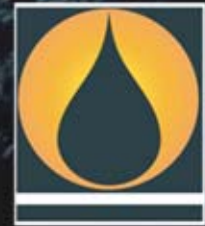


Spatially Enabling Exploration and Production Data Using PPDM Standards

Wes Baird

Spatial Team Leader



PPDM™

Today's Discussion

- Review
 - + PPDM
 - + PPDM Spatial I → PPDM Spatial Lite
- Creation of PPDM Lite
- Data Management Options
- Conclusion

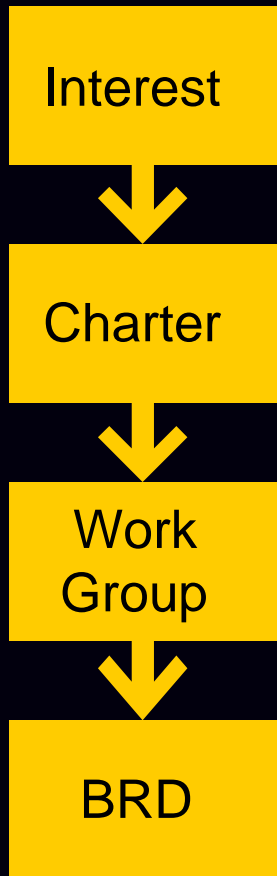
What is the PPDM Association?

- Not For Profit standards organization
- Formed in 1989, incorporated 1991
- Over 100 members world-wide
 - ✓ E & P companies
 - ✓ Service, data, software providers
 - ✓ Regulatory, research, educational
- Collaborative standards
 - ✓ *“the PPDM Way”*
 - ✓ Business driven, practical, usable

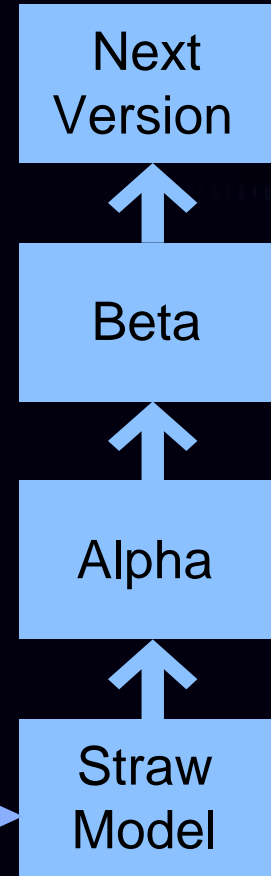


“the PPDM Way”

