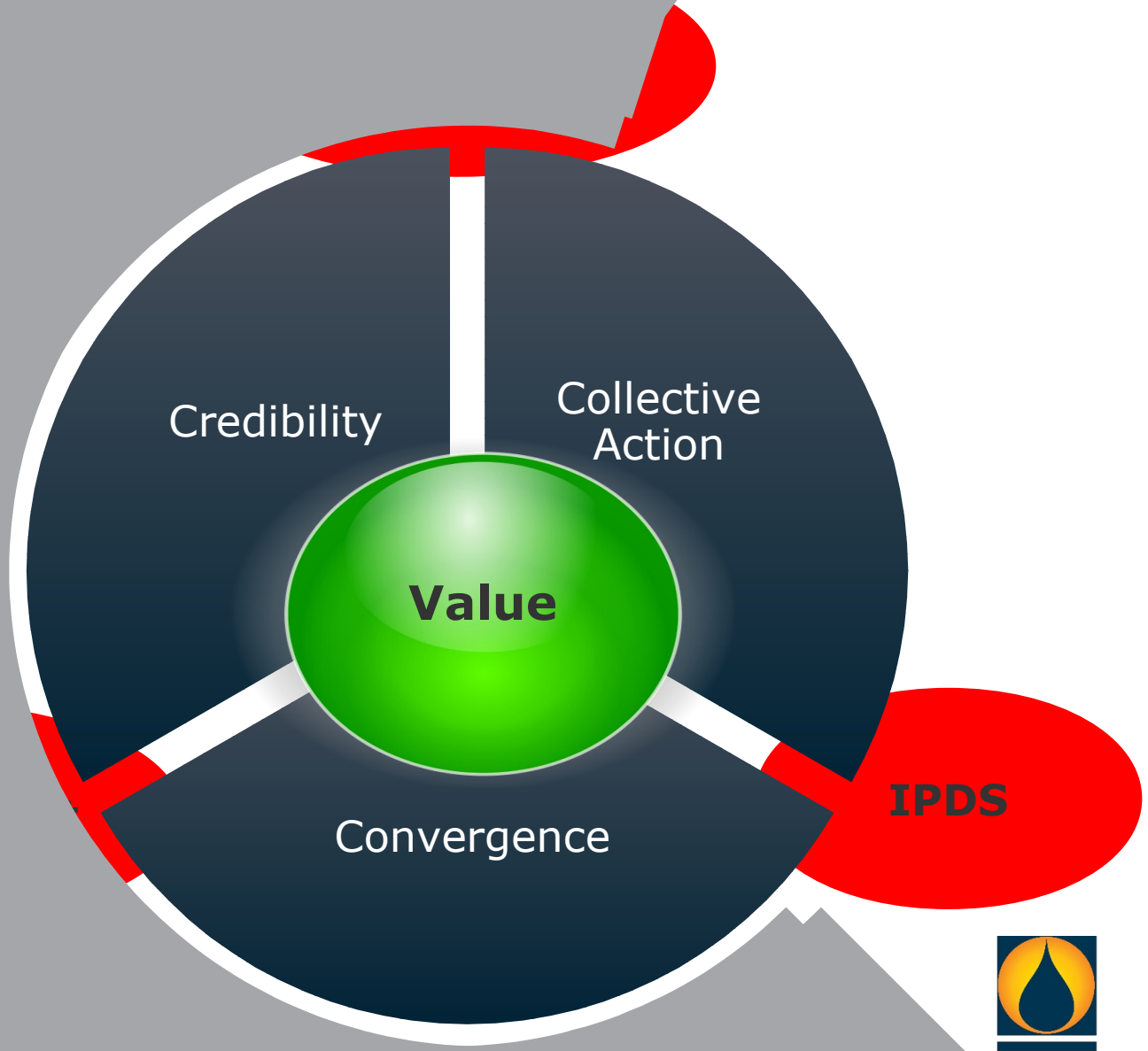
Certified Petroleum data Analyst (CPDA)

Calgary Geoscience Data Management Society

Ingrid Kristel

Professional Petroleum Data Management (ppdm) Association

February 21st, 2018


Credibility
Collective Action
Value
Convergence
IPDS

Problem, solution, Adoption

Certification demonstrates that an individual possess the required knowledge, experience, and skill to bring success to data management projects.

Certified Petroleum Data Analyst

It's all about establishing competency!

