

GENERAL SPECIFICATION

PROJECT & CONSTRUCTION

GS EP PJC 702

Requirements for electronic documents at project execution and field operations phases

05	11/2012	Updates : §4.8 Adobe Acrobat parameters §8.1.2 MDR Modifications and Annexe 3
04	01/2012	Updates: table dedicated software (§4.8) and TS-IN TS-OUT + incl. GIS Requirements
03	01/2011	Added Appendix 3 – Computer Aided Drafting (CAD) rules
02	10/2009	Update to adapt to the use of PRODOM V2 (project and Field Operations)
01	10/2005	Update to adapt to the use of PRODOM - BT
00	09/2003	First issue - BT
Rev.	Date	Purpose of the revision

Owning entity: DEV/PJC

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1. Scope

The Company shall manage documents by means of an Electronic Document Management System. This is why the contract defines specific requirements for electronic documents.

This General Specification stipulates the points requiring such specific requirements

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the effective date of this document.

Reference	Title
Not applicable	

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published in the applicable yearly collection.

Reference	Title
GS EP EXP 501	Equipment and piping numbering
GS EP INS 101	Instrumentation engineering, supply and construction general requirements
GS EP INS 102	Instrumentation identification
GS EP PJC 701	Documents identification & numbering at project execution and field operations phases
GS EP PJC 703	Requirements for Contractor final documentation
GS EP PVV 112	Piping material classes
GS EP ECI 002	Drawings and symbols - Principles of presentation at project definition phase
GS EP GEO 402	Requirements for Field Development Project

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3. Terminology

CAD System	Computer Assisted Drawing software.
Document	A selection of information gathered for a specific goal on a support identified by a unique reference. It comprises the information <u>and</u> its support. It is an information "vehicle" as opposed to the information itself (e.g. data). A document may include one or more electronic files. A document itself may include one or more documents (e.g. a Study with annexes).
Document Management System (DMS)	The methods, general organisation, rules and procedures to manage documents.
Electronic Document Management System (EDMS)	A specific computer application dedicated to the administration of Document Databases (References, Filing and Archiving), of document circulation and retrieval, etc.
File format	The form in which information is coded in an electronic file. The format is determined by the software used to create it. Usually the format is indicated by the file extension: .doc, .xls, .ppt, etc.
GIS	Geographic Information System
MDR Master Document Register	File containing the list of all documents to be provided by the Contractor and its necessary associated information for the management needs.
Document Number (Reference)	A structured set of codes or character chain, unique for each document, enabling its identification as well as filing and simple searching.
Symbol	A conventional sign used in writing, drawing or printing to represent equipment of petroleum facilities or infrastructures.
System	A group of devices, components or equipment that together are considered as a functional unit.
Title Block	A box shown on a document or a drawing relating to ownership, identification and numbering of said document/drawing.

4. Document production requirement

4.1 General rules

The Contractor, as well as its Sub-Contractors and/or Vendors, shall use the electronic templates for documents provided by the Company.

On all documents delivered by the Contractor to the Company, the following information shall be present:

- Company document reference as defined in **GS EP PJC 701**
- Contractor document reference (if applicable)

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- Company revision number
- Company revision date
- Title
- Discipline code as defined in **GS EP PJC 701**
- Document type code as defined in **GS EP PJC 701**
- System as defined in **GS EP EXP 501**
- Page number and the total number of pages
- Status of document in section 8.1.4
- Revision list as defined section 5.2 with the revision table with 3 signatures system: the name of issuer, the name of checker, the name of approver
- Company name and logo
- Project name and logo (if applicable)
- Contractor name and logo (if applicable)
- Electronic document file name as detailed in section 4.6.

For drawings the following additional information shall be present:

- Folio number (sheet number)
- Total number of folios (sheets)
- Scale if applicable (e.g. 1/5000)
- Original document format (A4, A3, A1).

Documents that are not created for Contract purposes (Supplier documents related to bulk equipment for instance) or documents produced or endorsed by certifying bodies (Certification documents) will receive either a front page or a sticker created by the Contractor to comply with the Company requirements.

Note 1: Document reference number, revision number, revision date and title written on the document MUST be identical to those registered into the Master Document Register.

Note 2: Each page of the document must bear the Company document reference and revision number.

Note 3: Each page of the document must be numbered and the total number of pages shall be indicated as follows: page xx of yy).

4.2 Language

The language to be used for all documents is defined by the Contract.

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4.3 Document identification

GS EP PJC 701 shall apply for the following points:

- Document number and other document attributes
- Disciplines and codes to be used
- Document types and codes to be used.

4.4 Document format

The size of the documents will be preferably A1, A3 or A4 format.

A2 and A0 sizes are not permitted:

- A1 will be used for Plot Plans, General Layouts, P&ID, etc. Documents shall be created in order to remain legible in A3 format
- A3 will be used for standard diagrams and drawings. Documents shall be created in order to remain legible in A4 format
- A4 will be used for all other documents.

Other sizes of documents shall not be used without written authorisation of the Company.

PDF files shall be created exclusively from the native electronic file and shall not be the result of scans of paper documents.

4.5 Electronic files size

Size of electronic files of the documents submitted by Contractor is limited by the Company. The project will inform the Contractor on the limits of electronic file sizes when exchanging documents.

In any case, the Contractor shall endeavour, wherever possible, to reduce electronic file sizes to a minimum, providing data is not adversely affected.

4.6 Electronic document file name

If the document has the reference **AA-FFF-CC-OOOO-000001** and the revision **00**, the electronic file must be named as follows: **AA-FFF-CC-OOOO-000001_rev00.ext**.

The hyphen is used to separate the number attributes, refer to section **GS EP PJC 701** for the number structure definition.

The underscore stroke [_] is used to separate the sequential number from the revision.

The revision shall always be written in lower case (rev), and there is no space before the two digits of the revision.

The extension shall always be written in lower case (.ext), and be visible.

Examples:

- For a MS-Word document, the file name could be:
AA-FFF-CC-OOOO-000001_rev01.doc

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- The same document, under ACROBAT format would be:
AA-FFF-CC-O000-000001_rev01.pdf
- For an AUTOCAD document, the file name could be:
AA-FFF-CC-O000-000001_rev01.dwg

4.7 Electronic filename of appendices or folio of a document

The electronic filename of appendices or folios of a document will be, whenever possible (i.e. when IT system and software allows it), as follows:

for appendices: DOCREF-DOCREV-An.ext

for folios: DOCREF-DOCREV-Fn.ext

Where:

- **DOCREF** is the document reference as specified in section 5
- **DOCREV** is the revision index as specified in section 5
- **Ann** is the appendix number (A01, A02...)
- **Fnnnn** is the folio number (F0001, F0002...)
- **ext** is the extension used by software.