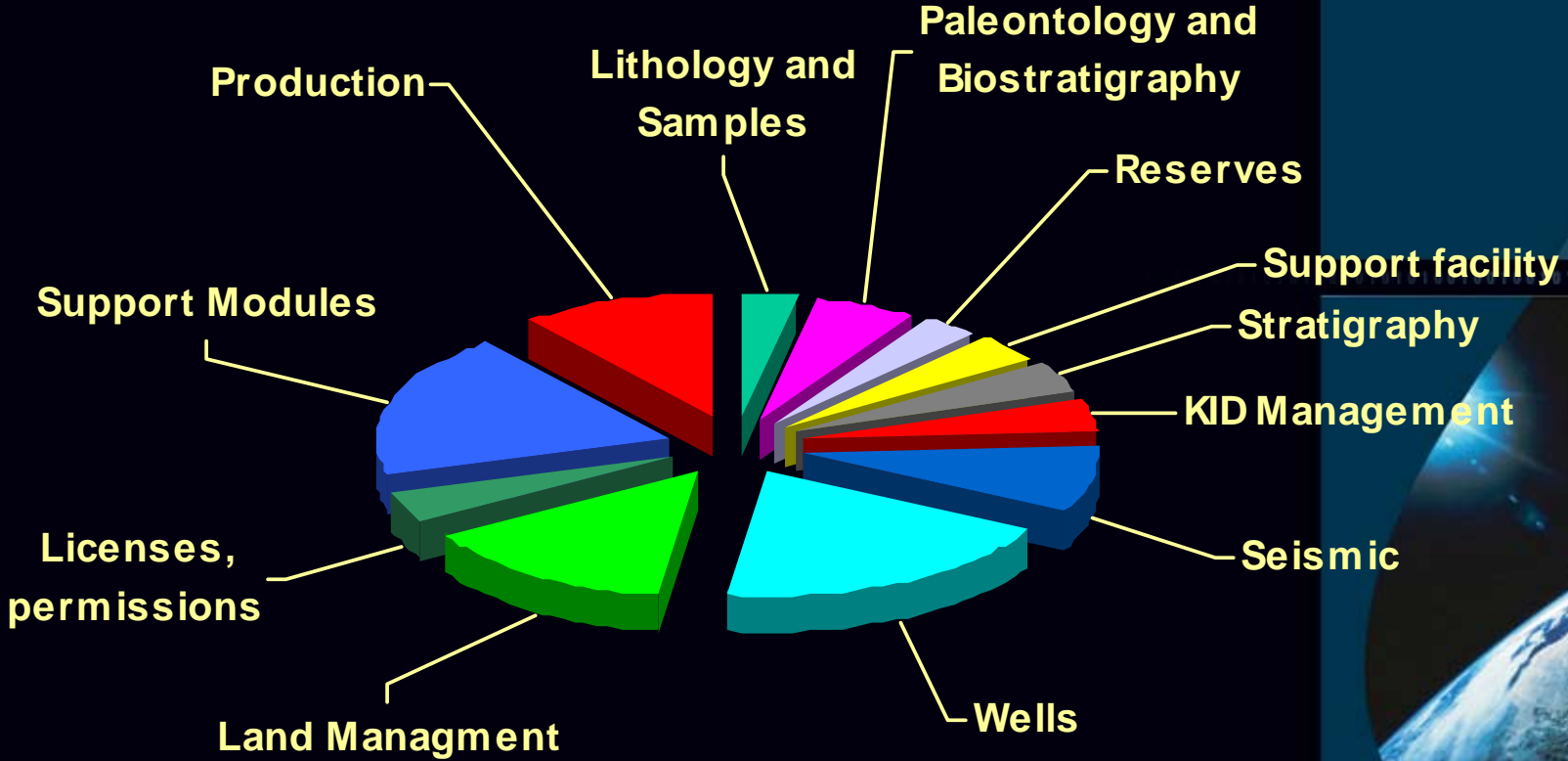
Business Experts



Technical Experts



PPDM 3.7 Full



Spatial Projects in PPDM

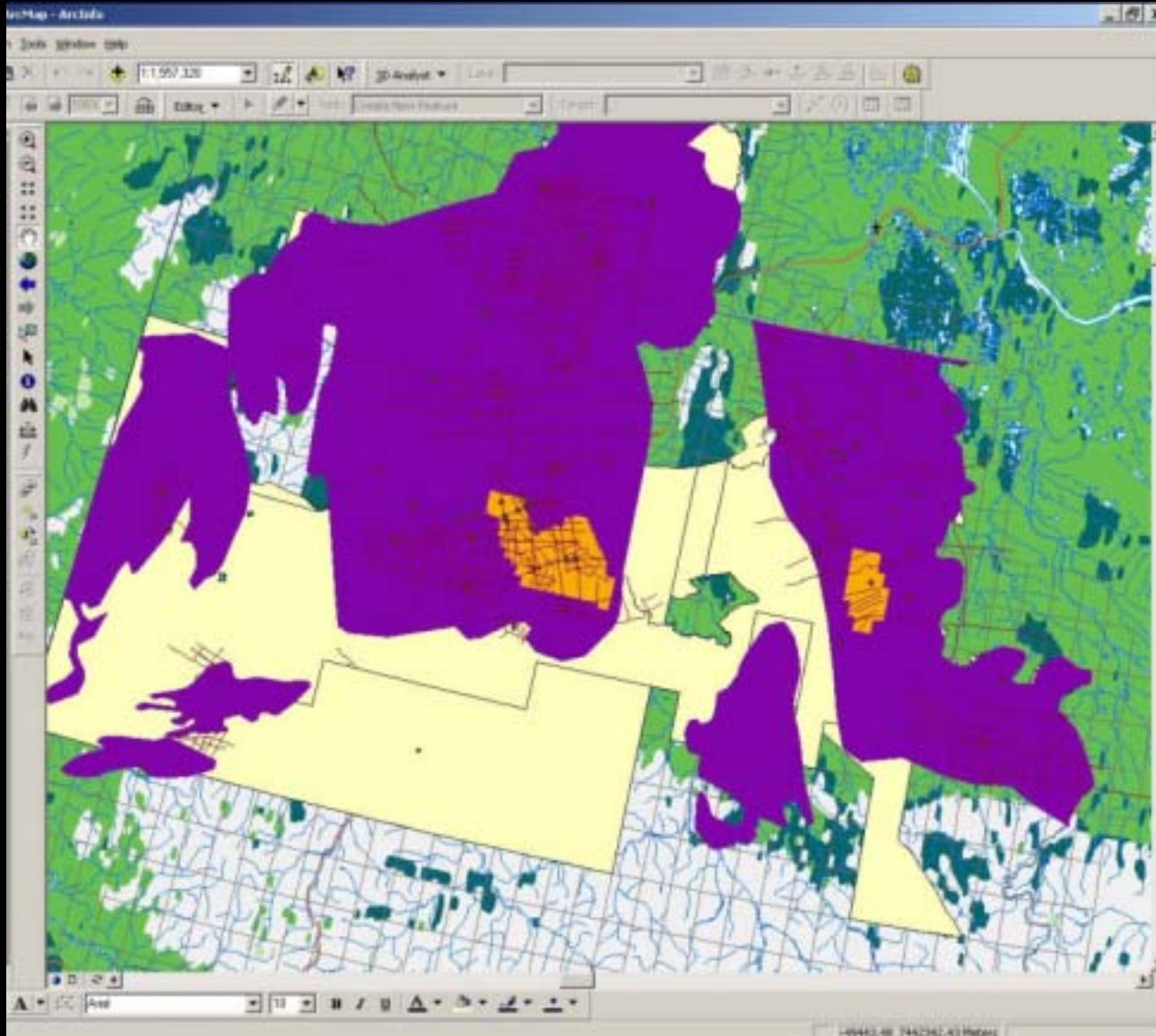
- Nearly all E&P business objects have a spatial component.
- E & P data is very rich and detailed
- Spatially enabled relational database
 - ✓ Wells
 - ✓ Seismic
 - ✓ Land Rights (surface and mineral)
 - ✓ Production and support facilities
 - ✓ Geologic boundaries (field, pool, basin)
 - ✓ Support Modules



Where Are My Fries?

- With maps, you can
 - ✓ QC data more quickly and accurately
 - ✓ Create symbols to represent complex ideas
 - ✓ Understand relationships between business objects more quickly
- Maps let you use the left (creative) brain – for analysis and interpretation

