurement, analysis and improvement.

R&D PROJECT TEAMS:

- Use of R&D tools (technology forecasting, technology prospecting, creativity, and external and internal analysis).
- Implementing R&D projects in accordance with quality criteria.
- Generating and transferring knowledge.
- Developing new technologies and/or improvements to existing technologies.

7.7.1. Tools (UNE-166002:2006:4.4.1)

Staff are trained as indicated above in 6.6.2 and in TPR-01 procedure to ensure that R&D tools are applied. Work is monitored and coordinated by the R&D Management Committee and the Project Manager and the project team TRA who decide which are the most appropriate tools for each project, depending on the procedures indicated in the TPV-01 and TPV-02, and in the R+D Activities guide and SWOT analysis.

7.7.2. Internal and external analysis (UNE 166002:2006: 4.4.1.4)

The result of external analysis to assess and compare TYPSA Group's innovative ideas with other agencies is reflected in the Strengths and Weaknesses in the SWOT analysis and the result of the internal analysis is reflected in Opportunities and Threats.

Senior Management establishes technology transfer methods in its strategic plan every five years.

The Project Manager is responsible for R&D project planning and phases in accordance with the procedures indicated in the TPP-01 if they are SW projects, or TPG-01, TPG-02, TPP-03 in the remaining cases.

The following control measures have been introduced in order to protect the results obtained:

- All TYPSA Group staff are obliged and formally committed to professional secrecy regarding any information obtained in the performance of both their work in the provision of services and in administrative data processing tasks as a result of the work carried out. They must sign a confidentiality agreement attached to their employment contract.
- Any information received, regardless of the means, will be treated as confidential.
- Information provided by the client or third party, may not be wholly or partially reproduced for purposes other than those specific to the work entrusted to us, without the express authorization of the Corporate Technical Department.
- Documents generated during a job are the property of TYPSA Group or of the client, in accordance with the provisions stipulated in the contract, and must be treated confidentially and may not be reproduced without prior permission.
In accordance with the scope of the work carried out by TYPSA Group the use of the products obtained as a result focuses on the preparation of designs or studies for external clients, to which knowledge acquired in R&D work is applied.

8. MEASUREMENT, ANALYSIS AND IMPROVEMENT


In accordance with the above, the methods and procedures used by TYPSA Group for the monitoring, measurement, analysis and continuous improvement of its System and the services provided to our clients, are based fundamentally on the continual control of the work carried out (see sections 4.2.3. and 7.3. ) and on the regular review of the System carried out by TYPSA Group Management, as indicated in section 5.6.

The use of statistical techniques is limited to inspection and testing work carried out during execution and on completion of items of work completed by the contractor, as part of the construction supervision, monitoring or control.

The methods, statistical parameters (sizes and specifications of the samples, test percentages, etc.) required to apply the said statistical techniques are laid down in the inspection points programme included in the Quality and Environment Management Plan mentioned in section 7.1.

The Integrated Management System specifies a continual tracking and measurement system for OHS through:

- external OHS Management System audits;
- internal audits as described in 8.2. ;
- managing non-conformities;
- investigating accidents;
- emergency reports;
- accident statistics and reports;
- health monitoring;
- cleanliness and tidiness controls and reports;
- continual monitoring of the established corrective measure and control schedules;
- regular reviews of risk assessments;
- annual reports assessing the effectiveness of integrating the preventive action; and
- annual reviews by the Integrated Management System Management team.

8.2. MONITORING AND MEASUREMENT

8.2.1. Client satisfaction

During the work and on completion, the project managers inform their immediate superiors of the client's level of satisfaction with the work carried out by TYPSA Group. The measures that might be taken in each particular case will be determined by the Management Director in person, who will report to the Corporate Quality, Environment and OHS Department if the client is seen to be dissatisfied with the work done. This
will then be recorded as an incident. All written congratulations received are reported to the Corporate Quality, Environment and OHS Department for incorporation into the System follow-up and review reports.

In addition, and on an annual basis, client satisfaction surveys are conducted for the most important works. These surveys are formulated through the Corporate Quality, Environment and OHS Department and sent by mail to the clients indicated by each manager in charge of each project in the current or immediately preceding year. The survey campaign starts in July and letters are sent in September, to obtain and process the data in time for the System review. The results of these surveys are analysed and discussed at the aforementioned System review meetings. All those that show negative results are discussed as a separate case and considered client complaints as applicable.

8.2.2. Internal System audits (UNE-EN-ISO 14001:2004:4.5.5; OHSAS 18001:2007:4.5.5; UNE 166002:2006:4.5.2)

TPM-02 procedure 'Audits' includes the general methods for carrying out the following audits:

- **System**: to assess monitoring, effectiveness and adaptation.
- **Management**: to assess the way in which heads of division and area offices follow up on the System and fulfilment of the quality goals for which they are responsible.
- **Contract**: to assess monitoring, effectiveness and adaptation to the System in the case of work performed by the area audited in ongoing or completed contracts.
- **Environmental**: to assess compliance with the obligations in the Environmental Management System, in permanent work centres.
- **OHS**: To assess compliance with the obligations specified in the OHS Management System, in each of the work centres.

These procedures include selecting auditors, independence requirements and launching, developing and documenting the audits and their results.

Integrated Management System audits are carried out at least every three years and cover those points in the standard not covered by project and management audits. In addition, project-specific audits are carried out depending on importance, complexity, and client or stakeholders’ requirements. They are planned, implemented and documented in accordance with procedure TPM-02 ‘Audits’.

Project and management audits are scheduled every six months, and the audit schedule is published in the annexes of the Integrated Management System follow-up or review meeting minutes. Every year, at least one contract audit is carried out for each division, department and area office as well as an environmental audit for each permanent work centre.