Examples:

- **AO34-1-02-X00-00-0-PR-9006_rev01-A01.doc**
- **AO34-1-02-X00-00-0-PR-9006_rev01-A02.doc**
- **AO34-4-40-F11-PD-9-AA-4070_rev00-F0001.dgn**
- **AO34-4-40-F11-PD-9-AA-4070_rev00-F0002.dgn**

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4.8 Dedicated software

Documents SHALL be generated in one of the following native electronic formats:

Function	Software	Highest permissible version	Lowest permissible version
Engineering (drawings)	Autocad	2010	2009
	Bentley Microstation	8i	XM
General graphics	Microsoft PowerPoint	2007	2002 SP3
GIS dataset	ArcGIS	10	9.3.1
Diagrams / flowcharts	Microsoft Visio	2007	2003
Instrumentation Database	InTools or S4I	Refer to GS EP INS 101	
Spreadsheets	Microsoft Excel	2007	2002 SP3
Text documents	Microsoft Word	2007	2002 SP3
PDF	Adobe Acrobat	9.3	7.0

Note 4: Adobe Acrobat parameters.

The following parameters shall be given to the Contractor in order to receive the “PDF” correctly for the PRODOM review:

PDF documents shall be generated from the native application using ADOBE ACROBAT software.

Should Contractor combine different “PDF” files into one PDF file, Contractor shall hereafter use ADOBE OPTIMIZER to generate one coherent PDF file.

Format **PDF 1.6** shall be used.

The Contractor shall **not** use the option “Optimized the PDF for fast web view” when creating a PDF file.

The ADOBE property “Tagged PDF” must be set: **NO**.

Contractor shall deliver PDF files without any protection

Note 5: As a firm principle, the Contractor shall keep until the end of Contract, in accordance with the Company, the software configuration described here above unless mutually agreed and endorsed by the Company (during Contract period). the Company agreement shall, in that case, be required in writing.

5. Template for the title block of the drawings

5.1 Attributes summary table

The following table shows all the attributes that shall be used to identify documents. These attributes have a dedicated field in the title block of drawings or in the header and footer of office documents.

Attributes are defined in [GS EP PJC 701](#).

	DOCUMENT ATTRIBUTES	FIELD FORMAT
Document number	1 Country code	See § GS EP PJC 701
	2 Site code	See § GS EP PJC 701
	3 Sector code	See § GS EP PJC 701
	4 Originator code	See § GS EP PJC 701
	5 Sequential number	See § GS EP PJC 701
	6 Document title	See § GS EP PJC 701
	7 Discipline	See § GS EP PJC 701
	8 Document Type	See § GS EP PJC 701
	9 System	See § GS EP PJC 701
	10 Company name & logo file given by Company	Electronic file
	11 Project name & logo file is given by Company	Electronic file
	12 Document revision number Current document revision number If a document is composed with many folios, each folio can have its own revision number. In that case the document revision number shall be the same as the highest revision number that can be found for a folio	2 digits
	13 Revision Date shall use the format dd/Mmm/yyyy (e.g. 17/Jan/2009)	dd/Mmm/yyyy
	14 Revision description to explain the reason for issuing a new revision	60 digits
	15 Status code of the document: Issued for Comment (IFC); Approved for construction (AFC); As Built (AB)	3 digits
	16 Contractor / Vendor document Reference Number (Free slot)	25 digits
	17 Contractor name & Logo	Electronic file
	18 Name of issuer	25 digits
	19 Name of reviewer	25 digits
	20 Name of approver	25 digits
	21 Folio number (using the automatic software system pagination) If a document is composed with many folios, a cover page will be created with revision as explain in 12 plus a second page given the revision status for all folios	Up to 3 digits

	DOCUMENT ATTRIBUTES	FIELD FORMAT
22	Total number of Folios (using automatic software system pagination)	Up to 3 digits
23	Scale of the drawing if applicable	10 digits
24	Electronic document filename shall be made of the concatenation of the document number supplemented with the document revision number (see example paragraph 4.7)	25 digits
25	Document format (size: A3, A4...)	2 digits

5.2 Drawing template

The Company is able to provide the Contractor with electronic template corresponding to the title block described below in order to help the Contractor to produce and identify drawings in accordance with the Company requirements.

N

The number in the circle refers to the item described in the table section 5.1.

12	13	15	14	18	19	20
00	27/May/2010	IFC	First issue	DV	MH	PF
Revision	Date	Status	Revision description	Issued by	Reviewed by	Approved by
 10		Project name & logo 11		Contractor name & logo 17		
This document is the property of TOTAL and shall not be disclosed to third parties or reproduced without permission of the owner						
This document has been generated by an Electronic Document Management System. When printed it is considered as a "for information only" copy. The controlled copy is the screen version and it is the holder's responsibility that he/she holds the latest valid version.						
6 Document title						
Doc Type:	PID	System :	45	Discipline:	PRO	Electronic Filename AA-FFF-CC-0000-000001_rev00.dwg
Company Document N°	AA FFF CC 0000 000001 1 2 3 4 5			REV: 00	Scale	1/5000
Contractor Document N°	1256 XXXX 2564 YYYY			Format: A3	Folio	1 of 1
8	16	9	12	25	7	21
23	22	24				

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The revision list

Rev.	Status	Date	Designation	Issued by	reviewed by	Approved by
01		DD/Mmm/YYYY				
00	IFR	DD/Mmm/YYYY	First Issue	XXX	YYY	ZZZ

6. Creation of drawings

6.1 Documents concerned

The following groups of technical documents shall be created using electronic support such that, the deliverable, native, revisable, electronic file shall be in 2D Microstation or Autocad format:

- All diagrams & schematics such as: PFD, P&ID.
- Dimensional drawings for all technology trades involved: plots plans, equipment layouts, safety layouts & escape routes, general arrangements (including those of packages and main equipment), cross-disciplinary drawings and package drawings
- Engineering piping isometrics.

Computer aided drafting (CAD) rules are described in Appendix 3.

6.2 GIS requirements

For the field layouts or general arrangements geo-referenced into the Project Geodetic Coordinate System or into a local system, Contractor shall provide the drawings in both CAD and GIS compatible formats for each document revision, as per **GS EP GEO 402** requirements.