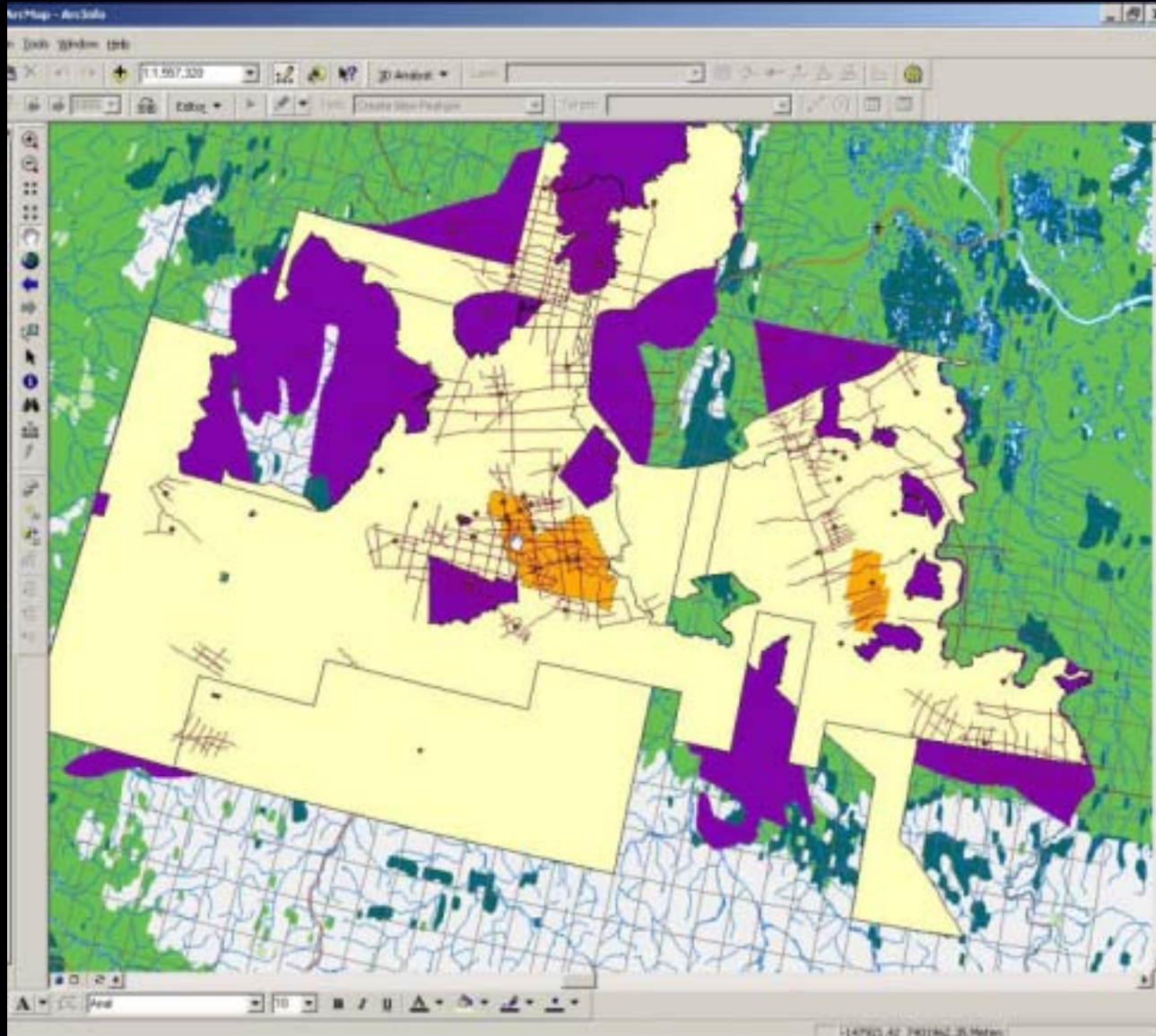
Spatial Projects in PPDM



0010101010010010010101010100



Spatial Projects in PPDM

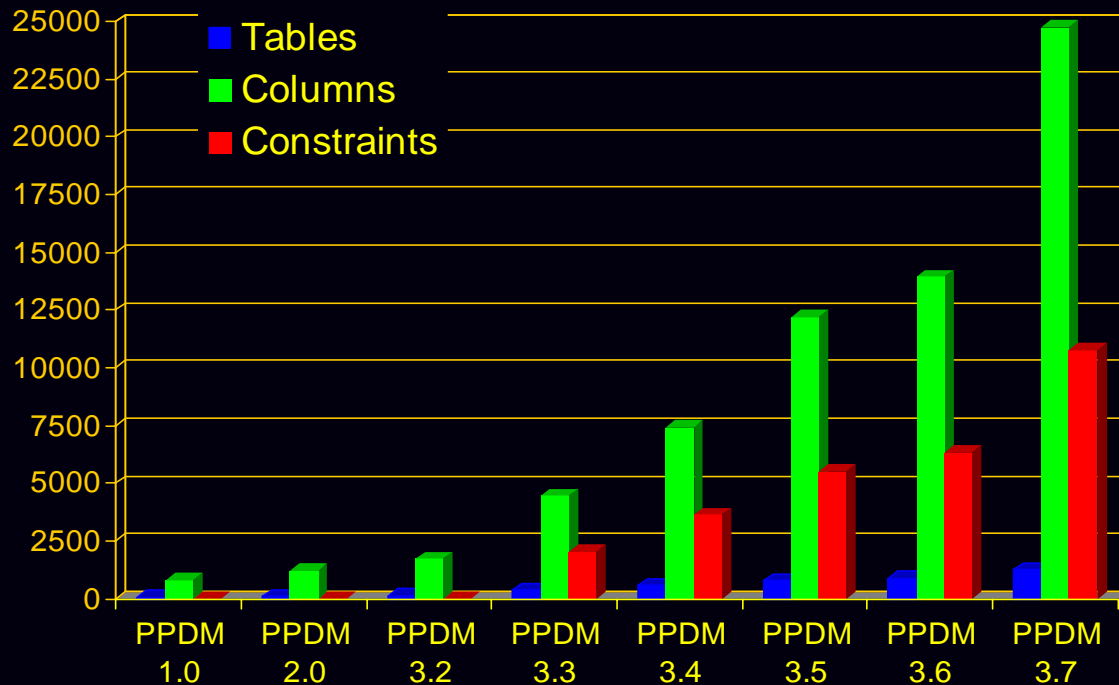


0010101010010010010101010100