TPM-02 defines the responsibilities and requirements to plan and carry out audits as well as record and report on the results.

8.2.3. Process monitoring and measuring (UNE-EN-ISO 14001:2004:4.5.1 and 4.5.2; OHSAS 18001:2007:4.5.1 and 4.5.2; UNE 166002:2006:4.5.3)

The Corporate Quality, Environment and OHS Department conducts audits to compare the methods stipulated for monitoring and measuring in the Integrated Management System with those actually applied. These audits shall be carried out and documented in accordance with the provisions specified in paragraph 8.2.2. ‘Internal System audits’.
Project or construction managers or directors analyse and assess whether the processes can achieve the anticipated results and report to their respective corporate, global or regional directors, who report to the appropriate Committee. The Committee assesses the effectiveness and efficiency of the System processes in accordance with the provisions specified in section 5.6. and establishes the remedial, corrective and preventive actions necessary, pursuant to the provisions specified in section 8.3. and paragraphs 8.5.2. and 8.5.3., respectively.

In addition to these internal audits, OHS is regularly audited pursuant to legal OHS Management System requirements, verifying, among other points, compliance with legal requirements and with all voluntary requirements assumed by TYPSA Group.

Every year the effectiveness of preventive activity is assessed in the OHS Services' annual report. Accident rates are presented by which processes can be judged to be suitable or not and their validity for achieving the objectives can be evaluated.

Finally, the level of OHS process compliance is monitored in the Management's annual reviews.

8.2.4. Monitoring and measurement of product (UNE-EN-ISO 14001:2004:4.5.1 and 4.5.2; OHSAS 18001:2007:4.5.1 AND 4.5.2; UNE 166002:2006: 4.4.8.2 and 4.5.4)

Checks are made to monitor and control studies. Designs are monitored and controlled by verifying, reviewing and validating design and development, as mentioned in 7.3. Monitoring and control of construction supervision, control and monitoring is carried out as specified in the inspection points plans in accordance with the provisions of TPS-03 procedure. Laboratory tests are monitored and controlled in accordance with their own manuals and procedures. These control measures are complemented with internal audits.

The key features of operations that might generate a significant impact on the environment are monitored and controlled by the Committee in the Integrated Management System review and monitoring meetings, in accordance with the provisions in section 5.6.

As already mentioned in point 8.2.3. on OHS, legally required OHS Management System audits are conducted regularly, verifying, among other points, compliance with legal requirements and with requirements voluntarily assumed by TYPSA Group.

OHS development compliance is monitored in the annual Management reviews.

R&D activities are monitored and controlled by checking the project workload and its operation. These control measures are complemented with internal audits.

Conventional and R&D project verification constitutes the record of products released to the client.

8.3. CONTROL OF NON-COMPLIANT PRODUCTS (UNE-EN-ISO 14001:2004:4.5.3: OHSAS 18001: 4.4.7 AND 4.5.3.2; UNE 166002:2006:4.5.5)

Within the scope of TYPSA Group's services, the processes and products that do not comply with the Integrated Management System requirements or with the requirements defined and agreed with clients are detected mainly when:

- reviewing or verifying the design and development;
- supervising subcontracted work;
- receiving products that might generate a significant environmental impact;
- continuously supervising work carried out by managers or team leaders;
clients of independent inspection agencies conduct internal audits or inspections;
- analysing relevant internal or external environmental communications;
- analysing claims from clients made directly or through external agencies; or
- investigating accidents and incidents.

TPM-01 procedure 'Control and resolution of non-conformities' stipulates the general methods applied by TYPSA Group to ensure that non-compliant products are identified and controlled both from the point of view of quality and environment, in order to avoid inadvertent use and to ensure that the corrected goods or services are inspected again.

In addition to giving rise to possible nonconformity reports and, where applicable, the corresponding mitigating actions:
- In TYPSA Group work, where the 'products' are documents, 'non-conformities' are treated by correcting and re-printing them.
- In any kind of construction supervision, control and monitoring works, the non-compliant products (which are taken to include tasks within TYPSA Group's responsibility which have been omitted or incorrectly performed) are processed depending on their nature and on the provisions specified in the construction Quality Plan. In the case of non-compliant goods or services supplied by the contractor, TYPSA Group is responsible for stipulating and monitoring their correction depending on the type of supervision. Responsibilities are defined in the contract, in TYPSA Group's Quality Management Plan for the site and in the Master Quality Plan or similar document, where applicable.

In addition to controlling OHS non-conformities, the Integrated Management System has a procedure known as TPM-04 'Investigation of accidents and incidents' which establishes and determines the actions necessary to investigate accidents and incidents that occur in the workplace in order to take the necessary measures to prevent re-occurrence.

To avoid OHS accidents and incidents and ensure the ability to respond to them, TYPSA Group has emergency plans or measures in place in its work centres in accordance with the procedure established in TPH-04 'Plans and emergency measures'.

Environmental contingency plans exist in order to limit the environmental impacts generated and ensure response capacity in the event of an accident, in accordance with procedure TPA-03 Emergency Plans.

In order to limit deviations from expected R&D project results, Group V Monitoring procedure is applied.

8.4. DATA ANALYSIS (UNE 166002: 14001: 2004 4.5.1; OHSAS 18001:2007:4.5.1 AND 4.5.3.2; UNE 166002:2006:4.5.6)

The Committee determines, compiles and analyses the data indicated in the process files included in section 9.2. to assess and demonstrate the suitability and effectiveness of the System, detect processes or activities that can be improved and provide information about the following:

a) Client and stakeholder satisfaction (see 8.2.1. ).
b) Compliance with product requirements (see 7.2.1. ).
c) Features and trends of processes and products, including opportunities for carrying out preventive or improvement actions (see 8.5.2. and 8.5.3. ).
d) Suppliers (see 7.4. ).
All OHS data, such as accident statistics, audit results, etc., are analysed in the annual reviews to assess the effectiveness of OHS integration and implementation and serve to determine the policy and objectives in the short and long term.