7. Templates for office documents

The Company is able to provide the Contractor with electronic templates corresponding to the front page, header and footer described below, in order to help the Contractor produce and identify office documents in accordance with Company requirements.

7.1 Front page

N The number in the circle refers to the item described in the table section 5.1.

Document title			Document number AA FFF CC OOOO 000256
			Revision 00 Status: IFC
Document Type: SPE	System: 26	Discipline: PRO	Rev Date: 21/Apr/2009
Contractor document number: 16545 hfokf ds 534654646 fglkqia			Page 1 of 42

 10	Project name & logo 11	Contractor name & logo 17
---	---	--

This document has been generated by an Electronic Document Management System. When printed it is considered as a "for information only" copy. The controlled copy is the screen version and it is the holder's responsibility that he/she holds the latest valid version.

Document title

Rev.	Status	Date	Revision description	Issued by	reviewed by	Approved by
12	15	13	14	18	19	20

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7.2 Other pages

Header

6 Document title			Document number AA FFF CC OOOO 000256 ① ② ③ ④ ⑤	
			Revision 00	Status: IFC
Document Type: SPE	System: 26	Discipline: PRO	Rev Date: 21/Apr/2009	
Contractor document number: 16545 hfokf ds 534654646 fglkqia			Page 1 of 42	

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Footer

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8. Document work flow

8.1 Master document register

8.1.1 MDR Requirements

The Master Document Register (MDR) is a contractual list of documents to be delivered by the Contractor to the Company within the framework of project. The MDR is an Excel file developed from the template given by the Company to the Contractor. Columns included in the MDR contain all mandatory information needed to manage documentation in PRODOM. The Master Document Register is required to provide the following data:

- A complete list of all documents to be delivered by the Contractor to the Company
- The planned delivery schedule of each of these documents
- Key indexing as required by Company specifications.

The Master Document Register is a key project document, and particular attention must be paid to its creation and maintenance. It must be updated continuously by the Contractor and sent regularly to the Company.

Note 6: Modification of “MDR” format is not allowed.

8.1.2 MDR Modifications and Contractor Responsibilities

The Contractor will highlight and indicate all the modifications made to the MDR since the previous version.

The Contractor will indicate in the column No. 30 “MDR Update Information” of the MDR modifications done to a document as follows:

- N = New document in MDR (New entry)
- M = Modified (for any modification i.e.: in Title, format, etc.)
- C = Cancelled
- S = Superseded

The Contractor is responsible for implementing this specification in full. However, the Master Document Register may, in fact, be a compilation of a series of such registers produced by the Contractor and its Subcontractors.

The Contractor shall ensure that no duplicate document references are created within Contract scope.

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8.1.3 Acceptance Class (regarding Company acceptance)

CLASS (Regarding Acceptance)		
Code	Label	Meaning
1	Company Acceptance Mandatory	This document requires Company Acceptance in order to be issued in a further status. Lead time for the Company review shall be specified in contract
2	Company Review Requested	Company Acceptance is not mandatory but review is requested. Lead time for Company review shall be specified in contract
3	Acceptance or Review NOT Requested	Document sent for Company information only . The Company is supposed to not comment the document

8.1.4 Status of document

STATUS (the current status, written on the revision list of the document)		
Code	Designation	Meaning
AFC	Accepted for Construction	Applies during Detailed Engineering Phase only
AFD	Accepted for Design	Applies during FEED or Basic Engineering for key documents
ASB	As-Built	Status at handover to Operations for document modified after AFC Only
CLD	Cancelled	Document is no longer valid or no longer required
IFA	Issued for Acceptance	Applies to "Class 1" documents
IFI	Issued for Information	Applies to "Class 3" documents
IFR	Issued for Review	Applies to "Class 1" & "Class 2" documents
SPD	Superseded	Document is no longer valid and is replaced by one (or several) document(s)

8.1.5 Transmittal

The use of a specific transmittal sheet is mandatory for all electronic and hard copy documents (technical documents and the return comments) exchanged between the Company and the Contractor.

All documents shall be issued under cover of a transmittal. The Company will provide the Contractor with an electronic Transmittal Sheet template.

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Types of templates for incoming and outgoing transmittals to be used are:

- TS-IN - shall be used by the Contractor to submit deliverables only to the Company (see Appendix 1)
- TS-OUT - shall be used by the Company only to return comments to the Contractor (see Appendix 2).

The use of the “TS-IN” template allows automatic loading of transmitted documents into the Company EDMS.

Note 7: Modifications of “TS-IN” format is not allowed.

8.2 Document delivery

8.2.1 Delivery format

All documents shall be delivered by the Contractor to the Company in PDF except for MDR and transmittals which have to be submitted in native format, although the Company reserves the right to request from the Contractor native files of any document at any time.

The preferred format for PDF is the electronically generated one; scanned documents must be avoided.

In the case where the Contractor has to submit a document in native format which consists of separate files in different formats, i.e. Word, Excel, Power Point, etc, then the files must be included in one ZIP file named as the document reference number (see section 4.6).

8.2.2 Delivery procedure

For security reasons, the exchange of documents shall be done via a Demilitarized Zone (DMZ).

If the DMZ cannot be used, the documents may be delivered by any other appropriate mean (CD, USB key, emails, etc. as per Company requirement).

Whatever the means to deliver the documents, each delivery shall be prepared as follows:

- Create a folder named exactly as the Transmittal
- Put in this folder:
 - The transmittal preferably in .XML format
 - The transmittal itself in Excel format
 - The files of the documents related to this transmittal, and named as per Company requirements.