- The CPDA credential is awarded based on a combination of criteria that measure DM knowledge, incl:
  - Education and Experience
  - Examination (Test Based)

- Demonstrate
  - DM Training, Education, and/or Skill Enhancement.
  - Direct experience in a petroleum related data management role or; Work Experience that provides a foundation for petroleum data analysis
    - Established by reference.
  - Variety of backgrounds acceptable.
    - E.G. Technical, analytical, numerical or scientific backgrounds.

CPDA Aptitude – DACUM Driven

Knowledge

- Knowledge of data management practices specific to geotechnical data.
- Project management experience
- Oil and Gas industry experience
- Experience with Oil and Gas Upstream technical applications
- Experience with GIS data management and mapping projects.
- Database experience and familiarity with commonly used database languages.
- Linux/Unix and Windows OS and scripting experience

Skill

- Good organizational skills and attention to detail
- Ability to quickly learn, implement, and effectively support new software products
- Exceptional customer service skills
- Problem solving skills

Attitude

- Ability to effectively communicate with management and technical staff
- A team player

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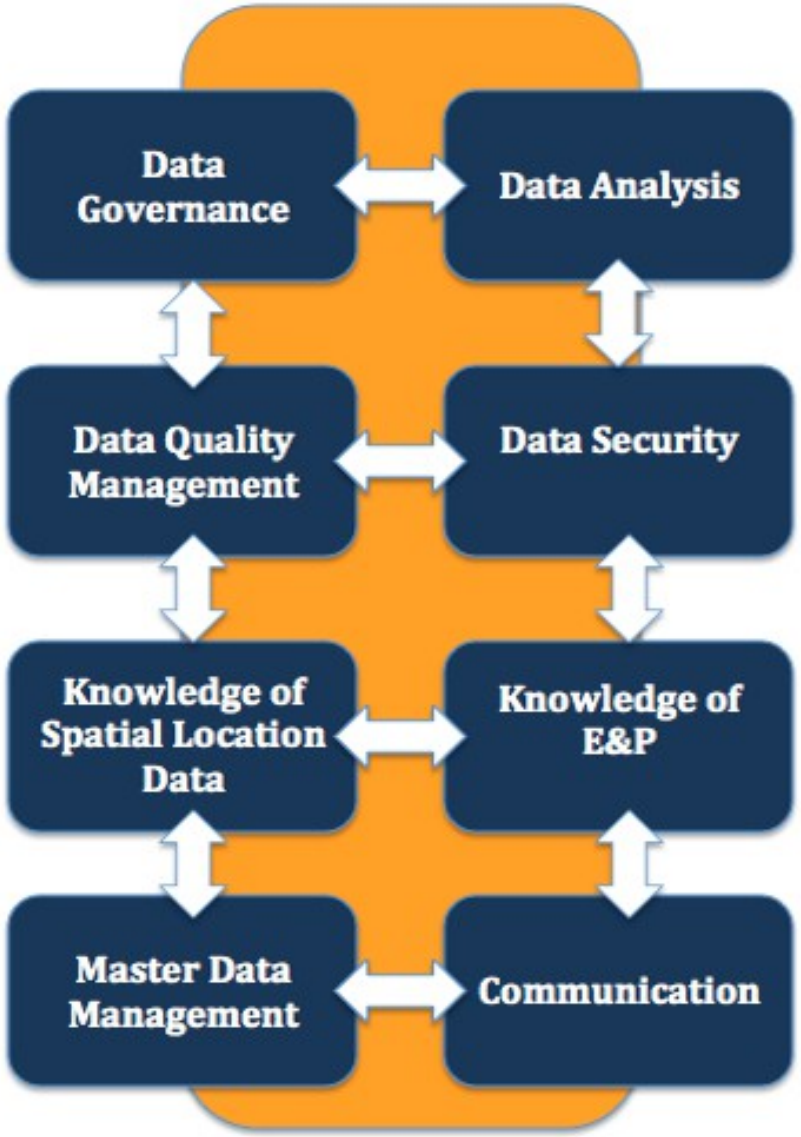
Examination Blueprint

Percent of Questions by Competency

Blueprint:

- Competency representation
- Cognitive level representation
- Mix of individual and case-based questions

Preparation



- Skill check
- Competency
  - Definitions
  - Indicators
  - Resources
- Identify gaps in knowledge

Next:

