POSC Caesar

Work Plan for 2007

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1   Summary

In 2007, the following activities are planned.

Improve benefits for members as follows:
- Add Special Interest Groups, Production, Drilling, and Operations and Maintenance
- Improve user courses for ISO 15926 and add courses for the Reference Data System.
- Continue focusing more on implementations of the Reference Data Library, for example with Bechtel, AVEVA, Bentley, Intergraph and Noumenon.
- Continuing participating in an EU research project, DEPUIS, for developing course material and eLearning for ISO 15926.
- Arrange for a Members Meeting in Stavanger, Norway on 26 April.
- Placing attention on adding more members, including more focus on operators and suppliers.
- Re-evaluating the working relationship with USPI.
- Continuing the collaboration with OLF
- Continuing the collaboration with FIATECH.
- Continuing the collaboration with Energistics, formally Petrotechnical Open Standards Consortium (POSC).
- Establish a formal collaboration with MIMOSA and Open O&M.

Support the finalization of ISO 15926 standards (in prioritized order):
- *ISO 15926 – 4 Initial reference data* to be published by ISO as a Technical Specification (TS), provided ISO shall not charge for use of this standard.
- *ISO 15926-3 Ontology for geometry and topology* to be published by ISO as a Technical Specification (TS), provided ISO shall not charge for use of this standard.
- Participate in the work to resolve ballot issues and prepare *ISO 15926-6 Methodology* for additional reference data for publication as an ISO Technical Specification (TS).
- Participate in the work to develop a Maintenance Agency for reference data in ISO.
- Participate in the work to resolve ballot issues and prepare *ISO 15926-7 Implementation Methods for the integration of distributed systems* for a confirmation Technical Specification (TS) ballot. Following a successful ballot the TS shall be published by ISO.

Develop new reference data and product models:
- Complete the Integrated Information Platform (IIP) project which has added extensions to the Reference Data Library for subsea systems production, daily production reporting and daily drilling reporting.
- Continue in the new Intelligent Data Sets and Collaborative Work Process (IDS) project to focus on the implementation of reference data and the development of Product Models.
- Try to initiate the Integrated Operations in the High North project to focus on implementations of reference data.

The POSC Caesar Association budget for 2007 is shown in Figure 1 and reflects the work plan.

Only available for the members.

Figure 1: 2007 Budget for POSC Caesar

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1 Administration

POSC Caesar's administration plans on continuing focus on adding more members.

Collaboration with OLF and FIATECH shall be strengthened. The formal collaboration with Energistics (POSC) shall be continued. Formal collaboration with MIMOSA shall be established.

More attention shall be placed on the use of the RDS and developing practical implementations of ISO 15926.

POSC Caesar's Board shall decide whether to continue the ISO processes related to ISO 15926. An industry standard may be adequate.

Extensions of the RDL must be funded directly by projects. POSC Caesar shall continue to act as a forum to sponsor new projects.

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, supporting projects, meetings, member administration, organising courses / seminars and marketing. Alternative solutions for web site updating will be investigated.

1.2 New version of the Reference Data System

POSC Caesar's Reference Data System (RDS) is the Association's tool for administering reference data. A new tool has been developed funded by OLF, Norwegian Defense and DNV. The new tool is managed by DNV. Through the Intelligent Data Sets (IDS) project, additional functionality shall to add and search for information using the Bentley Class editor. A generic interface that can be used by the Bentley Class editor shall be developed.

A high level business model for the RDS led to the following conclusions:
- focus should be placed on the neutrality of PCA
- courses could be added as potential revenue sources
- projects could contribute revenue to PCA to fund RDS activity

The business model conclusions for the RDS shall be implemented in 2007.

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

1.3 Web site

The web site has been simplified. It shall be kept updated. Additional funding will be sought.

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1.4 Existing and New Members

Several new members were added in 2006. This includes BP continuing as a member, Bechtel, Bentley, Innotec and Petronas. In 2007 focus shall be placed on adding more operators and suppliers.

The current member prices shall be continued.