The “TSIN” and deliverables shall be referenced by Company requirements:

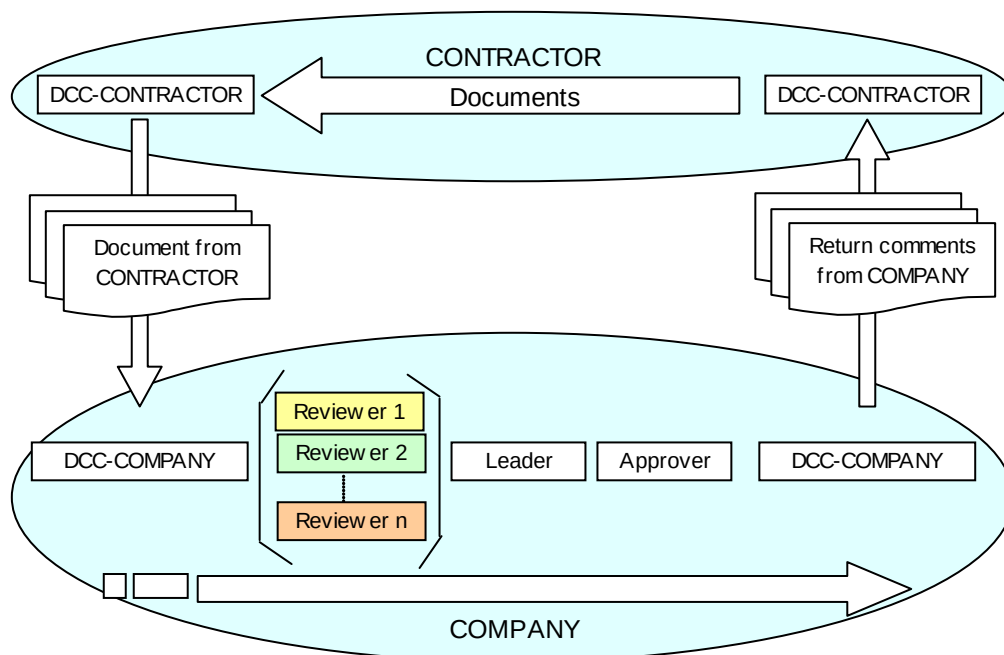
Designation	Example	Notes
Transmittal identification	FFF-TSI-F003-000001.xml FFF-TSI-F003-000001.xls	As described in this specification
Document File Name	AA-FFF-CCCCC-O000-000001_rev01.dwg	As described in this specification
Submission Folder identification	FFF-TSI-F003-000001	Name the folder with files the same as transmittal reference

Note 8: If the shipment is not in line with Company specifications, the Company will reject the shipment, and will inform the Contractor.

8.3 Document review cycle

8.3.1 Document review and acceptance process

The document review and acceptance process is:



Both the Company and the Contractor will appoint a Lead Document Controller. These two persons will be the focal point for all topics regarding documentation.

8.3.2 Document return from the Company to the Contractor for update

After review, comments on documents shall be returned from the Company to the Contractor through a Demilitarized zone (DMZ), or by other means such as CD, USB key, or E-mail.

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The shipment sent by the Company to the Contractor will include the following:

- A PDF file with embedded comments and review comment summary sheet (contains annotated pages only)
- Company "TS-OUT" which shall include the return code.

List of Return Codes from the Company to the Contractor:

Return Code	Meaning	Action expected
Accepted without comment	Approver accepts without comment	Change the status, increment the revision number & submit a new revision
Accepted with comments	Approver accepts with comments	Change the status, incorporate Company comments, update the document, increment the revision number & submit a new revision
Rejected	Document is not in conformity with Company requirement	Put the document in conformity with Company requirements and submit it again in the same status

Schematic overview of the flow of the different status of documents:

During BASIC Engineering

Class 1:	IFR	→	IFA	→	AFD
----------	-----	---	-----	---	-----

Class 2:	IFR	→	AFD
----------	-----	---	-----

During DETAILED Engineering (up to hand-over to Operations)

Class 1:	IFR	→	IFA	→	AFC	→	ASB
----------	-----	---	-----	---	-----	---	-----

Class 2:	IFR	→	AFC	→	ASB
----------	-----	---	-----	---	-----

8.4 Revised document

8.4.1 Submittal of revised documents

The Contractor shall indicate any modifications brought to the Document revised and re-submitted.

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The modified areas shall be identified as follows:

- **Drawings:** by a revision triangle with a cloud shall be used to denote any changes to a drawing at a given revision
- **Other documents:** Changes to the text in documents shall be marked by a revision bar (vertical line) in the left margin and/or by a triangle holding the revision index shall be drawn in the left margin of the document in front of the modified line or paragraph.

A document shall be annotated with revision indicators relevant to the latest revision only - previous revision indicators shall be removed.

Revision History must show the Approvers name in full.

Modified document shall be re-issued in its full content.

8.4.2 Superseded or cancelled documents

When a document is no longer valid, because it is either cancelled or superseded, the Contractor shall inform the Company the reason(s) for such a change.

The Contractor shall send under cover of a transmittal sheet the front page of the cancelled or superseded document(s) for registration in the Company EDMS. This front page shall display in the "revision list" the status "CLD" or "SPD", and in the "revision memo" the references of the new document which will replace it (if any).

The Contractor shall also reflect this change in the MDR as follows:

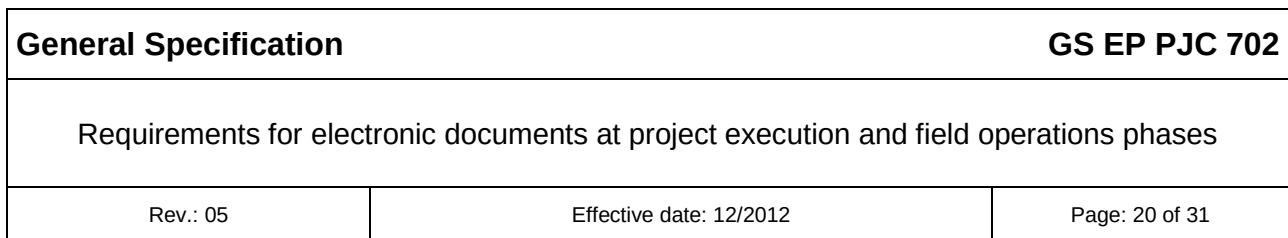
- By the use of the appropriate status "CLD" or "SPD" on the corresponding line in the MDR
- By filling in the column "MDR Update Information" with the letter C or S into the MDR
- By registering in the MDR the references of the new document (with cross references with the document cancelled or superseded in the title column).

The new document replacing the cancelled or the superseded one shall mention in the "revision memo" (front page) what document (reference and title) it replaces or has superseded.