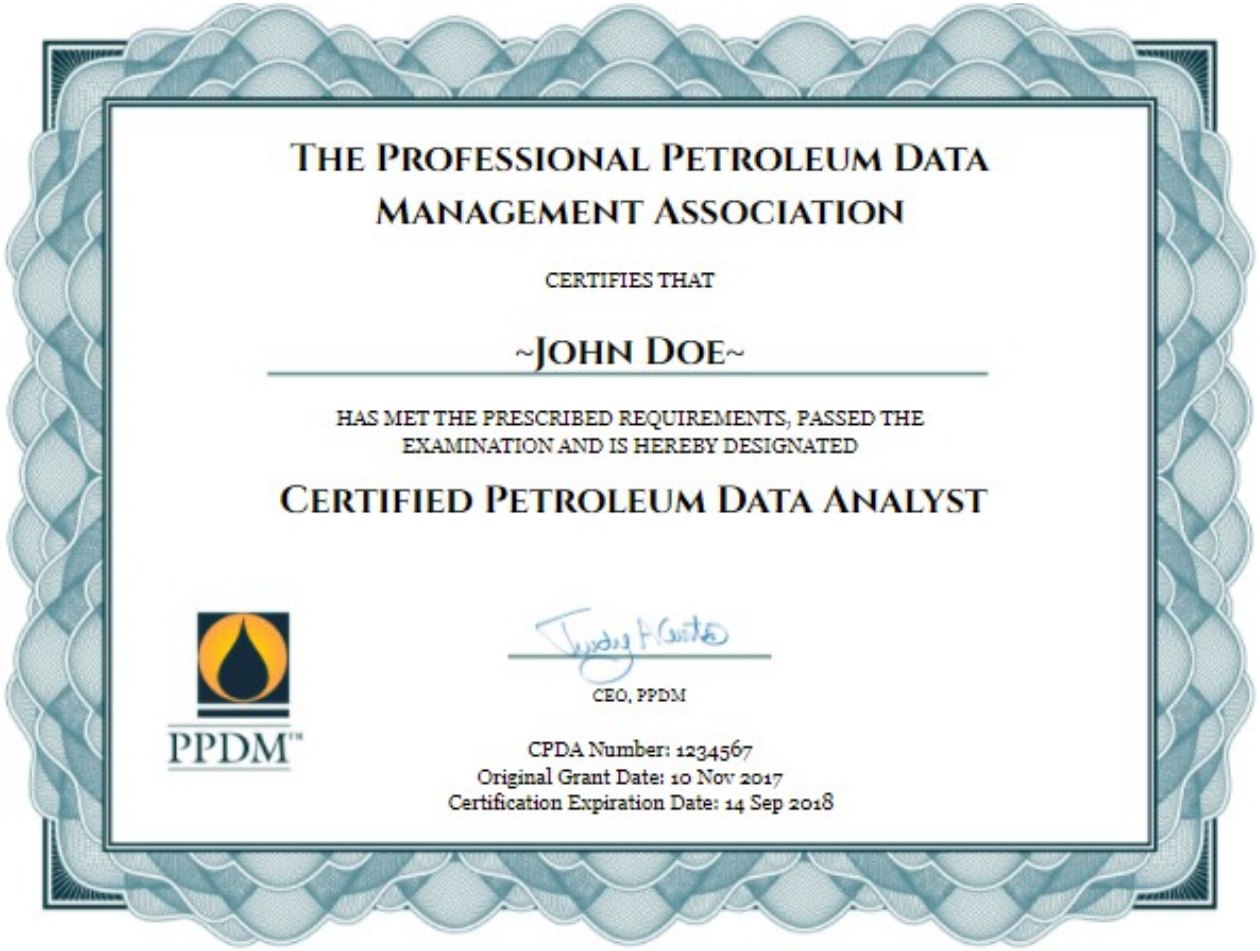
Resources, support, mentors…

What to expect?

Number of Scored Questions	Experimental (Unscored) Questions	Total Examination Questions	Allotted Exam Time	Average Time per Question
180	20	200	4 Hours	72 Seconds

- Computer based "proctored" exam
  - Quiet, private location with no additional aides (books, tablets, cell phone, etc.)
- Observed real time via webcam. Dialogue captured in a log.
  - By Proctor
- 360 degree view of the room by webcam before the exam commences

Certificate & BADGE!