8.5. IMPROVEMENT (OHSAS 166002:2006:4.5.7)

8.5.1. Continuous improvement (UNE 14001: 2004 4.2; 4.3.3 and 4.6, OHSAS 18001:2007:4.3.3 and 4.6; UNE 166002:2006:4.5.7.1)

The commitment to continuous improvement is presented by the President in his policy. It is developed and implemented by the Committee by analysing the data contained in the process files included in section 9.2. and it is complemented by implementing a system of TYPSA Group staff incentives, based on activities or ideas which, directly or indirectly, help to improve quality; innovative activities and the effectiveness of the work done; respect for the environment and improvement of OHS conditions.

Continuous improvement is one of the fundamental aspects of the Integrated Management System, to be carried out through annual reviews and promoted by controlling non-conformities, implementing the system of internal and external audits and the different controls of the various aspects of the Integrated Management System.

8.5.2. Corrective actions (UNE-EN-ISO 14001:2004:4.5.3; OHSAS 18001:2007:4.5.3.1 and 4.5.3.2; UNE 166002:2006:4.5.7.2)

TPM-01 procedure 'Control and resolution of non-conformities' establishes the general methods applied by TYPSA Group for the detection, processing and resolution of nonconformities in order to document their occurrence, possible causes and corrective actions, where necessary, as well as for monitoring their implementation and effectiveness.

In addition to this, in OHS the TPM-04 procedure is applied 'Investigation of accidents and incidents' which aims to establish and determine the actions necessary to investigate accidents and incidents that occur in the workplace, in order to implement the necessary measures to prevent re-occurrence.

8.5.3. Preventive actions (UNE-EN-ISO 14001:2004: and 4.5.3) 18001:2007: 4.4.7, 4.5.3.1 and 4.5.3.2, UNE 166002:2006:4.5.7.3)

TYPSA Group examines recorded nonconformities, monitors the works and their peculiarities as per the general methods stipulated in TPM-01 procedure 'Control and resolution of non-conformities' to anticipate situations which, because of their similarity with previous situations, may give rise to potential risk for quality, the environment or R&D.

Once the situation in which these risks may occur has been detected, the process for stipulating and controlling preventive actions is similar to that used for corrective actions.

TPH-04 'Plans and emergency measures' and TPS-06 'Action in the event of an emergency on site' refer to OHS procedures to respond to possible potential emergency situations, prevent and mitigate their consequences should they occur and prevent accidents and incidents or act properly should any accident or incident occur.
9. ANNEXES

- 9.3. Annex: Environmental aspects
- 9.4. Annex: Organisation chart
- 9.6. Annex: List of general procedures that develop and complement this Manual
- 9.8. Annex: Abbreviations and definitions
- 0Quality, Environment, OHS and R&D Management certifications
9.1. ANNEX: PROCESS DIAGRAM

**INTEGRATED MANAGEMENT SYSTEM**

**T- MSIG Integrated Management System Manual**

**STRATEGIC**
- SIG planning, implementation, review and maintenance
- Economic and financial management
- Planning, resource management and training
- Continuous improvement and R&D

**OHS management**

**Communication & corporate image**

**Environment**

**Organisation**

**DIRECT OR FROM PRODUCTION**

- Identifying opportunities and preparing proposals
- Start and planning
- The work:
  - Preparing studies and designs
  - Works management or supervision
  - Maintenance of facilities
  - Services: Official documentation processing
- Completion and close of works

** INDIRECT, SUPPLEMENTARY OR FOR SUPPORT**
- Infrastructure and maintenance
- Training and resource management
- Documentation control

- Environment
- Communication & corporate image
- Subcontracting
- PRL
- Legal and financial advisory
9.2. **ANNEX: PROCESS FILE**

<table>
<thead>
<tr>
<th>Processes</th>
<th>Person/area in charge</th>
<th>Other affected persons/areas</th>
<th>Monitoring and measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.1) Monitoring, measurement, analysis, maintenance and improvement of the Integrated Management System and related processes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.1· Review/assessment of the Integrated Management System and its objectives</td>
<td>SPP Quality Committee (^{58})</td>
<td>President + Committee, J.J.AA. (^{59}), DGT (^{60}), DQA (^{61})</td>
<td>1.1.1.1) Meeting objectives</td>
</tr>
<tr>
<td><strong>1.2) Resource management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.1· R&amp;D management</td>
<td>DGT</td>
<td>Committee, J.J.AA., DQA</td>
<td>1.2.1.1) Number of projects, including R&amp;D/year</td>
</tr>
<tr>
<td>1.2.2· R&amp;D investment</td>
<td>DGA (^{62})</td>
<td>J.J.AA., DQA</td>
<td>1.2.2.1) Investment in SW development (^{63})/invoicing</td>
</tr>
<tr>
<td><strong>1.3) Satisfaction and communication with the client</strong></td>
<td>J.J.AA.</td>
<td>DD.GG. (^{64}), DD.TT. (^{65}), DQA</td>
<td>1.3.1.1) Results and ratings of surveys and interviews 1.3.1.2) Complaints received.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processes</th>
<th>Person/area in charge</th>
<th>Other affected persons/areas</th>
<th>Monitoring and measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2) Direct or from production</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.1) Contracting/Order portfolio</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.1· Recruitment</td>
<td>J.J.AA.</td>
<td>J.J.AA., DQA</td>
<td>2.1.1.1) Meeting objectives</td>
</tr>
<tr>
<td>2.1.2· Planning</td>
<td>J.J.AA.</td>
<td>TRA (^{66}), DQA.</td>
<td>2.1.2.1) Hours charged to planning/Total hours</td>
</tr>
<tr>
<td><strong>2.2) Design or development (preparation of studies, reports and projects)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.1· Document checklist (studies and projects)</td>
<td>Authors and checkers</td>
<td>J.J.PP. (^{67}), TRA.</td>
<td>2.2.1.1) Checking hours/Total hours</td>
</tr>
<tr>
<td>2.2.2· Design verification</td>
<td>J.J.PP., TRA.</td>
<td>J.J.AA.</td>
<td>2.2.2.1) Hours of verification/Total hours.</td>
</tr>
<tr>
<td>2.2.3· Design review</td>
<td>RRD. (^{68})</td>
<td>J.J.PP. TRA.</td>
<td>2.2.3.1) Review hours/Total hours</td>
</tr>
</tbody>
</table>

