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HYDRAULIC FRACTURE DATA MODEL WORK GROUP CHARTER

PRESENTED BY: MEMBERS OF THE PPDM
ASSOCIATION

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Hydraulic Fracture Data Model Work Group

PROJECT BACKGROUND AND PURPOSE

The process of hydraulic fracturing is essential for the economic production of unconventional hydrocarbons, including shale and tight gas and oil. The availability of good quality hydraulic fracturing data is required for performing analysis of previous jobs in order to optimize future fracs as well as to identify best candidates for refracing.

The current PPDM 3.8 and 3.9 data models lack the detail necessary for storing the stage level frac information that engineers require for this analysis. For example: multiple proppant sizes and amounts, treatment pressures (min, max, and average), fluid volumes and additives for each stage in a frac job.

The requirement is to extend the PPDM 3.9 data model to capture a "sweet spot" of stage level frac information that engineers typically use for analysis of past frac jobs. The desired outcome is for the PPDM data model to support the capture and management of the key information required to analyze and optimize well performance: well construction (well header, directional data, wellbore equipment, well history/events), geological/reservoir properties (measured and interpreted), stimulation (including hydraulic fracturing) and production.

HIGH LEVEL GOALS AND OBJECTIVES

The workgroup will focus on incorporating critical tables, columns, and relationships into PPDM 3.x to support the most critical industry requirements for information.

Data diagrams, terms and definitions will be included in scope.

ASSUMPTIONS

- Work can largely be based on submissions provided by members
- The scope will not substantially expand as work proceeds
- Members will be able to participate in meetings and work sessions as needed

CONSTRAINTS

- Economic conditions may result in some program delivery delays
- Members may not be able to participate as much as needed
- Travel constraints will require more to be done electronically; while this can be effective, it is typically slower.

SCOPE

This project will focus only on the most important elements that are needed to achieve the main goals. Additional projects may be recommended once this is complete.

IN SCOPE

- Hydraulic fracturing operations. Planned and actual
- Perforation cluster descriptions

OUT OF SCOPE

- Micro seismic
- Additional analysis data
- Environmental data
- Perforations should already be in the model

DELIVERABLES

KEY DELIVERABLES

SPECIFIC RECOMMENDATIONS

KEY DELIVERABLES	SPECIFIC RECOMMENDATIONS
Data model	Expand but avoid destructive changes where possible
Terms and definitions	Add a glossary of terms
Data diagrams	Use ERWin
Business Requirements document (BRD)	Under development now

PPDM DATA MODEL IMPACT

The illustration below indicates how this workgroup is expected to impact the current data model. As shown, several parts of the data model will be referenced as needed, with the major impacted being to:

- Well subject area (the completions and treatment areas) will require additional tables to track stages and treatments
- The additives subject, along with the products and substances subject, may need to be enhanced to track details about materials used in treatments. Capture CAS numbers and names. (note that the CAS number is essential for doing BI)
- The Finance subject may be used to capture costs.

Some impact may be noted on other subjects:

- The equipment subject area may need to be tied in for support of vehicles and other equipment used during operations.
- The Applications subject may be referenced to verify that necessary regulatory approvals have been received
- The Records subject may be used to show where detailed specifications, reports or other materials can be found
- The Classification subject may be used to help develop granularity of information about products or substances used in the hydraulic fracture process
- The HSE subject may be referenced in the event that information about HSE events must be captured (spills or accidents)
- The Land Rights subject may be deployed to track assurance that appropriate surface rights have been obtained

- Various supporting subjects such as business associates, finances, rate schedules, Spatial locations, units of measure and data management will be integrated as needed to support the requirements of the hydraulic fracture subject area.

FUNDING MECHANISMS

- The committee will be launched with PPDM funding
 - It is hoped that some industry seed money will help accelerate critical elements of the program
- Any additions to the project scope will require industry support and funding.

RISKS AND ISSUES MANAGEMENT

This section will be completed by the workgroup, initial risks listed below:

Date recorded	Risk description	Probability	Impact	Mitigation plan
	Volunteer time	High	High	Scale plan to capabilities, ensure PPDM staff carry logistical burden
	Funding	High	Medium	Funding will accelerate the program, but if not available, the pace of delivery will be tuned to the funding available.

IMPLEMENTATION APPROACH

These extensions are expected to be incorporated into a new full release of the data model (PPDM 3.10), but a final recommendation has not been created at the time this document was drafted.

HIGH LEVEL TIMELINE/ SCHEDULE

The need for the Hydraulic Fracture data model is critical and members who are interested have requested that this work group be expedited for swift completion. Contingent on the scope of the charter, this work is projected to launch before the end of 2015.