THE PROFESSIONAL PETROLEUM DATA MANAGEMENT ASSOCIATION

CERTIFIES THAT

~JOHN DOE~

HAS MET THE PRESCRIBED REQUIREMENTS, PASSED THE EXAMINATION AND IS HEREBY DESIGNATED

CERTIFIED PETROLEUM DATA ANALYST

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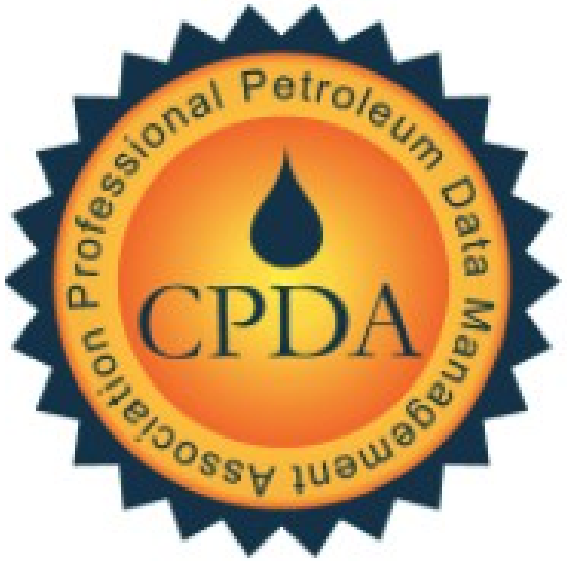
CEO, PPDM

CPDA Number: 1234567
Original Grant Date: 10 Nov 2017
Certification Expiration Date: 14 Sep 2018



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Credential Maintenance

Valid for 3 years!

- Maintenance required:
  - Show evidence of professional development (PDUs)
  - Annual renewal fees (cover maintenance of the accreditation program and the governance process)
- 90 hours of professional development within the 3 year term.
  - 60 hours of Education
  - 30 hours of Giving Back
- References supporting PDU submission.

- THANK YOU

Ingrid Kristel
Professional Petroleum Data Management (ppdm) Association

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visit ppdm.org

Data Governance

Competency Name:

Data Governance

Competency Definition:

Explain how an organization manages its data assets, including business rules, policies, practices, procedures, roles, and responsibilities.1

Competency Indicators:

- Describe data governance in an organization (e.g., industry standards for data loading).
- Describe the rationale for data governance within an organization and its relationships with external stakeholders, such as regulatory bodies and partners.
- Describe the impact of data governance on the daily activities of a data analyst. Comply with internal data governance policies (where they exist).
- Use common organizational terms and definitions. Explain the reasons for maintaining data over time.
- Describe the data lifecycle (e.g., acquire, load, use, refine, archive, and delete data).
- Promote the value of data governance and the need to comply with it.

Resources:

Data Governance Institute. (n.d.). *The DGI data governance framework*. Retrieved from http://www.datagovernance.com/dgi_framework.pdf

Mosley, M., Brackett, M., & Earley, S. (Eds.). (2009). *The DAMA guide to the data management body of knowledge (DAMA-DMBOK guide)*. Bradley Beach, NJ: Technics Publications.

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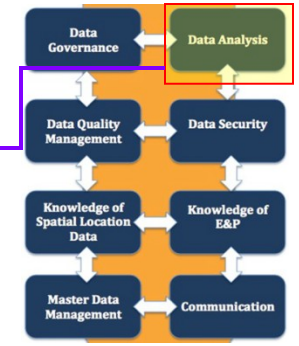
Data Analysis



Competency Name:

Data Analysis

Competency Definition:

Analyze data and oversee the maintenance of data stores and data-related solutions.

Competency Indicators:

Identify appropriate sources of raw data:

- National and regulatory data repositories
- Internal managed and unmanaged data stores
- Data vendors
- Service companies
- Joint venture partners

Investigate new sources of data from vendors and regulators. Describe physical and digital data. Describe data domains (e.g., well, seismic, production, land), including units of measure. Explain how data from different domains is used by an organization. Describe major elements of the data retention policy and schedule as applied to data. Describe the mapping of data across data stores, including:

- Data rules
- Translation of data
- Transformation of data
- Basic data workflow

Examine and describe the data workflow for all types of data (i.e., structured, unstructured, and semi- structured).

Cross-correlate data between different domains and data stores to ensure accuracy, consistency, and coherence.

- Create necessary reports to identify missing data, duplicates, anomalies, and availability.
- Build queries and filters to find physical and digital data items.
- Provide the correct coordinate reference system (CRS) when loading data with location information.
- Validate geospatial data precision.
- Describe processes for data loading.
- Ensure that loaded data adheres to the approved standards.
- Solve basic workflow problems with close supervision.
- Take ownership for metadata (i.e., data about data) management.
- Ensure that the metadata is loaded to document data context, quality, and provenance.
- Use receipt-tracking systems to ensure consistency.
- Provide status information about requests to management and clients.

