POSC Caesar Work Plan for 2005

POSC Caesar

23 May 2005

Dear POSC Caesar Member,

Please find on the following pages the POSC Caesar Work Plan for 2005.

In 2005 attention is placed on the following main activities:

- Completing a Conformance Ballot for ISO 15926-4 Reference Data Library.
- Initiating a New Work Item for Technical Standard (TS) / Committee Draft (CD) ballot for ISO 15926-3 Ontology for Geometry and Topology. This standard allows CAD, GIS and Earth data to be integrated in the same data repository.
- Improving communication with existing members by making the RDL available with an improved RDS, improving the web site and adding more relevant courses.
- Placing attention on adding more members. This includes more focus on marketing in North America.
- Strengthening the collaboration with the Petrotechnical Open Standards Consortium (POSC).
- Investigating collaboration with FIATECH
- Continuing with participation in the Integrated Information Platform (IIP) project which has added significant extensions to the Reference Data Library for subsea systems.

If you have questions or comments on the POSC Caesar Work Plan for 2005, please contact me.

Yours sincerely,
for POSC Caesar Association

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POSC Caesar

POSC Caesar Work Plan for 2005

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1 Administration

POSC Caesar's administration plans on improving communication with existing members and marketing activities to add more members. In addition, more attention shall be placed on developing practical implementations of ISO 15926.

POSC Caesar's Board has decided that a large portion of the membership fees shall be used to fund the administration of POSC Caesar, some Reference Data Library (RDL) tasks, and necessary ISO processes related to ISO 15926. Most extensions of the RDL should therefore be funded directly by industry.

The budget for POSC Caesar in 2005, taking into account existing members, is approximately € 130 000, -.

1.1 Housing and administrative functions

POSC Caesar plans to continue to rent offices, meeting rooms and IT facilities from DNV. POSC Caesar plans on contracting personnel from DNV for management, accounting, web site updating, supporting projects, meetings, member administration, organising courses / seminars and marketing.

The cost for this activity is estimated to be € 50 000, -.

1.2 New version of the Reference Data System

POSC Caesar's Reference Data System (RDS) is the Association's most important tool and most of its assets are stored in this system. A new tool is needed with additional functionality to better manage the RDL in accordance with ISO 15926 Part 2 (IS). The tool should allow members of POSC Caesar can make proposals for adding reference data to PC-RDL independent of location. The new RDS will be available on the POSC Caesar web site.

POSC Caesar initiated an RDS project in 2004 with OLF and DNV to develop the initial specification and manage the procurement of a new RDS. Pending successful contract negotiations, a vendor, Kalido, has been selected to develop the RDS. Detailed specification, development and migration of the entire ISO 15926 RDL is planned in 2005. This work is to be managed by DNV.

The development cost of RDS is in the order of € 450 000. OLF have agreed to partially fund this project. The Norwegian Defence and DNV have indicated they may fund this project together with OLF. POSC Caesar is not contributing financially to this activity.

For POSC Caesar, the cost for this activity is included in the administrative function activity.

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1.3 Web site

The web site shall continue to be improved with more frequently updated news and information on courses and projects.

POSC Caesar welcomes input form members to improve the web site or to add new information.

The cost for this activity is included in the administrative function activity.

1.4 Existing and New Members

POSC Caesar shall improve communication with existing members by making the RDL available with an improved RDS and improving the web site.

In addition, POSC Caesar shall place attention on adding more active members. Membership of POSC Caesar shall continue to be promoted to the The Integrated Information Platform (IIP) project, the IIP's collaboration partners, oil and gas industry forums, and through direct meetings with leading operators and companies. More attention shall be placed on the North American market.

The costs for this activity are included in other the administrative function activity.

1.5 Collaborations

POSC Caesar's and the Petrotechnical Open Standards Consortium's (POSC) collaboration agreement shall be continued. Though POSC Caesar is satisfied with this collaboration, POSC Caesar shall search for ways to gain more benefit from POSC's international network.

Collaboration with FIATECH shall be explored.

The costs for this activity are included in the administrative function activity.

1.6 Special Interest Groups

POSC Caesar shall investigate the initiation of Special Interest Groups. Such groups allow for designated effort towards specific tasks that are of interest to POSC Caesar members. One group is currently being considered. This group would be dedicated to drilling, to complete and test drilling ontologies in ISO 15926. This group shall work with POSC to identify areas of improvement to the current ontologies.

POSC Caesar is open to initiating other Special Interest Groups dedicated to specific domains or to implement the ISO 15926 RDL. Such groups fund their own work. POSC Caesar provides the forum for developing and testing the RDL, coordinating meetings with members and other interested parties and integrating results with the POSC Caesar RDL.