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

1.5 Collaborations

Collaboration with OLF continues to produce results. In particular, this cooperation has helped to initiate the Daily Production Report, the Daily Drilling Report and the Integrated Operations in the High North project proposal.

POSC Caesar has formalized the collaboration with FIATECH. This collaboration shall be used to arrange common ISO 15926 courses, joint presentations and supporting each others activities.

POSC Caesar's collaboration agreement with Energistics, formally the Petrotechnical Open Standards Consortium's (POSC) shall be continued. The collaboration with Energistics should be defined with mutual benefits and measurable goals. In 2007 an effort shall be made to define specific activities with Energistics which are of benefit to both POSC and POSC Caesar. Currently, POSC receives benefits from the use of reference data which was developed with the support of POSC Caesar (for example, the daily production report which was used to develop the PRODML standard).

Formal collaboration with MIMOSA shall be established.

POSC Caesar may attempt to seek other collaboration partners, as directed by the Board. However, focus shall be placed on existing collaborations before adding additional administrative responsibility.

The costs for this activity are included in the administration activity.

1.6 Special Interest Groups

POSC Caesar initiated the concept of Special Interest Groups (SIG's) in 2006. Such groups allow for designated effort towards specific tasks that are of interest to POSC Caesar members. Though several groups were planned, only the Subsea equipment group was active in 2006.

A business model for SIG's was developed. SIG's are not intended to be a source of revenue generation for POSC Caesar, but rather a source for additional technical work that is needed to standardize large amounts of reference data. SIG's also are a vehicle for promoting practical implementation of portions of the RDL and for distributing technical know how about the PCA RDL to industry

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POSC Caesar is planning to initiating Special Interest Groups dedicate to Production, Drilling, and Operations and Maintenance.

The cost for this activity is included in the administration activity.

1.7   Managerial /Technical Courses, Conference / Seminars, Membership Meeting

POSC Caesar shall assist in the development of ISO 15926 technical courses. Currently, a three day modelling course exists. This shall be upgraded and a second reference data development and implementation course shall be developed.

Also planned is a half day executive course on information quality, semantics and integration.

If course are offered in the USA, FIATECH shall be asked to assist POSC Caesar.

POSC Caesar shall offer the membership one meeting in 2007. The meeting will take place in Stavanger 26 April. The Annual Meeting will be decided by the Board.

POSC Caesar plans on participating in conferences to promote ISO 15926. A presentation at Daratech is planned.

The costs for these activities are included in the administration activity.

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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"*.

Today ISO 15926 consists of six parts:

- ♦ *Part 1 Overview and fundamental principles*
- ♦ *Part 2 Data model*
- ♦ *Part 3 Ontology for geometry and topology*
- ♦ *Part 4 Initial reference data*
- ♦ *Part 6 Methodology for the development and validation of reference data*
- ♦ *Part 7 Implementation methods for the integration of distributed systems*

In 2007, priority shall be placed on Part 4, Part 6, Part 3, and Part 7 in that order. Focus shall be placed on preparing ISO Technical Specification's (TS) instead of International Standard's (IS).

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

Part 1 is at IS level and is published by ISO.

2.2 *ISO 15926-2: Data model*

Part 2 is at IS level and is published by ISO.

2.3 *ISO 15926-3: Ontology for geometry and topology*

ISO 15926 – 3 will make the concepts defined by ISO 10303-42 and ISO 10303-104, including concepts in Earth models and the GIS standards ISO 19107 and ISO 1911, available within the ISO 15926 environment. The ontology defined by ISO 15926-3 will be equally valid for CAD, GIS and Earth models.

In 2005, a New Work Item was initiated at ISO for the development of a Technical Specification (TS). After a successful ballot, this was followed with a resolution of issues in 2006. In 2007 ISO 15926-3 is to be published by ISO as a Technical Specification (TS), provided ISO shall not charge for use of this standard.

This work for 2006 was funded by the Integrated Information Platform (IIP) project which is POSC Caesar is a member and is partially funding.