9. Final delivery

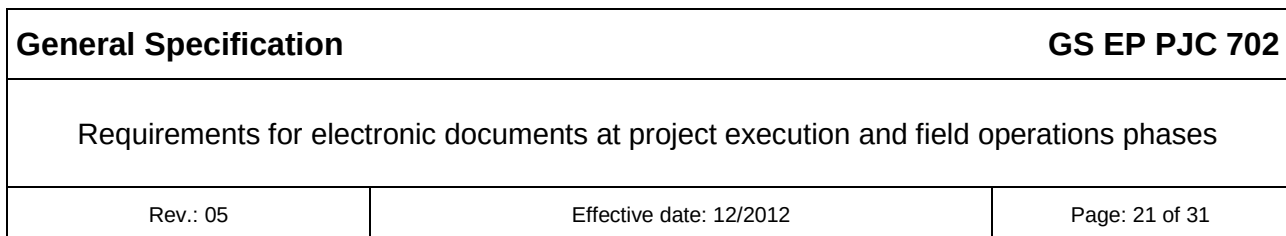
Final documentation (either native or rendition files) will be delivered to the Company in accordance with **GS EP PJC 703**.

Final delivery shall also include electronic documents on media format in full in order to check compliance with the Company EDMS.



Appendix 1 Transmittal Sheet from the Contractor to the Company - TS-IN (Deliverables)

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Appendix 2 Transmittal Sheet from the Company to the Contractor - TS-OUT (Return Comments)

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Appendix 3 Computer Aided Drafting (CAD) rules for PID and PFD

The purpose of this present Appendix is to define the methods and principles governing the use of CAD computer software for those groups of drawings and diagrams listed, and the system of symbols required by Company. These requirements shall be applied by Contractor, Subcontractors and Suppliers.

This document does not concern the industrial drawing standards of the various technology trades involved in creating drawings; its sole purpose is to define rules for the use of the computer tools to give an uniform layout to all documents issued by different operators belonging to a particular company or several different companies.

1- Company CAD TDO tool

When a CAD document from the groups defines in paragraph 6.1 is created, all the requirements specified, including requirements for "Intelligent" components (such as: title block, continuation arrows between P&IDs, instrument and equipment tag symbols, piping line numbering) shall be used.

The Company will present and explain such requirements, as well as their final objectives, to the Contractor at Contract start.

The use of a tool called CAD TDO (provided by the Company), will automatically comply with all the requirements. This tool can be used with both 2D Microstation or Autocad applications.

The Company will provide assistance to the Contractor for the installation of the CAD TDO software at Contract start.

If necessary to add further symbols to Company libraries/files, only those approved by the Company shall be used.

2- Other CAD tools

The use of other CAD tools is possible under two conditions:

- The Contractor shall take the Company graphic chart including library of symbols
- The Contractor shall provide an xml file containing all tags referenced with xy position (equipment, instrument, pipe, pipeline), cross reference and title block as defined in this Appendix 3. On request COMPANY can deliver a XSD file, describing how to generate the XML file.

3- Creating "Intelligent" Title Blocks for EDMS use

The Company title block defined in Chapter 5.2 shall be used.

If Contractor or Subcontractor producing the document wishes to use his own title block or logo, it must be placed above the Company title block, so that both can be read when the document is folded into A4 format.

4- Other "Intelligent" symbols for EDMS use

The use of Company "intelligent" title blocks and "Intelligent" symbols as defined in **GS EP ECI 002** shall be used.

Usage of CAD TDO allows Contractor to comply with this Company specification (GS EP ECI 002).

At completion file delivery, the Contractor shall deliver the following information for each PID:

- The exhaustive list of all component tags (equipment, instrument, piping, pipeline) present in the drawing
- For each tag, its “x,y” position in the drawing.

All above information shall be delivered in an xml file compliant with the CAD-TDO XML format with the same filename as the drawing.

Contractor shall deliver the following files:

- PDF file for Company review
- A ZIP file containing:
 - o Native Microstation or Autocad file
 - o PDF (marked-up/red-lined generated from CAD TDO, to verify compliance of PID (PDF Control file))
 - o Two XML files (one for intelligent data(XML_extract file) and one log file (XML_errors file))

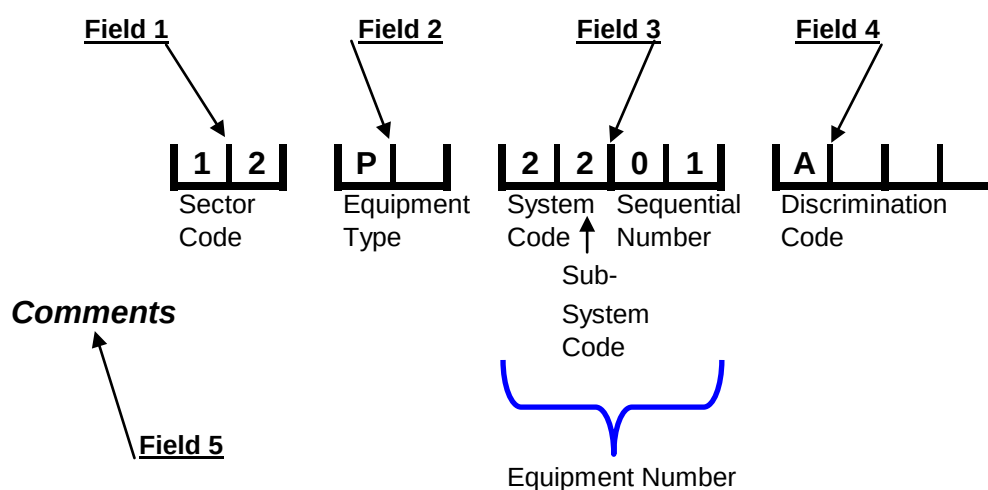
a. Equipment tag

Equipment items shall be identified as per specification GS EP EXP 501, i.e.:

This tag number shall be put on the drawing, close to the relevant equipment (Pump, separator, Compressor...).

Such symbol, when included in a PID shall be an intelligent symbol.

Graphical cell and conventions:



Description of indexed/named input cross reference fields

Field	Title	Characters	Mandatory	Invisible
-------	-------	------------	-----------	-----------