The cost for this activity is included in the administrative function activity.

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1.7 Managerial and Technical Courses

POSC Caesar shall offer members discounted ISO 15926 executive and technical courses in 2005. Non members shall be charged a higher fee to cover the costs.

A half day executive course on information quality, semantics and integration shall be added.

The cost for this activity is estimated at € 5 000, -.

1.8 Conferences/seminars and membership meetings

POSC Caesar shall offer the membership two meetings in 2005 – one in Stavanger and one in Oslo. The Annual Meeting will be in May in Stavanger.

POSC Caesar plans on participating in conferences to promote ISO 15926. A presentation at Daratech shall be explored.

The costs for these activities are estimated to be € 5 000, -.

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2 ISO 15926

POSC Caesar is heavily involved in the development of the international standard "ISO 15926 *Integration of life-cycle data for process plants including oil and gas production facilities"*. Significant standardization progress was made in 2004.

Today ISO 15926 consists of seven parts:

- *Part 1 Overview and fundamental principles*
- *Part 2 Data model*
- *Part 3 Ontology for geometry and topology*
- *Part 4 Initial reference data*
- *Part 5 Procedures for registration and maintenance of reference data*
- *Part 6 Scope and methodology for developing additional reference data*
- *Part 7 Implementation methods for data exchange and integration*

2.1 *ISO 15926 Part 1:* Overview and fundamental principles

Part 1 is at IS level and is published.

2.2 ISO 15926 Part 2: Data model

Part 2 is at IS level and is published.

2.3 ISO 15926 Part 3: Ontology for geometry and topology

ISO 15926 – 3 is Ontology for Geometry and Topology. The proposed standard will make the concepts defined by ISO 10303-42 and ISO 10303-104 available within the ISO 15926 environment. The ontology defined by ISO 15926-3 will be equally valid for CAD, GIS and Earth models. The use of the ontology will enable CAD, GIS and Earth data to be integrated within the same data repository.

Significant technical progress was made on this standard in 2004.

In 2005, a New Work Item shall be initiated at ISO for the development of a Technical Standard (TS) / Committee Draft (CD) ballot. This is to be followed with a resolution of issues and a TS / CD ballot. It may also be possible to publish this part as an ISO Technical Standard in 2005.

This is not a POSC Caesar activity. However, this work is funded through POSC Caesar's participation in the Integrated Information Platform (IIP) project.

2.4 ISO 15926 Part 4: Initial reference data

A combined NWI proposal and CD/TS proposal was sent for ISO 15926 Part 4 in late 2004.

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In 2005, this NWI is expected to undergo issue resolution. The large number of issues make it likely that a second ballot, a Conformance ballot will be needed. Also, IS conversion of the ISO 15926 RDL is expected to start in late 2005. The entire POSC Caesar RDL is also expected to be converted thereafter. This is a POSC Caesar activity. The cost for this activity is expected to be € 25,000.

Significant additions to the RDL are being developed in the IIP project. This is not a POSC Caesar activity. POSC Caesar's contribution is thorough the IIP project, so no additional funding is expected.

2.5 ISO 15926 Part 5: Registration and Maintenance of Reference Data

A combined NWI proposal and CD/TS proposal is planned for ISO 15926 Part 5 and in 2005.

This is a POSC Caesar activity. The costs for this activity are estimated at € 5 000, -.

2.6 ISO 15926 Part 6: Methodology for Additional Reference Data

A combined NWI proposal and CD/TS proposal is planned for ISO 15926 Part 5 and in 2005.

This is a POSC Caesar activity. The costs for this activity are estimated at € 5 000, -.

2.7 ISO 15926 Part 7: Implementation methods for data exchange and integration

This work is being done in the Netherlands and being reviewed by POSC Caesar. A TS / CD proposal is to be developed in 2005 for standardization. The relationship to the Web Ontology Language (OWL) is under investigation.

This is a POSC Caesar activity. The costs for this activity are estimated at € 5 000, -.

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3 Ongoing and planned projects

Ongoing projects and projects planed for 2005 for extending the reference data and/or creating data sheets are listed below:

3.1 Integrated Information Platform (IIP)

3.1.1 Objectives

The IIP project has the objective of identifying an optimal set of real time data from reservoirs, wells and subsea production facilities, partially improving and integrating this information to provide an open and standardised information platform using ISO 15926-2.