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\(^{58}\) SPP: Internal Health and Safety Service.  
\(^{59}\) J.J.AA: Heads of area. Generic term for jointly referring to the heads of division, department, project or work item affected or responsible for one or more of the actions or processes.  
\(^{60}\) DGT: Corporate Technical Department.  
\(^{61}\) DQA: Corporate Quality, Environment and OHS Department.  
\(^{62}\) DGA: Corporate Administrative Department plus Legal Advisory Services.  
\(^{63}\) SW: Software.  
\(^{64}\) DD.GG.: General departments.  
\(^{65}\) DD.TT.: Regional departments.  
\(^{67}\) J.J.PP.: Project managers.  
\(^{68}\) R.R.D.: Design Review Manager.
### 2.2.4. Control of quality and non-quality costs in design and development

<table>
<thead>
<tr>
<th>Task</th>
<th>Responsible</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>JJ.PP.</td>
<td>2.2.4.1) Quality and non-quality cost hours/Total hours</td>
</tr>
</tbody>
</table>

#### 2.3) Site works (management, control and surveillance)

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<td>2.3.1 Control and follow-up of measuring equipment</td>
<td>JJ.OO ⁵⁹</td>
<td>EDO.</td>
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<td>2.3.1.1 Measuring equipment out of range during calibration/Total equipment</td>
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#### 2.4) Purchases

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<td>2.4.1 Selection of suppliers</td>
<td>JJ.PP. and JJ.OO.</td>
<td>TRA. 2.4.1.1) Suppliers with Quality or Environment Management certificates/Total suppliers</td>
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#### 2.5) Close of work ⁷⁰

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<td>2.5.1 Qualitative close of contract</td>
<td>JJ.PP. / JJ.OO. DQA</td>
<td>JJ. DD. TRA. DQA J.J.PP. / J.J.OO. 2.5.1.1) Meeting deadlines (contractual + extensions/real)</td>
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#### 2.6) Measurement and improvement of product

<table>
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<td>2.6.1 Identifying product or process nonconformities</td>
<td>Anyone who detects a risk or nonconformity DQA</td>
<td>2.6.1.1) Nonconformities detected outside/inside audit</td>
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### 3) Indirect or support

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<td>JJ.AA. (contractor). DD.TT. IT DGA</td>
<td>3.1.1.1) No. of presentation documents for new staff/hired staff.</td>
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<td>3.1.2 Training</td>
<td>DGH ⁷¹, SPP. DQA, JJ.AA.</td>
<td>3.1.2.1) Hours of verification/Total hours</td>
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#### 9.3. ANNEX: ENVIRONMENTAL ASPECTS

See procedures TPA-01 'Identification and assessment of environmental issues' and TPA-02 'Operational control'.

#### 9.4. ANNEX: ORGANISATION CHART

See the organisation tab on http://www.typsa.net/calidad/index.html

#### 9.5. ANNEX: TYPSA GROUP'S QUALITY, ENVIRONMENT, OHS AND R&D MANAGEMENT POLICY

See http://www.typsa.com/01_2a_politica.html.

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⁵⁹ JJ.OO: Works manager
⁷⁰ This refers to the close of work from the point of view of quality, not from the administrative-financial point of view.
⁷¹ DGH: Corporate Human Resources, Organisation and Institutional Relations Department.
## 9.6. ANNEX: LIST OF GENERAL PROCEDURES THAT DEVELOP AND COMPLEMENT THIS MANUAL

**GROUP O: ORGANISATION**

- **TPO-01** TYPSA Group organisation charts
- **TPO-20** Role of the Head of Division
- **TPO-25** Role of the Head of Department
- **TPO-30** Role of the Head of Section
- **TPO-27** Role of the Division Coordinator
- **TPO-30** Role of the Project Manager
- **TPO-32** Role of the BIM Manager
- **TPO-35** Role of the Head of Unit
- **TPO-40** Role of the Technical Team Leader
- **TPO-45** Role of the Technical Coordinator
- **TPO-50** Vehicle Management
- **TPO-60** OHS Functions and responsibilities

**GROUP D: DOCUMENTATION CONTROL**

- **TPD-01** Identification of documents and records
- **TPD-02** Control of documentation and data
- **TPD-03** Records
- **TPD-04a** Project documentation storage and processing
- **TPD-04b** Works documentation storage and processing

**GROUP G: GENERAL REQUIREMENTS. WORK PROCESS**

- **TPG-01** Monitoring proposals
- **TPG-02** Planning and starting work
- **TPG-03** Quality plans
- **TPG-04** Subcontracts and purchases
- **TPG-05** Close of work

**GROUP P: STUDIES AND DESIGNS**

- **TPP-01** Design and development control

**GROUP S: WORKS SUPERVISION**

- **TPS-01** Initial work in the field of control and surveillance of works
- **TPS-02** Quantitative and deadline control
- **TPS-03** Qualitative control
- **TPS-05** Construction work management