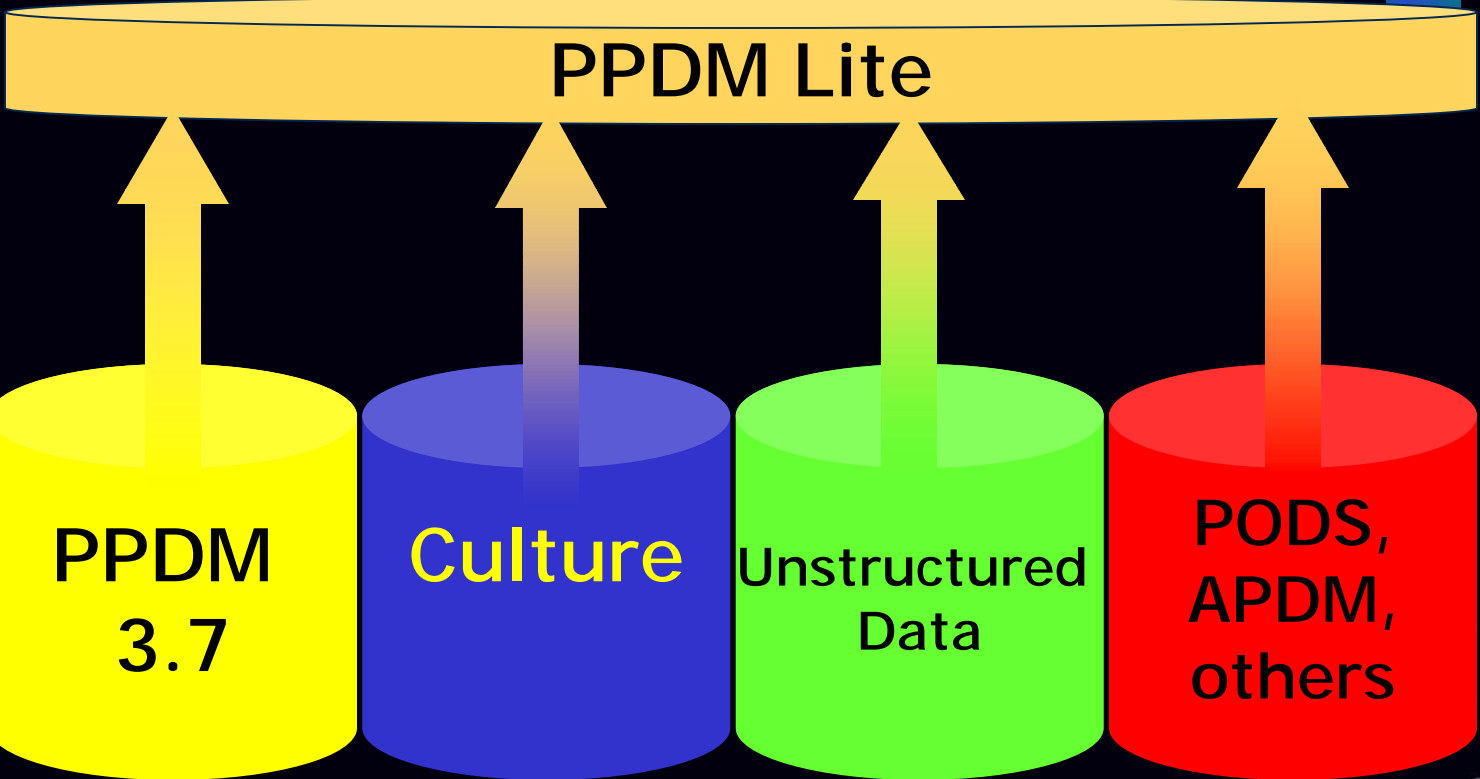
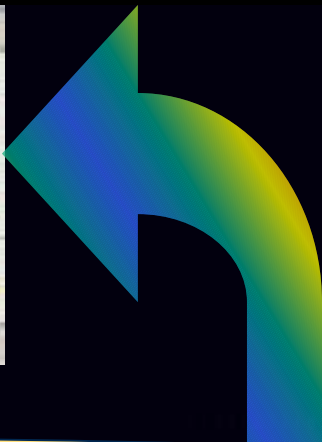


PPDM Lite

- Why PPDM Lite ?
 - + PPDM is large and rich
 - + It models the business well
 - + Not every user needs to see it all.