The project will be enabled by integrating the ontologies from several industrial data and technical standards and adding these ontologies to ISO 15926. The project will integrate data and information for subsea seismic, equipment, drilling, production, operation and maintenance. In addition, safety requirements according to the Norwegian Petroleum Directorate (NPD) will be met. The number of information types and the broad scope of this integration in an open solution make this project unique.

The IIP project was initiated with significant support and some financial funding from POSC Caesar. The project was initiated in June 2004 and is anticipated to conclude in June 2007.

3.1.2 Benefits

The ISO 15926 RDL is intended to be extended with the ontologies from the IIP project. These are further planned to be implemented by Statoil and Hydro. The Tyrihans field is a case for the project. This implementation of the ISO 15926 RDL is considered to be significant test of the ISO 15926 Data model and a relevant subset of the RDL.

In addition, the ontology defined by ISO 15926-3 will be equally valid for CAD, GIS and Earth systems. The use of the ontology will enable CAD, GIS and Earth data to be integrated within the same data repository.

3.1.3 Organization

The project is a Norwegian Research Counsel project with CapGemini, DNV, FMC, Hydro, National Oilwell, NTNU, OilCamp, OLF, POSC, POSC Caesar, Poseidon and Statoil as participants. DNV is the project manager.

3.1.4 Project Plan

The project plan for 2005 is to develop Safety and Automation Systems (SAS) ontology, WITSML drilling ontology, equipment ontology that is along the well stream, maintenance and

reliability ontology, Reservoir ontology and Production ontology as part of the ISO 15926 RDL.

These project results will be promoted as ISO and maintained by POSC Caesar.

3.1.5 Deliverables

The project, in 2005, will deliver integrated ontologies spanning several disciplines for the Tyrihans subsea field.

3.1.6 Costs

The projects costs for 2005 are budgeted at 7.7 MNOK, which is covered by the project participants. This is not a POSC Caesar activity. POSC Caesar is a sponsor of the project with a contribution in 2005 of 250,000 NOK (€ 30 000).

3.2 Intelligent data sheets

3.2.1 Objectives

The project shall convert NORSOK's data sheets that are in use in the Norwegian offshore industry today to a set of generic data sheets that are in compliance with ISO 15926. There are more than 300 NORSOK data sheets and they are given on the web site: http://www.nts.no/norsok/. Piping and valves will not be included in this work.

The project may also consider converting selected ISO TC 67 data sheets to be in compliance with ISO 15926.

3.2.2 Benefits

The project is a major step forward to make the data sheets in the NORSOK's standards a part of the global oil and gas industry. Furthermore, it will make the engineering data much more accessible for sharing and exchange across disciplines, organisations and geographical distances. Some solution providers will make these results available for the end-users. Suppliers, engineering and oil companies will benefit from improved work processes in engineering and procurement.

3.2.3 Organisation

The work will be organised as a project or as a Special Interest Group (SIG) by POSC Caesar. Discipline and POSC Caesar technology competence will be available through out the entire project period. The staff will be located in the offices of POSC Caesar, Bærum. Review Teams within different disciplines could be established to secure ownership and commitment from the whole offshore industry.

FIATECH should be approached to share the work load.

3.2.4 Project plan

The project will be divided into manageable and well-defined activities with deliverables and deadlines. The priorities and deadlines will be defined by the needs of the funding group. The following disciplines will be covered:

Discipline:	Number of data sheets
✓ Mechanical Equipment	30
✓ Process	50
✓ Architectural	11
✓ Electrical	12
✓ Drilling	2
✓ HVAC	1
✓ Material	33
✓ Safety	23
✓ Telecommunication Systems	4
✓ Field Instrumentation / Metering	35
✓ IEC 61508	

3.2.5 Deliverables

The project shall deliver reference data and generic data sheets compliant with ISO 15926.

3.2.6 Maintenance and enhancement

These extensions of POSC Caesar-RDL and POSC Caesar's Data Sheet Library (PC-DSL) will be available for all members of POSC Caesar for at least 12 months before some or all of it becomes publicly available through ISO Register. POSC Caesar's membership fees shall cover the costs of maintenance of these extensions.

3.2.7 Costs

The total project cost for the Norwegian data sheets is estimated to approximately € 1 000 000. However, this project can be subdivided. To get the methodology and a few data sheets completed, an initial budget is estimated at € 250 000.

3.2.8 Funding

Hopefully, the Norwegian offshore industry will fund this project. FIATECH may also be interested in participating in this activity.

3.3 Reference data library for piping and piping parts

3.3.1 Objectives

There is an ongoing collaboration activity between suppliers, EPC and oil companies to standardise the classification of article codes for piping and piping parts. This work is primarily based on NORSOK standard for piping and valves, but includes proprietary views as well. The

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reference data of this work shall be included in the POSC Caesar-RDL and in due time become a part of ISO Register. POSC Caesar's RDS will be used to establish mapping options between different proprietary classification systems existing today.