2.4 *ISO 15926-4: Initial reference data*

Work was ongoing with USPI to prepare Part 4 as an ISO Technical Specification (TS) for the initial reference data in 2006. This work was completed by the end of 2006, with the exception of loading this data in the RDS. If an agreement cannot be reached with ISO for the costs of using the initial reference data, ISO TS shall not been pursued.

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The entire POSC Caesar RDL has been converted to the IS version of Part 2.

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

ISO TC184/SC4 started an initiative to develop an ISO Maintenance Agency for reference data. Standards and procedures developed by this initiative shall replace Part 5. POSC Caesar has participated in this activity. PCA shall continue to participate in this activity in 2007.

2.6 ISO 15926-6: Methodology for Additional Reference Data

A combined NWI proposal and CD/TS proposal has been prepared for ISO 15926 Part 6.

In 2007 this proposal will be sent out for ballot and POSC Caesar will be involved in resolving ballot issues and preparing ISO 15926 Part 6 for publication as an ISO Technical Specification (TS).

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

ISO 15926-7 is defining and testing implementation methodologies. Through the IDS project a short cut implementation strategy for using Part 4 reference data as a dictionary of standard terms was developed.

The Accelerating the Deployment of ISO 15926 (ADI) project is working to develop a more complete implementation strategy using templates.

In 2007, the work involves resolving ballot issues and prepare ISO 15926-7 for a confirmation Technical Specification (TS) ballot. Following a successful ballot the TS shall be published by ISO.

POSC Caesar is partially covering the costs for evaluating and testing implementation strategies and is working with ongoing IDS and ADI projects.

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3 Ongoing and planned projects

Ongoing projects and projects planned for extending the reference data and/or developing data sheets are listed below:

3.1 Integrated Information Platform (IIP)

This project will be completed in June 2007. It is partly funded by the Norwegian Research Council.

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 reference data from several industrial data and technical standards and adding these reference data 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 reference data from the IIP project. This is being supplemented with the Daily Production Report and the Daily Drilling Report.

In addition, the reference data defined by ISO 15926-3 will be equally valid for CAD, GIS and Earth systems. The use of the reference data 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, IBM, National Oilwell, NTNU, OilCamp, OLF, Energistics (POSC), POSC Caesar, Poseidon and Statoil as participants. DNV is the project manager.

3.1.4 Project Plan

The project plan for 2006 is to focus on demonstration of project results, and continue to develop ontologies for Daily Drilling Reporting, Monthly Production Reporting, Condition Monitoring and sub-sea equipment part of the ISO 15926 RDL.

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

3.1.5 Costs

POSC Caesar is a sponsor of the project, but for 2007 the POSC Caesar contribution is zero.

3.2   Intelligent data sheets and collaborative work processes

This is a new project that started in January 2006. This project is partly funded by the Norwegian Research Council.

3.2.1 Objectives

The project shall develop product models that are independent of presentation formats and link these models to types of data sheets and Work to Work interactions. By expressing data and information from data sheets in a standardized manner, independent of the presentation format, the limitations with traditional data sheets where the meaning of data can only be fully understood in the context of the presentation format are removed. Such 'implicit information' has been a barrier to successful sharing and exchange of data since the start of data exchange. By standardizing terms and definitions in a product model information is defined in a neutral way for use also by other interested parties and applications. The implicit information originating from the data sheet formats will be made explicit and included in the model. Such product model representation of all the data related to a type of product allows user definable subsets of the data as well as the full set to be shared or exchanged and to be reused across applications, engineering disciplines, organizations, and information life cycle phases at the user's discretion. This concept is called "Intelligent Data Sheets". This concept supports the introduction of new work processes as data can be packaged on an 'as needed' basis as opposed to 'what is available' basis.

Existing data sheet are often a combination of process requirements, related to Tag numbers (Functional Locations) and product properties related to model/type numbers from manufacturers. The intelligent data sheets and associated product model will split these two parts of existing data sheets, making the product models more readily available for reuse and seamless communication between involved parties.