PPDM Lite – what is it?



PPDM Lite project proposal

- Create high level, **rolled up** (simplified) E&P data model
- Data model spatially enabled
- Data management options
- Multiple implementation scenarios



PPDM Lite methodology

- Use case driven
 - + I am a small organization ...
 - + I am a large E&P company ...
 - + My management wants ...
 - + We access unstructured data ...
- Different **PPDM members**;
Different **business requirements**

Simplified E&P Data Model

- Business Requirements
 - ❖ Created by work group participation
 - ✓ Show me wells that are producing gas
 - ✓ What data is attached to this seismic line?
 - ✓ Which leases will expire in the next month?
 - ✓ Is there a correlation between the type of basin vs the predominate producing substance?
 - ❖ Sharing data across the enterprise
 - ❖ Statistics

Model	Tables	Columns
PPDM 3.7	1239	24471
PPDM Lite	82	1101

Traditional Data Viewing

- Well data in TOAD



TOAD - [OT37@DM92 - Schema Browser]

LITE_WELL: Created 2/10/2004 1:08:24 PM Last DDL: 2/10/2004 1:16:25 PM

Columns | Indexes | Constraints | Triggers | Data | Scripts | Grants | Partitions | Subpartitions | Stats/Size | Referential | Used By

Sort by Primary Key

UWI	OPERATOR	DRILL_TD	SPUD_DATE	PLOT_SYMBOL	ASSI
200D051J094A0900	MARK RESOURCES INC.	1556	2/1/1977	22	
200D059J094A0900	NO OPERATOR	1242.1	1/4/1969	10	
200D063B094A1600	PETRO-CANADA INC.	1246.6	1/18/1962	10	
200D063G094A1600	DOME PETROLEUM LIMITED	1179.6	1/24/1966	10	
200D066B094A1600	TENNECO OIL OF CANADA LTD.	1236.3	2/5/1966	10	
200D068I094A1600	BLUE RANGE RESOURCE CORP.	1349	12/24/1995	31	
200D078H094A1600	NO OPERATOR	1149.1	3/18/1969	10	
200D079G094A1600	BHP PETROLEUM (CANADA) INC.	1167.4	2/7/1969	10	
200D079J094A0900	NO OPERATOR	1249.7	3/17/1971	10	
200D080I094A1600	BLUE RANGE RESOURCE CORP.	1150	2/20/1996	31	
200D080J094A0900	BLUE RANGE RESOURCE CORP.			01	
200D081I094A0900	BLUE RANGE RESOURCE CORP.		2/5/1999	02	
200D082I094A0900	BLUE RANGE RESOURCE CORP.			01	
200D083J094A1600	IMPERIAL OIL RESOURCES	1132.3	1/15/1965	10	
200D089G094A1600	ENCAL ENERGY LTD.	1115	1/26/1998	31	
200D094B094A1600	PETRO-CANADA INC.	1204	3/17/1971	10	