Document data movement procedures between data stores. Adhere to internal naming standards. Explain archiving in the data management process. Follow retention standards for data. Ensure that the history of data transformations is captured as it goes through the data lifecycle. Explain backup and recovery procedures in an organization.

Resources:

Mosley, M., Brackett, M., & Earley, S. (Eds.). (2009). *The DAMA guide to the data management body of knowledge (DAMA-DMBOK Guide)*. Bradley Beach, NJ: Technics Publications.

Pascual, M. S. (2011). *Standard GIS data: A look at accuracy, precision, and types of errors*. Retrieved from http://www.gislounge.com/gis-data-a-look-at-accuracy-precision-and-types-of-errors/

Srivastava, R. N. (2008). *Spatial data quality: An introduction*. Retrieved from

http://www.gislounge.com/spatial-data-quality-an-introduction

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Data Security

Competency Name:
Data Security
Competency Definition:
Explain and comply with organizational policies and processes for data security management.2
Competency Indicators:
• Comply with internal data security management policies. • Comply with necessary regulatory security policies (e.g., Sarbanes-Oxley, embargoed countries). Explain different security categories by domain and role of systems of record (e.g., confidential, public, tight holes, and edit vs. view). • Explain the security policies used for master data stores. • Explain the security policies used for document management. • Ensure that data security rules are applied to data rooms, applications, and data stores. Comply with rules for access to and release of data to stakeholders.
Resources:
Mosley, M., Brackett, M., & Earley, S. (Eds.). (2009). *The DAMA guide to the data management body of knowledge (DAMA-DMBOK Guide)*. Bradley Beach, NJ: Technics Publications.

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Knowledge of E&P

Competency Name:

Exploration and Production (E&P) Life-Cycle Processes

Competency Definition:

Explain the major players, business life cycle, roles, and processes involved in E&P.

Competency Indicators:

- Explain the roles of major players in E&P, including operators, regulators, data vendors, software vendors, and service companies.
- Explain the roles and work functions of internal clients.
- Explain how internal clients consume data (e.g., planning, appraisal, delineation, and interpretation). Describe the phases of the business lifecycle (e.g., planning, drilling, completing, producing, and disposing).
- Explain basic terminology used in the E&P industry.

Resources:

American Petroleum Institute. (2013). *Wells to consumer interactive diagram*. Retrieved from http://www.api.org/oil-and-natural-gas-overview/wells-to-consumer-interactive-diagram

Petroleum Industry Data Exchange. (2013). *Petroleum industry data dictionary*. Retrieved from http://pidx.org/pidd.htm

PPDM Association. (2012). *PPDM business rule*. Retrieved from https://rules.ppdm.org/ PPDM Association. (2012). *Well identification*. Retrieved from

http://wellidentification.org/ PPDM Association. (2012). *Well status*. Retrieved from http://wellstatus.ppdm.org/

PPDM Association. (2012). *What is a well*? Retrieved from http://whatisawell.ppdm.org

PPDM Association. (2012). *Wiki general well and industry data*. Retrieved from http://www.ppdm.org/wiki/index.php/Category:Glossary

Schlumberger. (2013). *Oilfield glossary app*. Retrieved from http://www.slb.com/resources/publications/oilfield_review/oilfield_glossary_app.aspx

Additional Resources:

http://www.canscodubai.com/oil-field-glossary.html http://www.energistics.org/energistics-standards-directory

http://www.energistics.org/asset-data-management/asset-data-management-standards/unit-of- measure-specification

http://www.energistics.org/asset-data-management/energy-industry-profile-standard

Communication

Competency Name:
Communication
Competency Definition:
In a clear and timely manner, communicate with others on the appropriate aspects of data management to support the business.
Competency Indicators:
· Use active listening skills when communicating with others. · Ask probing questions to better understand business requirements and priorities. Clearly articulate problems and suggestions to internal and external clients. · Build effective working relationships within an organization. · Establish working relationships with external clients (e.g., vendors, partners, and regulators). Identify and engage the appropriate expert for a task or problem. · Explain problems using appropriate technical language. Provide constructive feedback to others. · Actively seek feedback from internal clients. · Work with business units to ensure the optimal use of data to meet analytic requirements of end users. Communicate the availability of data to internal clients in a timely manner. · Use the communication media appropriate to the audience and purpose of communication. Coordinate the movement of data amongst users, disciplines, applications, and stakeholders. Communicate data management standards to users in an organization. · Provide an estimated time of delivery of completed tasks to others.
Resources: http://www.wikihow.com/Communicate-Clearly-Within-the-Workplace http://en.wikipedia.org/wiki/Workplace_communication