The project shall also develop a test facility. This facility shall be able to manage the ISO standardization process and manage the reference data developed for the product models. The test facility shall contain the product models and should be able to support an international working environment for reference data and these product models.

3.2.2 Benefits

This project aims to improve the time, cost and errors in business processes as effective exchange based on standardised product models offers value to participants by facilitating the migration to more efficient collaborative work processes with a high level of data integrity.

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The results of this project can be used by both existing and new oil&gas field development projects.

3.2.3 Organization

The project consists of funding from the Norwegian Research Council, Statoil, DNV, Intergraph, AVEVA, FMC, Innotec / iXIT, AkerKvaerner, OLF, POSC Caesar Association and the University of Stavanger.

The FIATECH Accelerating the Deployment of ISO 15926 (ADI) is also working to implement templates. IDS is collaborating with ADI.

3.2.4 Deliverables

The project shall deliver a methodology and product models with ISO 15926 reference data for selected NORSOK data sheets. The plan for the project is also to develop a test facility and interfaces to software to test the methodology, product models and associated reference data.

3.2.5 Costs and Funding

The total project cost for the Norwegian data sheets is estimated to approximately Euro 2.45 M over three years. The funding from POSC Caesar Association is planned at approximately 12,000 Euros for 2006 and 40,000 Euros for each of 2007 and 2008.

3.3 Design of Environmental Products Using Information Standards (DEPUIS)

This is a new project. The project is funded by the EU.

3.3.1 Objectives

The objective of DEPUIS is to extend the results of the CASCADE to improve the environmental design of new products and services through the innovative use of new information standards.

The standards are applications of ISO 10303 Product data representation and exchange, ISO 13584 Parts Libraries and ISO 15926, in particular it's Reference Data Library. Each of these standards uses an information model to provide a computer-processable specification for product data that is independent from any proprietary software system. These standards support the neutral exchange of data between different computer systems and are the basis for long-term data retention and archiving. The main strategic objective of this project is to enable more companies, particularly SMEs, to use life cycle thinking on the environmental impact of their design of new products, in conformance with the Communication on Integrated Product Policy of the European Commission.

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The project has two main actions: provision of e-learning on the new technologies and opportunities created by the information standards and also ISO 14048; workshops to achieve interaction between users and developers of the standards to speed up the acceptance and dissemination of the new methods.

The outcome from the workshops will be used to prepare policy recommendations to ISO and CEN in the areas of standardisation and innovation for reducing environmental impact.

3.3.2 Benefits

The DEPUIS project has therefore two aims: to use e-Learning to overcome the lack of understanding of the principles of product data technology in the wider design community and among advisors of SMEs and to expand the number of people who can apply the use of these standards in the design of environmental friendly products.

The combination of the e-Learning and the workshops will enable a dialogue between the standards developers and the people for whose benefit the standards were developed.

3.3.3 Organization

ENEA (Italy), Ferroday Lmt. (UK), Envirolink North West (UK), Caesar Systems Limited (UK), POSC Caesar Association (Norway), USPI NL (The Netherlands), LKSoftware (Germany) and UAB LK Soft Baltic (Lithuania) are project participants.

3.3.4 Deliverables

POSC Caesar deliverables are:
- Update the reference data library with the new version of ISO 14040 and ISO 14044.
- Establish product models that are tailored for guiding eLearning students in the use of the standard interface to the ISO 15926 RDL.
- Establish an on line interface to ISO 14048 documentation format.
- Develop course material
- Attend workshops and meetings

3.3.5 Costs and Funding

The POSC Caesar project cost is 135,000 Euros. This project cost is anticipated to be covered by EU research funds. POSC Caesar is not expected to pay for any of these costs. This project is expected to be completed in 2007.

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4 Appendix: Potential projects in year 2007+

Potential projects that are of interest in 2007 are as follows.