**GROUP M: MEASUREMENT AND IMPROVEMENT**
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<tr>
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<td>TPM-03</td>
<td>Control of measuring equipment</td>
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<td>TPG-06</td>
<td>Proposals for improvement</td>
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**GROUP R: RESOURCE MANAGEMENT**

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<td>TPR-01</td>
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**GROUP A: ENVIRONMENTAL MANAGEMENT**

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<tr>
<td>TPA-01</td>
<td>Identification and assessment of environmental aspects and legal requirements</td>
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<td>TPA-02</td>
<td>Operational control</td>
</tr>
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<td>TPA-03</td>
<td>Environmental emergency plans</td>
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**GROUP V: R&D MANAGEMENT**

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**GROUP VI: OHS MANAGEMENT**

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<td>TPH-01</td>
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<td>TPH-02</td>
<td>Risk assessment of especially sensitive staff</td>
</tr>
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<td>Business activity coordination</td>
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<td>TPH-04</td>
<td>Emergency plans and measures</td>
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<th>Sections in UNE-EN-ISO 14001</th>
<th>Sections in OHSAS 18001:2000</th>
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<td>4.2. OHS Policy</td>
<td>4.2.3. R&amp;D Policy</td>
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<td>Sections in OHSAS 18001:200</td>
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<td>4.2.5.5 Internal communication</td>
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<td><strong>4.4. R&amp;D ACTIVITIES</strong></td>
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<td>7.1. Planning the product realisation</td>
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<td>7.2.1. Determining service-related requirements</td>
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<td>4.3.1. Hazard identification, risk assessment and determination of controls</td>
<td>4.4.2. Identification and analysis of problems and opportunities</td>
</tr>
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<td>4.3.2. Legal and other requirements</td>
<td>4.3.2. Legal and other requirements</td>
<td>4.4.3. Analysis and selection of R&amp;D ideas</td>
</tr>
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</tr>
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<td>Sections of the Manual</td>
<td>Sections in UNE-EN-ISO 14001</td>
<td>Sections in OHSAS 18001:200</td>
<td>Sections in UNE 166002</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
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<td>7.3.1. Design and development planning</td>
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<td>4.4.6. Operational control</td>
<td>4.4. Planning, monitoring and control of the projects portfolio</td>
</tr>
<tr>
<td>7.3.2. Initial design and development data</td>
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<td>4.4.6. Operational control</td>
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</tr>
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<td>4.4.6. Operational control</td>
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</tr>
<tr>
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<td>4.4.6. Operational control</td>
<td>4.4.6. Operational control</td>
<td>4.4.6.6. Tracking changes 4.5.5. Tracking deviations from the results</td>
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<td>4.4.6. Operational control</td>
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</tr>
<tr>
<td>7.4.3. Purchased product and service verification</td>
<td>4.4.6. Operational control</td>
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</tr>
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<td>4.4.6. Operational control</td>
<td>4.4.9. Protection and exploitation of R&amp;D activity results</td>
</tr>
<tr>
<td>7.6. Control of measurement and monitoring devices</td>
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<td>4.5.1. Performance monitoring and measurement</td>
<td>4.4.8.2. Monitoring and measurement part 1</td>
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<tr>
<td>Sections of the Manual</td>
<td>Sections in UNE-EN-ISO 14001</td>
<td>Sections in OHSAS 18001:200</td>
<td>Sections in UNE 166002</td>
</tr>
<tr>
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<td>IMPROVEMENT (ST)</td>
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<tr>
<td>8.1. General information</td>
<td>4.5.1. Monitoring and</td>
<td>4.5.1. Performance</td>
<td>4.5.1. General information</td>
</tr>
<tr>
<td></td>
<td>measurement</td>
<td>monitoring and measurement</td>
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<td>8.2. Monitoring and</td>
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<td>measurement (ST)</td>
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<td>8.2.1. Client satisfaction</td>
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<td>8.2.2. Internal System</td>
<td>4.5.5. Internal audit</td>
<td>4.5.5. Internal audit</td>
<td></td>
</tr>
<tr>
<td>audits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.3. Process monitoring and measuring</td>
<td>4.5.1. Monitoring and measurement</td>
<td>4.5.1. Monitoring and measuring of performance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.5.2. Assessment of compliance with legislation</td>
<td>4.5.2. Assessment of compliance with legislation</td>
<td>4.5.3. Monitoring and measuring of the R&amp;D process</td>
</tr>
<tr>
<td>8.2.4. Monitoring and measurement of products</td>
<td>4.5.1. Monitoring and measurement</td>
<td>4.5.1. Monitoring and measuring of performance</td>
<td>4.5.2. Assessment of compliance with legislation</td>
</tr>
<tr>
<td></td>
<td>4.5.2 Assessment of compliance with legislation</td>
<td>4.5.2. Assessment of compliance with legislation</td>
<td>4.5.4. Monitoring and measurement of R&amp;D activity results</td>
</tr>
<tr>
<td>8.3. Control of non-compliant product</td>
<td>4.4.7. Preparation and response in emergencies</td>
<td>4.4.7. Preparation and response in emergencies</td>
<td>4.5.5. Tracking deviations from the expected results</td>
</tr>
<tr>
<td></td>
<td>4.5.3. Nonconformity,</td>
<td>4.5.3.2. Nonconformity,</td>
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<td></td>
<td>corrective action and</td>
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<tr>
<td>8.4. Data analysis</td>
<td>4.5.1. Monitoring and</td>
<td>4.5.1. Monitoring and</td>
<td>4.5.6. Data analysis</td>
</tr>
<tr>
<td></td>
<td>measurement</td>
<td>measurement of performance</td>
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<td>4.5.7. Improvement (ST)</td>
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<td>Sections of the Manual</td>
<td>Sections in UNE-EN-ISO 14001</td>
<td>Sections in OHSAS 18001:200</td>
<td>Sections in UNE 166002</td>
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<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>8.5.1. Continuous improvement</td>
<td>4.2. Environmental policy 4.3.3. Goals, targets and programmes 4.6. Review by Management</td>
<td>4.2. OHS policy 4.3.3. Goals and programmes 4.6. Review by Management</td>
<td>4.5.7.1. Continuous improvement</td>
</tr>
<tr>
<td>8.5.2. Corrective actions</td>
<td>4.5.3 Nonconformity, corrective action and preventive action</td>
<td>4.5.3.1 Investigating incidents 4.5.3.2. Nonconformity, corrective action and preventive action</td>
<td>4.5.7.2. Corrective actions</td>
</tr>
<tr>
<td>8.5.3. Preventive actions</td>
<td>4.4.7. Preparation and response in emergencies 4.5.3. Nonconformity, corrective action and preventive action</td>
<td>4.4.7. Preparation and response in emergencies 4.5.3.2. Nonconformity, corrective action and preventive action</td>
<td>4.5.7.3. Preventive actions</td>
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<td>No direct correspondence</td>
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<td>4.5.3. Investigating incidents, nonconformity, corrective action and preventive action</td>
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<td>4.5.3.1. Investigating incidents</td>
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</tbody>
</table>
9.8. ANNEX: ABBREVIATIONS AND DEFINITIONS