OT37

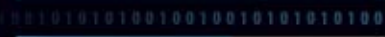
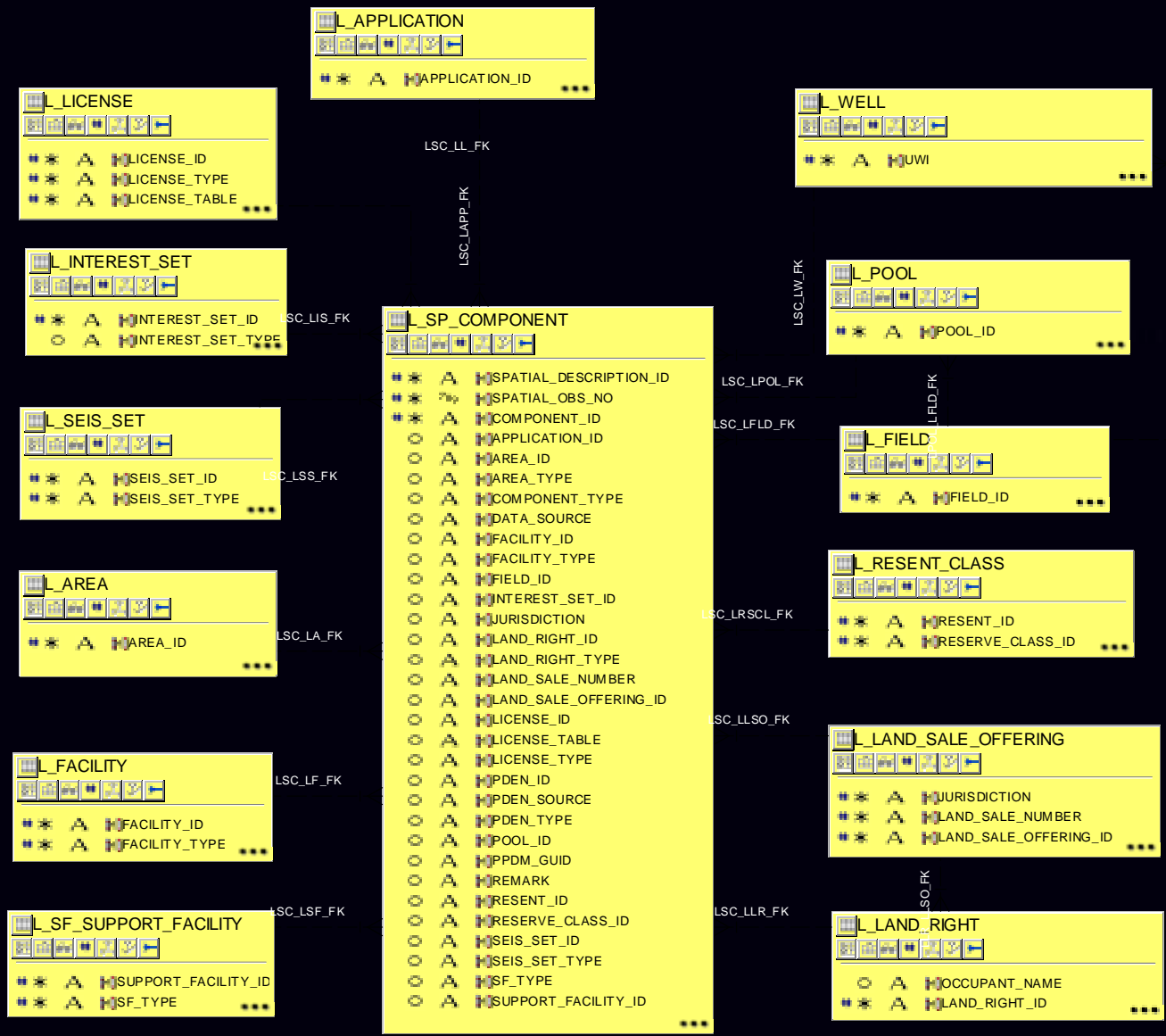
OT37@DM92