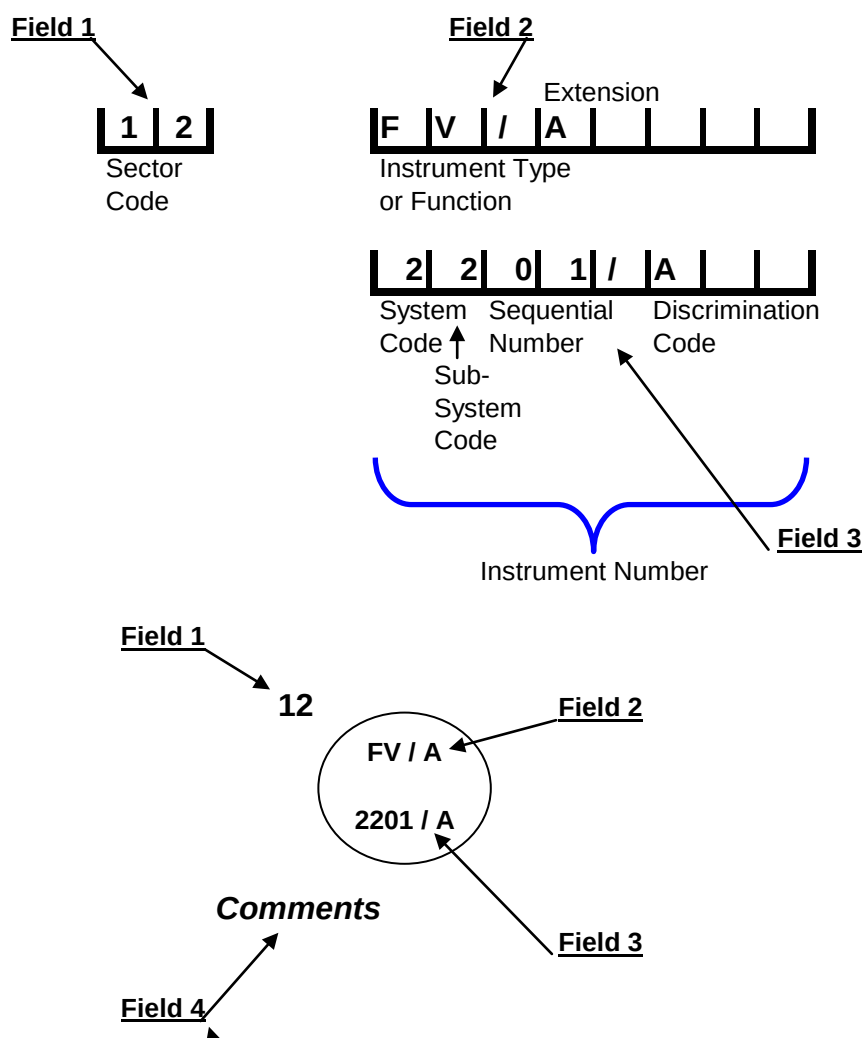
			input	Data
1	Sector	2	Yes	Yes
2	Equipment Type	2	Yes	No
3	Equipment Number (system & sub-system + sequential number)	4	Yes	No
4	Discrimination Code	4	Yes if applicable	No
5	Invisible Data (comments)	25	No	Yes

b. Instrument tag

Instruments items shall be identified as per specification **GS EP INS 102**.

Such symbol, when included in a PID shall be an intelligent symbol.

Graphical cell and conventions:



Description of indexed/named input cross reference fields

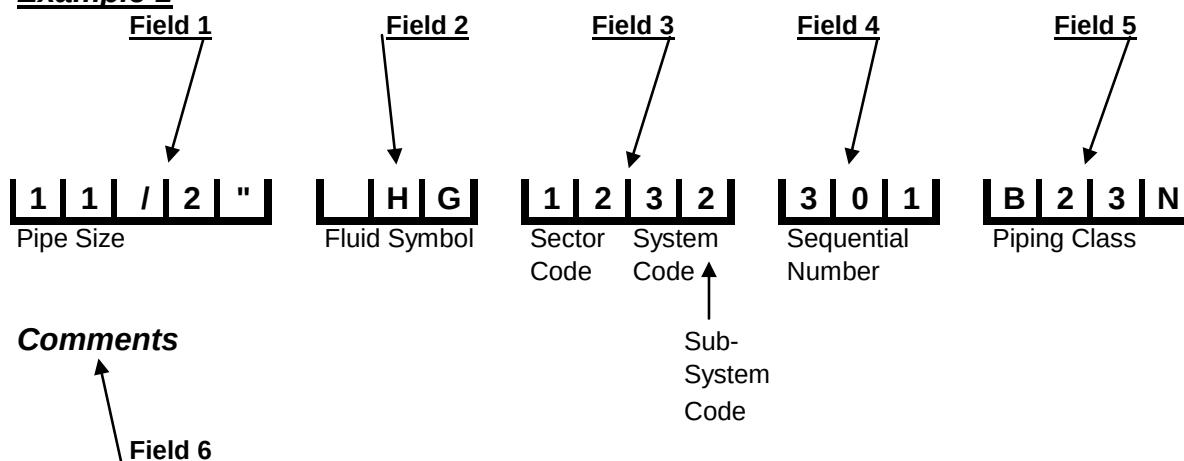
Field	Title	Characters	Mandatory input	Invisible Data
1	Sector code as per GS EP INS 102	2	Yes	Yes
2	Instrument Type or Function and Extension if required	8	Yes	No
3	Instrument Number (system & sub-system as per GS EP INS 102 , sequential number and discrimination code if required)	8	Yes	No
4	Invisible Data (comments)	25	No	Yes

c. Piping numbering

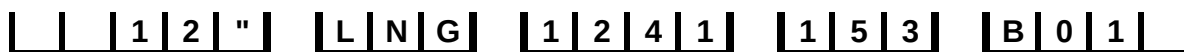
Piping shall be identified as per **GS EP EXP 501**, i.e.:

Graphical cell and conventions:

Example 1



Example 2



This tag number shall be affixed to the drawing, close to the relevant line.

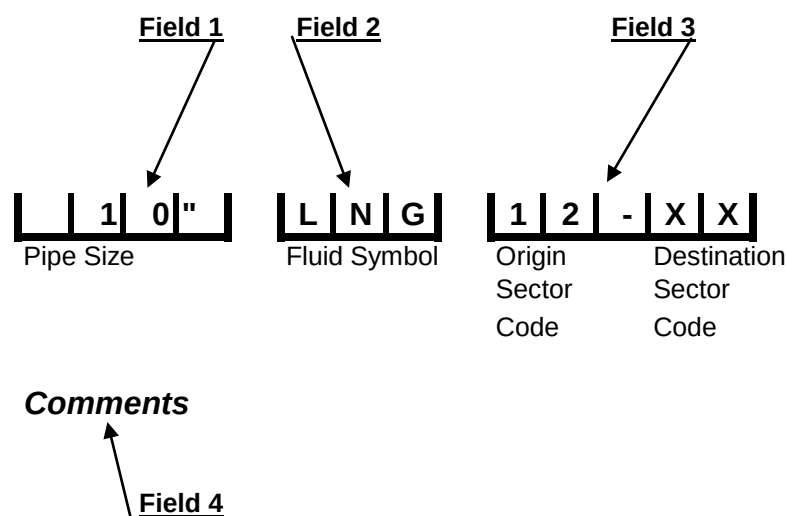
Description of indexed/named input cross reference fields

Field	Title	Characters	Mandatory input	Invisible Data
1	Pipe Size as per GS EP PVV 112	5	Yes	No
2	Fluid Symbol	3	Yes	No
3	Sector Code and System/Sub-system	4	Yes	No
4	Sequential Number	3	Yes	No
5	Piping Class as per GS EP PVV 112	4	Yes	No
6	Invisible Data (comments)	25	No	Yes

d. Pipeline numbering

Pipelines shall be identified as per **GS EP EXP 501** i.e.:

Graphical cell and conventions:



This tag number affixed to the drawing, close to the relevant pipeline.