9.8.1. Abbreviations

DQA: Corporate Quality and Environment Department.
DD.GG.: Corporate and global departments.
DD.TT.: Regional departments.
EMAS: Eco-management and Audit Scheme.
JJ.AA.: Generic term for jointly referring to heads of department and directors, heads of department, project managers or unit managers affected by or responsible for one or more actions or processes.
RD: Design Review Manager.
SW: Software.
TRA: Technical Activity Manager.

9.8.2. Definitions

Approval: Formal action whereby an officially qualified body authorises the use of the document, service or process in a particular area for a specific use.

Assessment of occupational health and safety risks: Process aimed at estimating the magnitude of unavoidable risks, obtaining the necessary information so that the employer is in a position to make an appropriate decision on the need to take preventive measures and, in such case, on the type of measures to be taken.

Auditor: Person with competence to carry out an audit.

Corrective action: Action taken to eliminate the causes of a detected nonconformity, fault or any other undesirable situation in order to prevent its recurrence.

Preventive action: Action taken to eliminate the causes of a potential nonconformity, fault or any other undesirable situation in order to prevent its occurrence.

Repair action or repair: Action taken on a non-compliant product to reduce the nonconformity to acceptable values, even though it is not compliant with the requirements that were originally specified.

R&D activities: Those relating to research, technological development and innovation, as defined in this standard.

Work environment: Set of conditions under which the work is performed. These include physical, social, psychological and environmental factors such as temperature, recognition systems, ergonomics and atmospheric quality.

Quality assurance: Set of planned and systematic actions implanted in the Quality System, which can be demonstrated if necessary, to provide sufficient confidence in an organisation complying with quality requirements.

Environmental aspect: Element of an organisation's activities, products or services that may interact with the environment.

Internal audit: Systematic, independent and documented process for obtaining audit evidence and assessing it objectively in order to determine the degree of compliance with the audit criteria.
**Quality**: Set of characteristics corresponding to an organisation that make it capable of meeting both implicit and established requirements.

**Check or review of a document**: Examination of a document or logical set of documents to ensure that there are no overlaps, voids or contradictions, conceptual or formal errors and that they comply with the instructions received for their preparation and are coherent with the initial data.

**Client**: Organisation or area that receives or is affected by TYPSA Group products or processes. In accordance with the broad sense the UNE-EN-ISO 9001:2008 standard gives to the term *client*, it is considered that this term includes the environment and the buyers and users of the products and services provided by the TYPSA Group.

**Quality Committee**: Executive and control body comprising the President, the general managers, regional and area managers and Integrated Management System coordinators.

**R&D Management Committee**: Executive and control body chaired by the Corporate Technical Director, the corporate and global directors, the regional directors and the R&D Management coordinators.

**Environmental behaviour**: Measurable results of the Integrated Environmental Management System related to the control of an organisation's environmental issues based on its environment policy, objectives, policies and targets.

**Innovative behaviour**: Measurable results of the R&D Integrated Management System related to an organisation's control of its environmental issues based on its technology policy, objectives, policies and targets.

**Verification**: Confirmation through the examination and provision of objective evidence of the fact that the specified requirements have been met.

**Concession**: Authorisation for the use of a non-compliant product or document or for continuing with the next stage of a non-compliant process.

**Quality control**: Operative techniques and tasks used to comply with quality requirements.

**Quality Coordinator**: Person in charge of Quality Management in his or her assigned work centres. (to be reviewed).

**Environmental Coordinator**: Person in charge of Environmental Management in his or her assigned work centres. Their job is to identify environmental aspects, monitor consumption, identify environmental legislation and assess the degree of compliance with the requirements; document how waste is managed and those who manage it (as suppliers); define specific objectives and periodically assess their compliance; spark staff interest in environmental issues, in particular those related to saving energy and water and reducing waste; and carry out internal audits and prepare reports for reviewing and monitoring the System.

**Initial data for a work or for the design and development**: Corresponding external conditions which must be known for the corresponding implementation, such as requirements issued by other stakeholders, legislation, by-laws and applicable standards, requirements laid down by the client, physical, environmental and socio-economic specifications of the environment and, where applicable, an environmental impact study.

**Fault**: Failure to meet a reasonable expectation or requirement associated with anticipated use, including those related to safety.
Development of own technology: Using personal knowledge and experience to produce new materials, devices, products, processes, systems or services, or to improve these substantially. This includes creating prototypes and pilot plants.