Master Data Management

Competency Name:
Master Data Management
Competency Definition:
Explain a set of policies, practices, and procedures used in master data management and comply with them.
Competency Indicators:
• Describe master data management in an organization (i.e., creation of a "golden version" of master data attributes). • Describe the rationale for master data management within an organization. Describe the impact of master data management on daily activities. • Identify master data sources and contributors. • Comply with internal master data management policies (where they exist).
Resources: Mosley, M., Brackett, M., & Earley, S. (Eds.). (2009). *The DAMA guide to the data management body of knowledge (DAMA-DMBOK Guide)*. Bradley Beach, NJ: Technics Publications.

Spatial Data Management

Competency Name:

Spatial Data

Competency Definition:

Use knowledge of coordinate reference systems and mapping technologies to accurately represent the position of assets.

Competency Indicators:

Explain the importance of coordinate reference data and its accuracy to an organization.
Explain how to transform coordinates from one coordinate system to another. Explain the difference between geographic and projected coordinate systems. List commonly used formats for latitude, longitude, and UTM.
List domains where coordinate reference data is used.
Explain the relationship between the Geographic Information Systems (GIS) and attribute data. Describe the required metadata to be captured for coordinates.
Perform quality control on coordinate data, including:

- Expected coordinate ranges
- Magnitude of variability
- Consistency with other sources

Verify the location within acceptable tolerances using GIS.
Identify ways to deal with common issues when handling coordinate data (e.g., mixed coordinate datum, different versions of local grids, mixed survey acquisition methods). Use appropriate mapping technology to retrieve datasets based on location information. Use mapping applications appropriately.
Verify the accuracy of coordinates.

Resources:

ArcGIS Resource Centre. (2013). *Map projections guidebook*. Retrieved from http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What_are_map_projections/003r0000000100 0000/

OGP Geomatics Committee. (2012). *OGP P1/11 Geophysical position data exchange format (Report No. 483-1)*. Retrieved from http://www.epsg.org/p-formats/p-formats.html

OGP Geomatics Committee. (2012). *OGP P2/11 Positioning data exchange format (Report No. 483-2)*. Retrieved from http://www.epsg.org/p-formats/p-formats.html

OGP Geomatics Committee. (2012). *OGP P6/11 Seismic bin grid data exchange format (Report No. 483-6)*. Retrieved from http://www.epsg.org/p-formats/p-formats.html

OGP Geomatics Committee. (n.d.). *P6 GIS data model*. Retrieved from http://www.epsg.org/P6DM/P6GIS.html

U.K. Offshore Operators Association. (1994). *UKOOA data exchange format P5/94 Pipeline position data*. Retrieved from http://www.epsg.org/p-formats/p-formats.html

U.K. Offshore Operators Association. (2002). *UKOOA data exchange format P7/2000 Format for well deviation data*. Retrieved from http://www.epsg.org/p-formats/p-formats.html

Data Quality Management

Competency Name:

Data Quality Management

Competency Definition:

Apply quality management methods to assess, improve, and ensure the fitness of data for business use in accordance with industry and organizational business rules.

Competency Indicators:

Describe criteria for data quality:

- Completeness
- Consistency
- Coherence
- Accuracy
- Timeliness
- Relevance

Recognize the source of data and data state (e.g., raw, processed, and edited data). Examine the quality of data to determine its fitness for a specific purpose.

Confirm the quality requirements for data with a business owner or a vendor.

Describe mandatory elements for data quality control (e.g., for wells, well header: name, location, spud date, and organization).

Verify that the data is uploaded in the right format. Apply standard industry business rules to data:

- Align a well header with the legal description (e.g., UWI)
- Check the integrity of dates and depths Apply organizational business rules to data.

Identify and resolve duplicate data for confirmation with a business owner: (e.g. well header, seismic survey, and well log).

Identify data reliability:

- Identify data sources
- Describe the preferred source list using the trustworthiness of the source as a criterion (e.g., internal reports, national data repository, and a vendor)
- Review the reliability grade to data
- Publish the information on the reliability of the data source in the format that is useful to users Report data quality metrics to raise awareness of data quality status and potential issues.

Notify business owners of data about data quality issues.

Resources:

Mosley, M., Brackett, M., & Earley, S. (Eds.). (2009). *The DAMA guide to the data management body of knowledge (DAMA-DMBOK Guide)*. Bradley Beach, NJ: Technics Publications.

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