Such symbols, when included in a PID shall be an intelligent symbol.

Description of indexed/named input cross reference fields

Field	Title	Characters	Mandatory input	Invisible Data
1	Pipe Size	4	Yes	No
2	Fluid Symbol	3	Yes	No
3	Origin and destination Sector Code	5	Yes	No
4	Invisible Data (comments)	25	No	Yes

e. Continuation arrows between P&ID's, cross references

Graphical cell and conventions:

Line or Equipment Number Comment PID ref			
Title	Characters	Model	Visible
Line or equipment Number	25	A	Yes
Comment	25	A	Yes
P&ID Document number (Ref)	25	A	Yes

5- Computer aided drafting rules

Fonts

The fonts used in creation of native 2D CAD documents shall be fully convertible to Adobe ACROBAT when creating a PDF output. These fonts shall be "True Type" (like ARIAL for instance).

Lines symbology

Depending on the nature of the element to be drawn, a system of representation, or symbology, must be observed. This shall take into account the following level, colour, style and weight requirements:

	LEVEL name	LEVEL number	COLOUR (number according to Microstation colour table)	STYLE Description	STYLE (MicroStation number)	WEIGHT (MicroStation codification)
Civil engineering	Element	CE_Element	1	0 white	Continuous	0*
	Axes	CE_Axes	2	0 white	Axis	0*
Structure	Element	ST_Element	6	3 red	Continuous	0*
	Axes	ST_Axes	7	3 red	Axis	0*
Equipment	Element	EQ_Element	11	39 blue	Continuous	1
	Package	EQ_Package	11	39 blue	Dashdot	3
	Axes	EQ_Axes	12	39 blue	Axis	1
Pipe-work	Process	PI_Process	16	6 orange	Continuous	5
	Utility	PI_Utility	16	6 orange	Continuous	2
	Accessories	PI_Accessories	17	6 orange	Continuous	0
	Axes	PI_Axes	20	6 orange	Axis	0
Instruments		INS	21	2 green	Continuous	0
Electricity		ELE	26	0 white	Continuous	2
Text, miscellaneous (Height 2 mm)		TXT	51	0 white	Continuous	0
Font of COMPANY						
Text and symbols for processes		TXT_SYM_Process	52	0 white		
Dimensions		DIM	60	0 white	Continuous	0
Forms and title blocks		TITLE	56	0 white		
Tables of PID equipment characteristics and process symbols		TABLES	57	0 white		
Revision index triangles and bubbles		REV_INDX	58			
Reserved for TFE (miscell.)		TFE_reserved	61			

a. Weights used for plotters

The line weight/thickness combinations (mm/pixel) are defined as per table below.

Microstation Thickness				Approved Thickness
Number		Thickness mm	300dpi No. X resolution	
0		0.17	2	✓
1		0.25	3	✓
2		0.34	4	✓
3		0.50	6	✓
4		0.67	8	
5		0.84	10	✓
6		1.01	12	
7		1.27	15	
8		1.52	18	
9		2.03	24	
10		2.54	30	
11		2.96	35	
12		3.47	41	
13		3.97	47	
14		4.48	53	
15		4.99	59	

b. Libraries / Files

These are made available to the person responsible for creating the diagrams and drawings by Company for the execution of the Contract.

They include:

- The general P&ID symbols which define and enable the drafting of the symbols used to execute P&IDs.
- The format borders and the normalised title block and revision table :
 - A1 drawing format (landscape),
 - Company Development standard title block,
 - Revision table,
- Company source files (Microstation or Autocad), which shall be used for P&IDs.
- The specifics symbols library for :
 - instrument tag,
 - equipment tag,
 - piping numbering,

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- pipeline numbering,
- cross reference

c. Execution Methodology

Elements shall be placed on a grid with a 10 mm pitch for the main unit and a 1 mm pitch for the secondary unit.

In the document format, the inside bottom left corner must be at co-ordinate point (0,0).

All texts shall be entered in uppercase and fractions on three or more characters.

Symbols shall be placed on a scale of 1 unless otherwise specified (bleeds, vents, sampling points,).

6- Delivery of files to Company

a. Computer Aided Drafting documents (2D)