Technological development: Using the results of an investigation or any other kind of scientific knowledge to manufacture new materials or products for designing new processes or production systems or providing services, as well as substantially improving current technological materials, products, processes or systems. This includes turning the results of the research into a plan, diagram or design, as well as creating non-marketable prototypes and pilot designs, provided that they do not become industrial products nor are used as such nor commercially exploited.

Environmental performance: Measurable results of the manner in which a company manages its environmental aspects.

OHS performance: Measurable results of how an organisation manages its OHS risks. NOTE 1: Measuring the OHS performance includes measuring the effectiveness of the organisation's control mechanisms. NOTE 2: In the field of OHS Management systems, results can be measured with respect to the OHS policy, the company's OHS goals and other OHS performance requirements.

Engineering or industrial design: Consecutive design stages including the design and elaboration of plans, drawings and mediums aimed at defining the descriptive elements, technical specifications and operating characteristics necessary to manufacture, test, install and use a product.

Document: Minimum self-sufficient information for a specific objective, contained in any medium, generated by an individual and related to one single entity or logical group of several entities. The medium can be paper, magnetic disk, optical disc or electronic format, photograph or standard samples or a combination thereof.

Efficiency: Ratio between the result obtained and the resources used.

In the case of R&D projects, there is a common interest in the output of the project organisation and the environment in which it operates. In this case, the interested parties can be: (a) the customer who receives the product of the project; (b) the consumer who uses the product of the project; (c) the owner who originated the project; (d) the partner, for example, in a consortium (each entity that participates in a joint project); (e) the financing entity, as funding institution; (f) the subcontractor, as the organisation that provides products to the project organisation; (g) society, for example, the jurisdictional or regulatory entities and the general public; and (h) the internal staff at TYPSA Group, as members of the project organisation.

Personal Protective Equipment (EPI for its Spanish name): Any equipment designed to be worn or carried by workers to protect them against any number of risks that could threaten their health or safety at work, as well as any accessory designed for such purpose.

Risk assessment: The process of assessing the risk or risks that arise from one or several hazards, taking into account the adequacy of existing controls, and deciding if the risk or risks are acceptable or not.

Evidence: information whose truthfulness can be demonstrated objectively since it is based on facts obtained via observation, measurement, testing or other means.

Quality, Environment, OHS and R&D Management: Set of general Management tasks which determine the policy, objectives and responsibilities on Quality, Environment, OHS and R&D issues and which are implemented by means such as planning, control, assurance and continuous improvement of all these
aspects within the framework of the General Management System. Quality Management includes quality assurance and control.

**Hazard identification**: Process whereby a hazard is recognised and its characteristics are defined.

**Environmental impact**: Any environmental change, whether adverse or beneficial, affecting all or part of an organisation's activities, products or services.

**Innovation**: Activity resulting in the creation of new products or processes or the substantial improvement of existing ones.

Innovation activities comprise: the incorporation of tangible and intangible technologies, industrial design, equipment and industrial engineering, launching the manufacture and marketing new products and processes.

**Technological innovation**: Incorporating the basic technologies that are available in the market into the development of a new product or process.

**Innovation in technology**: Generating and implementing new technologies in the market which, once consolidated, will begin to be used by other innovative processes associated with products and processes.

**Fundamental or basic research**: Expanding general technical and scientific knowledge not directly linked with industrial or commercial products or processes.

**Industrial or applied research**: Research aimed at acquiring new knowledge with a view to using it to develop new products or processes or to incite significant improvement of existing products or processes.

**Innovation in management**: Related improvements in the way of organising the resources needed to achieve innovative products or processes.

**Inspection**: Measuring, examining, testing or contrasting one or several entity characteristics using a standard and comparing the results obtained with the specified requirements in order to determine the conformity of each specification.

**Interface**: Information shared by two or more organisations. Includes the document that constitutes their link.

**Research**: Original and planned investigation aimed at uncovering new knowledge and reaching greater understanding in the field of science and technology.

**Workplace**: Any physical place whereby work-related activities take place under the control of the organisation. NOTE 1: When considering the workplace, the organisation should take into account the effect on OHS for staff that are, for example, travelling or in transit (driving, flying or travelling by boat or train, for example), working in the client's premises or working from home.

**The environment**: Environment in which an organisation operates, including the air, water, land, natural resources, flora, fauna, human beings and the interactions among them.

**Continuous improvement**: Process whereby the Integrated Environment and OHS Management System is optimised to improve its overall performance, in accordance with the organisation's Environment and OHS Policy.

**Continuous improvement**: Recurring process of establishing objectives and identifying opportunities to increase the capacity for continuously meeting Quality, Environment and OHS requirements through the
reports and conclusions drawn from audits, data analysis, Management reviews and other means and which generally gives rise to corrective or preventive actions.

**Environmental target:** Detailed action requirement, to be quantified wherever possible, to be applied to an organisation or to a part thereof, arising from the environmental objectives, and which must be established and complied with in order to reach said objectives.

**Quality, environment, OHS and R&D target:** Detailed action requirement, to be quantified wherever possible, to be applied to an organisation or a part thereof, arising from the Quality, Environment and R&D Objectives, and which must be established and complied with in order to reach said objectives.

**Nonconformity:** Failure to meet a specified requirement.

**New products or processes:** Products or processes whose features or uses differ substantially from current ones from the technological point of view.

**Environmental objective:** General environmental goal which is consistent with an organisation's environmental policy.

**Organisation:** Any company, corporation, firm, enterprise, authority or institution or part or combination thereof, whether or not a partnership, either public or private, with its own functions and administrative system.

**Interested party:** Any person or group inside or outside the workplace that has an interest or is affected by the quality, the environmental performance or the OHS performance of an entity or by the R&D actions of an organisation.