4.1 Integrated Operations in the High North

4.1.1 Objectives

The primary objective of this project is to develop prototypes for a digital infrastructure and a semantic platform to implement Integrated Operations Generation 2 (IO G2)[1] processes for 'zero footprint' solutions. This digital infrastructure for IO G2 shall facilitate the use of limited operational personnel and the monitoring of environmental and hazardous conditions in the high North. The infrastructure will be prototyped and consists of the following elements:

- real time information between sensors, activators and nodes in a high capacity network, by developing autonomous sensor-near software
- information transfer, connecting professional services to network nodes, by investigating networks and developing a platform for web services and information validation
- information integration, by developing an oil and gas ontology to support the interpretation of sensor data, the platform for web services and information validation services

Furthermore, the developed prototypes shall be piloted with the goal of improving well construction, optimizing production and recovery rates and optimizing corrective maintenance activities. These pilots shall demonstrate the feasibility of the technologies developed.

4.1.2 Benefits

The project shall endeavor to complete the reference data for improving well construction, optimizing production and recovery rates and optimizing corrective maintenance activities. In addition a test center for information quality is planned.

4.1.3 Organization

The following Norwegian branch associations have agreed to participate and to encourage their members to participate:

- Trade and employers association OLF (The Norwegian Oil and Gas association) associated NHO (Confederation of Norwegian Business and Industry)
- Trade and employers association Abelia (Business Association of Norwegian knowledge- and technology based enterprises) associated NHO

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- Trade and employers association FSi (Business Association of Norwegian defence and safety based enterprises) associated with NHO

Furthermore, these associations have asked Det Norske Veritas (DNV) to take the administrative responsibility for the program and to appoint a competent manager for program. DNV has accepted this responsibility and has appointed Nils Sandsmark as program manager.

4.1.4 Project Plan

This is a four year project.

The project will be divided into six activities. There will be one activity leader per activity and one manager for the whole program. The companies listed in this section have committed to joining the project.

Activity 1: Autonomous subsea network and associated software for monitoring of wells, equipment, facilities and the environment in the High North will be developed and led by the University of Oslo (UiO).

Activity 2: Networks, infrastructure and a platform for web services for monitoring of wells, equipment, facilities and the environment in the High North will be developed by Telenor, Capgemini, the University of Tromsø (UiT), Norut IT and Invenia. Under discussion, this activity shall be lead by Telenor.

Activity 3: The "semantic web" for the oil & gas domains and information validation services will be developed and led by DNV. In addition, SINTEF IKT shall develop ontologies for geometry and topology.

Activity 4: Pilot for Drilling and Completion includes a full drilling demonstration using the Ullrigg test rig at IRIS and the digital infrastructure developed in this project. The experiment setup will be centred on conducting drilling operations from Ullrigg, using the Drilltronics Rig system and monitoring the operations from the ELAD laboratory. IRIS and National Oilwell Varco shall develop this activity. IRIS will lead this activity.

Activity 5: Pilot for Reservoir & Production shall include methodologies that use real time data and rules for simultaneously optimizing reservoir and production. This activity shall build on the digital infrastructure and the semantic platform be led by Centre of Integrated Operations.

Activity 6: Pilot for the Operation & Maintenance shall demonstrate that the digital infrastructure and the semantic platform developed in this project can be used by key equipment and operation & maintenance processes. This activity is to be developed by Statoil, IBM, DNV and other partners. It will be led by Statoil.

4.1.5 Deliverables

New reference data shall be added to the RDL. A test center shall be developed.

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4.1.6 Maintenance and Enhancements

Reference data shall be managed by the RDS and enhanced through Special Interest Group's and POSC Caesar. POSC Caesar shall receive NOK 500 000 per year from the project to cover its costs.

4.1.7 Costs

The costs for this project are anticipated at 83.5 MNOK.

4.1.8 Funding

The Norwegian Research Council, Associations and industry shall be asked to cover project costs. POSC Caesar is not funding this project.

4.2 Reference data library for piping and piping parts

4.2.1 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 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 .

4.2.2 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.

4.2.3 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.

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4.2.4 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 planned to be in 2006 or later.

4.2.5 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.

4.2.6 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.

4.2.7 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.

4.2.8 Funding

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