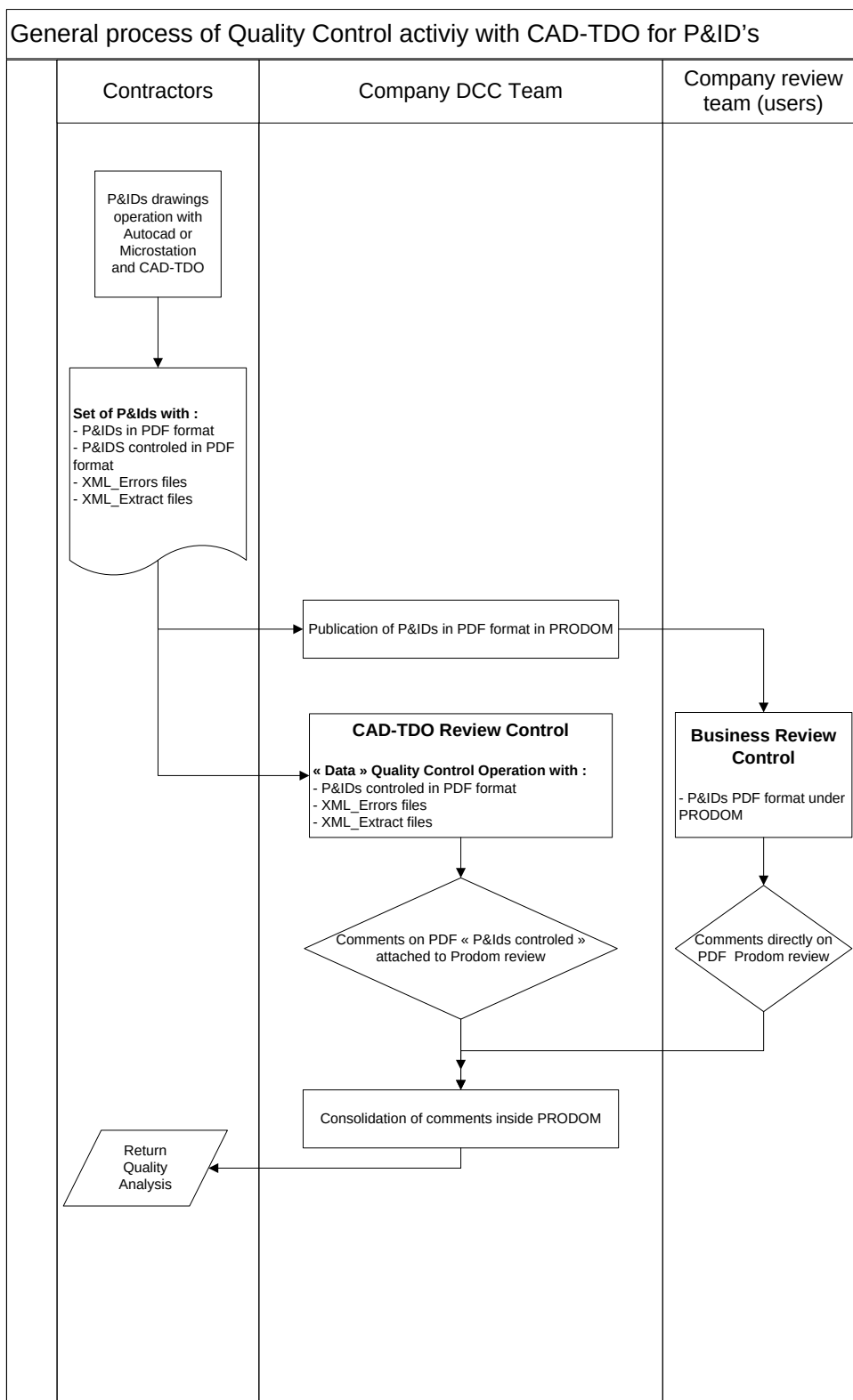
Computer Aided Drafting documents produced for Company, where the native file is a deliverable, shall be supplied to the Company in accordance with the following principles:

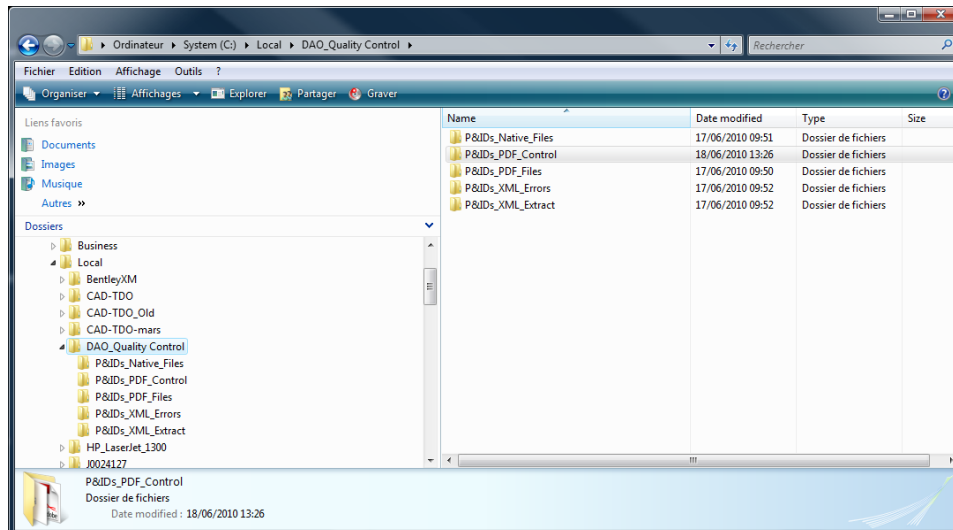
- The file must be supplied in Microstation or Autocad version listed in section 4.8.
- One document per file: 1 drawing $\Rightarrow$ in 1 frame identified by one "intelligent" title block No reference files (the whole document must be contained in a single file).
- No superimposition with the use of levels.
- The file name extension must be ".dgn" (Microstation) or ".dwg" (Autocad).
- The file name will be as specified in section 4.6.
- The native file must be directly readable by the Microstation or Autocad software from its medium and ready to print (no compressed file, no backup).
- Drawings shall be saved as a principal window, full screen and complete drawing (all levels active and all attributes visible) and a secondary window within the principal window with title block area only.
- Transfer to Company shall be in accordance with what is written in section 8.1.5 above.

b. Quality control

Contractor shall ensure that all deliverable electronic files conform to Company requirements prior to delivery. As a minimum, one file of each document group shall be tested in the Company CAD QC tool. The test shall include EDMS fields survey and extracting operations, filenames and delivery rules, the layer and attributes settings, the ability to edit, the plot quality and a "pdf" output file. A record shall be made of the tested files; this record shall be made available to Company.

Process of Quality Control is described here below.

Process of P&ID drawing and control


Structure of QA/QC folders:

P&IDs_Native_Files

- o all the P&IDs in native format – Microstation (*.dgn) or Autocad (*.dwg)

P&IDs_PDF_Control

- o all the P&IDs controlled by CAD-TDO/Content Management tool
- o Draftsman operation : CAD-TDO
 - Content Management
 - Content Extraction
 - o Mark DMS blocks in “dms-check-level”
- o Draftsman operation : Create the PDF with P&IDs controlled (red square and id number around “intelligent Tag”)
- o Lead DCC (or DCC) control : with Acrobat reader
 - Check all the P&IDs in PDF format, to detect errors (Equipement tags or Instruments tags or Cross reference or Line numbering (optional) without “red square”

P&IDs_PDF_Files

- o All the P&IDs in PDF format (without information from QC operation, no “red square”)
- o This format is used during PRODOM Workflow (Company review)

P&IDs_XML_Errors

- o All the XML files result of CAD-TDO extraction process (drawings checks, conformity with CAD specifications)

P&IDs_XML_Extract

- o All the XML files result of CAD-TDO extraction process (XML with all Tag “intelligent” information, by example : x,y position ; name of the tag)