**Hazard:** Source, situation or act with the potential for causing harm in terms of damaging people or their health or both.

**Quality, Environment and R&D Management Plan:** Document that lays down the processes, procedures, human and material resources and the sequence of specific activities aimed at establishing, achieving and measuring the quality and environment objectives and requirements, as well as by whom, when and where they should be applied to products, projects or specific contracts.

**Occupational Health and Safety Plan:** The tool that incorporates TYPSA Group's preventive activity into its General Management System and sets its Occupational Health and Safety policy.

**Occupational Health and Safety Action Planning:** Establishing, designing and programming the activities and measures — including the necessary human, material and financial resources — that must be adopted in order to eliminate or control and reduce any risks deemed unavoidable following risk assessment.

**Quality, Environment, OHS and R&D Policy:** An organisation's general guidelines and intentions regarding the quality of its products and its environmental and R&D performance as formally stated by Senior Management, providing a framework for the organisation's action and for establishing its objectives and goals.

**Procedure:** Specified method, documented or otherwise, for carrying out a certain activity or process.

**OHS:** A set of activities or measures taken or planned in all stages of the company's activity in order to avoid or reduce work-related risks.

**Special process:** Process for the production or provision of the service in which the quality of the product depends basically on the worker's training and the equipment used, and in which the inspections or controls are carried out during or at the end of the manufacture of the product cannot guarantee the
absence of faults after the product has been used or the service has been provided. Special processes shall be subject to supervision and will be carried out (a) by qualified staff; (b) following approved procedures; and (c) using approved equipment and materials.

**Process:** Set of activities that interact with each other or are mutually related with each other and transform input into results.

**Product:** Result of a process.

**Supplier:** Organisation or individual that provides a product to TYPSA Group.

**Record:** Document containing the results obtained or providing evidence of the activities carried out.

**Design and development review:** Complete, documented and systematic examination of the evidence generated during the various design and development stages, carried out at least at the end of the process to assess and confirm (a) compliance with requirements regarding cost, term, quality and the environment; (b) the effectiveness of the production process and the actions aimed at minimising the environmental impact; and (c) the client's satisfaction with the completed work and the treatment given to identify and solve problems, where applicable, and propose corrective or preventive actions.

**Review:** Activity carried out to guarantee the convenience, adaptation and effectiveness of the matter under review to reach the objectives that have been established.

**Risk:** The likelihood of a dangerous event or exposure combined with the severity of the damage or deterioration to health it can cause.

**Occupational risk:** Possibility of a worker suffering a certain damage caused by work. To determine the seriousness of a risk, both the probability of the damage taking place and the severity of the same shall be taken into account.

**Occupational health and safety:** The conditions and factors that affect or may affect the health and safety of employees or other workers (including temporary workers and hired staff), visitors or any other person in the workplace. NOTE: Organisations may be subject to legal requirements on the health and safety of people beyond their immediate workplace, or of those who are exposed to the activities being carried out in their workplace.

**OHS Management System:** The part of an organisation's Management System used to develop and implement its OHS policy and manage its OHS risks.

**Integrated Quality, Environment, OHS and R&D Management System:** The Quality, Environment, OHS and R&D Policy and Objectives, the methods used to achieve them and the human and material resources required to carry them out, considered as a whole, including quality assurance and control actions.

**Integrated R&D Management System:** Part of the General Management System that includes the organisational structure, the planning of activities, the responsibilities, practices, procedures, processes and resources needed to develop, implement, carry out, review and update an organisation's R&D policy.

**Intangible technology:** Purchased technology in the form of patents, non-patented inventions, licenses, know-how reports, trademarks, designs, utility models, R&D services and other services with a technological content.

**Material technology:** Purchased machinery and equipment with a technological component which is related to the product or process innovations introduced by the organisation.
Consultancy work: Tasks including (a) information processing: work with the purpose of compiling and sorting information; (b) studies: work leading to conclusions or recommendations, including sketches, diagrams and estimates; (c) designs: work which defines and determines the quality, specifications and budget of the works or products that are to be built, installed or assembled.

Technology transfer: Process of transmitting scientific and technological information, knowledge, resources and rights of use, to third parties for the manufacture of a product, the development of a process or the provision of a service, contributing to capability development.

Traceability: Ability to identify and trace the history, application and location of an entity through records.

R&D Management Unit (MU for its Spanish name): person or persons in the organisation appointed by Senior Management on a full or part-time basis with the means at their disposal to: (a) manage the backlog of R&D projects; b) manage technology transfer; (c) manage the protection and use of results; and (d) measure, analyse and improve results. TYPSA Group calls this unit the R&D Project Team.

R&D Unit or R&D Technical Unit (UT for its Spanish name): Person or persons in the organisation appointed by Senior Management on a full or part-time basis with the means at their disposal to: (a) obtain scientific and technological knowledge useful to the organisation; (b) develop new technologies or improve existing ones; and (c) apply new technological developments to products or processes.

Validation: Examining and using objective evidence to confirm that products meet the requirements which define their intended use or application.

Design and development validation: Confirming through the provision of evidence that the project meets the requirements for its use or application.

Verification: Confirming through the examination and provision of objective evidence that the specified requirements have been met.

Design and development verification: Confirming through the examination and provision of objective evidence that the result of one stage of the project meets the requirements of its initial data.

Technological surveillance: Organised, selective and systematic process to capture information from the outside and the organisation on science and technology, and then select, analyse, disseminate and communicate it to, lastly, transform it into knowledge in order to make safer decisions and anticipate changes.

9.9. QUALITY, ENVIRONMENT AND R&D MANAGEMENT CERTIFICATIONS

See the ‘Certificates’ tab on http://www.typsa.net/calidad/oferta/CertificadosCalidad.htm