Commit is OFF

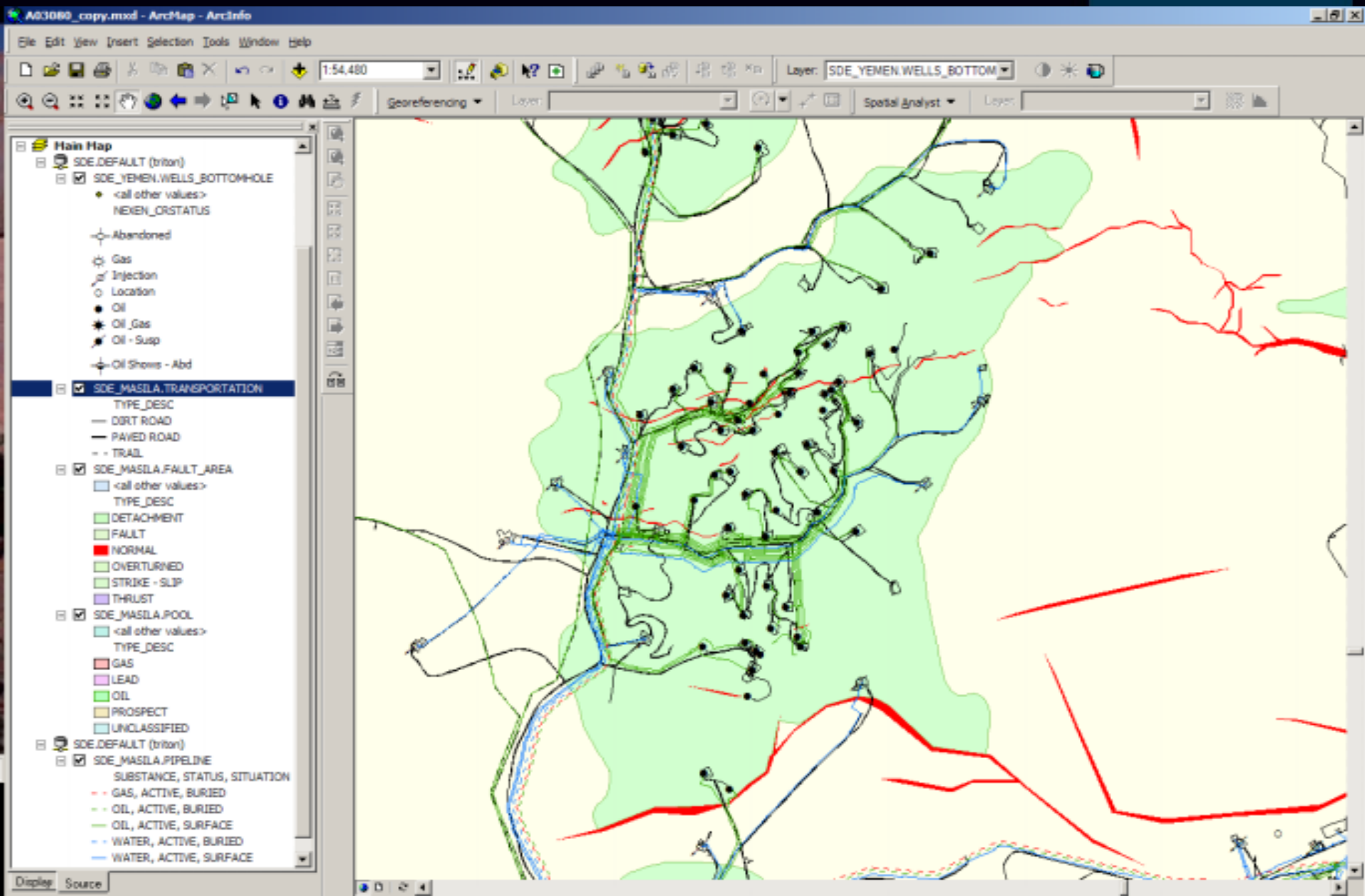
101010101010010010010010101010100



Data model spatially enabled



Nexen Canada



Data Management Options

- How do we manage this (data)?
(esp. with another copy ...)
 - ❖ Views
 - ❖ Materialized Views
 - ❖ Tables
 - ✓ Triggers to move transactional data
 - ✓ Procedures to bulk load data

What do we have to manage?

- 21 Modules

Application	Area
BA	Contract
Entitlement	Facility
Field	Financial
Interest Set	License
Land	Production
PPDM Meta	Pool
Project	Reserves
Record Mgmt	Seismic
Stratigraphy	Support Facility
Wells	

Spreading PPDM Globally

- Release a thin PPDM model
 - ✓ High level information only
 - ✓ Also include some non-PPDM Objects
 - ✓ Integrate other standards
 - ✓ Synchronize with PPDM 3.7
- Publicly available at no charge
- Encourage industry take-up with an easier entry point



Conclusion

- Spatial & relational subset of PPDM
 - ❖ Spatial extensions
 - SDE, SDO
- Thematic data model
 - ❖ Will be published on www.esri.com
- More information at
 - ❖ www.ppdm.org
- List-server at
 - ❖ spatial-l@ppdm.org

Spatially Enabling Exploration and Production Data Using PPDM Standards

Wes Baird bairdw@ppdm.org
Trudy Curtis curtist@ppdm.org
Jaeyoung Suh jysuh@ppdm.org

Spatial Team Lead
CEO
GIS Developer



PPDMTM