The NORSOK's standards given on the web site: http://www.standard.no/imaker.exe?id=244 .

3.3.2 Benefits

This is an important step forward to make NORSOK's standard for piping and valves a part of the global process industry including oil and gas. Furthermore, establishing mapping possibilities between existing proprietary solutions today will make the piping information much more accessible for sharing and exchange across phases, organisations and geographical distances.

The solution providers will make these results available for the end-users. Suppliers, engineering and oil companies will benefit from improved work processes.

3.3.3 Organisation

The work will be organised as a project with a project manager and a steering committee. Discipline and POSC Caesar technology competence shall be available through out the entire project period. The staff will be located in the offices of POSC Caesar, Bærum.

A global Review Team will be established that consists of skilful engineers from the solution providers, suppliers and companies funding the project.

3.3.4 Project plan

The project will be divided into manageable and well-defined activities with deliverables. The priorities and deadlines will be defined according to the needs of the industry.

The project starts is planed to be in 2005.

3.3.5 Deliverables

The project shall deliver reference data in batches according to a defined schedule. Furthermore, the project shall deliver solution for handling the mapping between different existing classification systems today.

3.3.6 Maintenance and enhancement

This extension of the POSC Caesar-RDL will be available for all members of POSC Caesar for at least 12 months before some or all of it becomes publicly available through an ISO Register. POSC Caesar's membership fees will cover the costs of maintenance of this extension.

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3.3.7 Costs

The costs of this reference data part of this project is estimated to € 200 000, -. In addition, there will be some additional costs for developing necessary software. VAT is not included.

3.3.8 Funding

Some of the major operators on the NCS will be the potential sponsors of this project.

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4 Potential projects in year 2006+

A potential project that is of interest for 2006 is as follows.

4.1 Engineering Data Integration Across Cultures

4.1.1 The business case

The process and energy industries are conservative industries. The oil companies are the major drivers in these industries for implementing new technology and improve work processes. Major global oil companies such as ExxonMobil, Shell, BP, ChevronTexaco, Total and Statoil are now using technology based on different version of ISO 15926. Major global engineering companies such as Bechtel, Flour, Halliburton (KBR) and Foster Wheeler are also using this technology and some of them claim that this is the future of engineering. Furthermore, there are solution providers such as AVEVA, EPM Technology, Enterprise Software Solutions Inc. (ESSI), Intergraph and VisiWorld that provide engineering software and content providers such as Pearson & Harper and Tektonisk that provide engineering equipment information based on ISO 15926. This standard is now proven technology.

The challenges of most industries are lack of effective information sharing across different professional groups within a corporation, between partners in projects, between suppliers and buyers and so on. Studies done in the 90-ies have shown that effective sharing of engineering information in developing and operating an asset can reduce the total costs with 20-30%. So many corporations are now establishing engineering data warehouses to cope with this problem, but lack of common terms and lack of interoperability between engineering systems, ERP systems and B2B systems makes this process slow and very costly.

Specifically, many B2B market places recognise today that the most difficult problem to solve is the establishment of product catalogues. Most vendors define their products and services in proprietary terms that generate confusion and misunderstanding when integrated into common catalogues. In some cases the vendors are “persuaded” to use existing classification systems, but none of them are consistent and rich enough to cover the needs. Furthermore, it is very costly for the vendors to accommodate to many different classification systems.

The purpose of this project is to address these business challenges by translating the technology to several official languages of the European Union and accommodating the solutions for communications to local (National) needs. Furthermore, the technology will be extended to cover all major engineering disciplines in the process and energy industries. In close collaboration with some major stakeholders among solution providers and end-users more interoperable life cycle engineering information from Europe will be on Internet.

Europe has spent many 100s of man-years in developing ISO 15926, but is now lagging behind in implementing and using this powerful technology.

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4.1.2 Objectives

The EDIAC project shall:

1. Extend the RDL of ISO 15926 to include the most common engineering data sheets for handover (project to operation) and procurement in France, Germany, Italy and UK
2. Translate the ISO 15926 to French, German and Italian
3. Develop software for generic data sheets compliant with ISO 15926 for the data sheets in item 1 above
4. Involve major market drivers and some competent solution providers

By using Internet, this approach will extend the capabilities of this technology to integrate engineering data across disciplines, phases, geographical distances, linguistic communities and different cultures and thus:

1. Facilitate the implementation of "think global, act local" strategy
2. Enable products and services tailored to national and linguistic communities
3. Reduce cost and shorten time-to-market
4. Facilitate effectively re-use of information in engineering and in procurement
5. Facilitate extension of the methodology to other industries and cultures

4.1.3 Organisation

A Steering Committee with representatives from the Co-Ordinator and the Contractors will be established. A Project Manager shall be appointed to report to the Steering Committee.

The project will be organised in 4 subprojects.

- A Technical Advisory Network (TAN) will be established for each subproject except subproject 4, which consists of skilful discipline engineers from companies funding the program.

4.1.4 Project plan

The project will be divided into 4 subprojects each with activities/modules for every 3 months with concrete deliverables. Each subproject will define its activities in a Gantt diagram.

4.1.4.1 Subproject 1 Extension of the Reference Data Library for ISO 15926

For each equipment/function, the extension of the RDL will be based on at most three data sheet from three different cultures/participating countries. The engineering disciplines to be covered are:

(#Data Sheets)

- Field Instrumentation / Metering (35) (Example: http://www.nts.no/norsok/)
- Mechanical Equipment (30)
- Piping and Valves incl. Materials (1150)

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- Process Systems (25)
- Electrical Systems (9)
- Telecommunication Systems (4)
- Lifting Equipment (10)
- Safety Equipment (18)
- Material Data (38)
- Mechanical Completion and Commission (38)

4.1.4.2 Subproject 2 Translating the ISO 15926 to German, French and Italian

This subproject will be run in close collaboration with National institutions in German, France and Italy. Modern technology for translating between languages will be used.

4.1.4.3 Subproject 3 Generation of generic data sheets compliant with ISO 15926

This subproject will generate generic data sheets to the Data Sheets Library (DSL) for each equipment/function covered in subproject 1 for 3 cultures in compliance with ISO 15926. The methodology will be based on ISO 15926, ISO 18876 and the Epistles Templates.

4.1.4.4 Subproject 4 Implementation of the results in engineering software and content providers

This subproject will present plan for how and when the results of subproject 1, 2 and 3 can be implemented in commercial products and be general available for the European Communities. Some of the major market drivers and the solution providers will staff this project.

4.1.5 Deliverables

Subproject 1 shall deliver reference data batches every 3 months and cover all reference data on the data sheets within the defined disciplines. Subproject 2 shall translate ISO 15926 to English, German, French and Italian. Subproject 3 shall generate generic data sheets compliant with ISO 15926 every 3 months and for each equipment/function in four languages and three cultures.

The deliverables of this project will be general available on http://www.posccaesar.com/. POSC Caesar shall have the Intellectual Property Rights to these deliverables (most of this material will in due time be the property of ISO as ISO 15926).

4.1.6 Maintenance and enhancement

This extension of PC-RDL will be available for all members of POSC Caesar for at least 12 months before some or all of it becomes publicly available through ISO 15926. POSC Caesar's membership fees will cover the costs of maintenance of this extension.

Any further enhancement of the RDL, has to be funded separately based on POSC Caesar's not-for-profit pricing system. Enhancement can be run as a timely on-demand service.

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4.1.7 Costs

Based on experience from previous data sheet projects in POSC Caesar it requires approximately 30 minutes per reference data instance starting up a new discipline area. For a similar data sheet from another culture will require 15 minutes per reference data instance. Expected hourly rate of for a senior engineer is Euro 132, - so each instance will cost Euro 66, -. With a total of 150 non-piping data sheets with an average of 75 entities per data sheet total cost for generating the RDL for these data sheets in one culture will approximately be Euro 750 000, -. There will be some overlapping between the data sheets from the different cultures so it is reasonable to estimate only 300 additional data sheets for the 3 other cultures and these costs are Euro 750 000, -.

The cost of translating ISO 15926 plus the RDL from this project to French, German and Italian are Euro 300 000, -.

The cost of generating 450 generic data sheets are estimated to Euro 700 000, -.

The 1100 piping data sheets are more similar in nature and can be handle more effectively. Generating the reference data and the generic data sheets will require a total of Euro 1100 000, - for all 4 cultures.

The total budget for the project is € 1 900 000, -.

This cost estimate is based on the most effective way of organising the project. If some sponsors would like to build in ownership or educational aspects for its own employees, this can easily be dealt with, but any extra costs have to be paid directly by those sponsors.

4.1.8 Funding

This project needs sponsors from Italy, German, and France to get 50% EU-funding. Furthermore, the sponsors should be a mixture of suppliers, EPC and oil companies, e-content providers and solution providers.

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