



2012 -2013 PA DEP NEIEN Grant

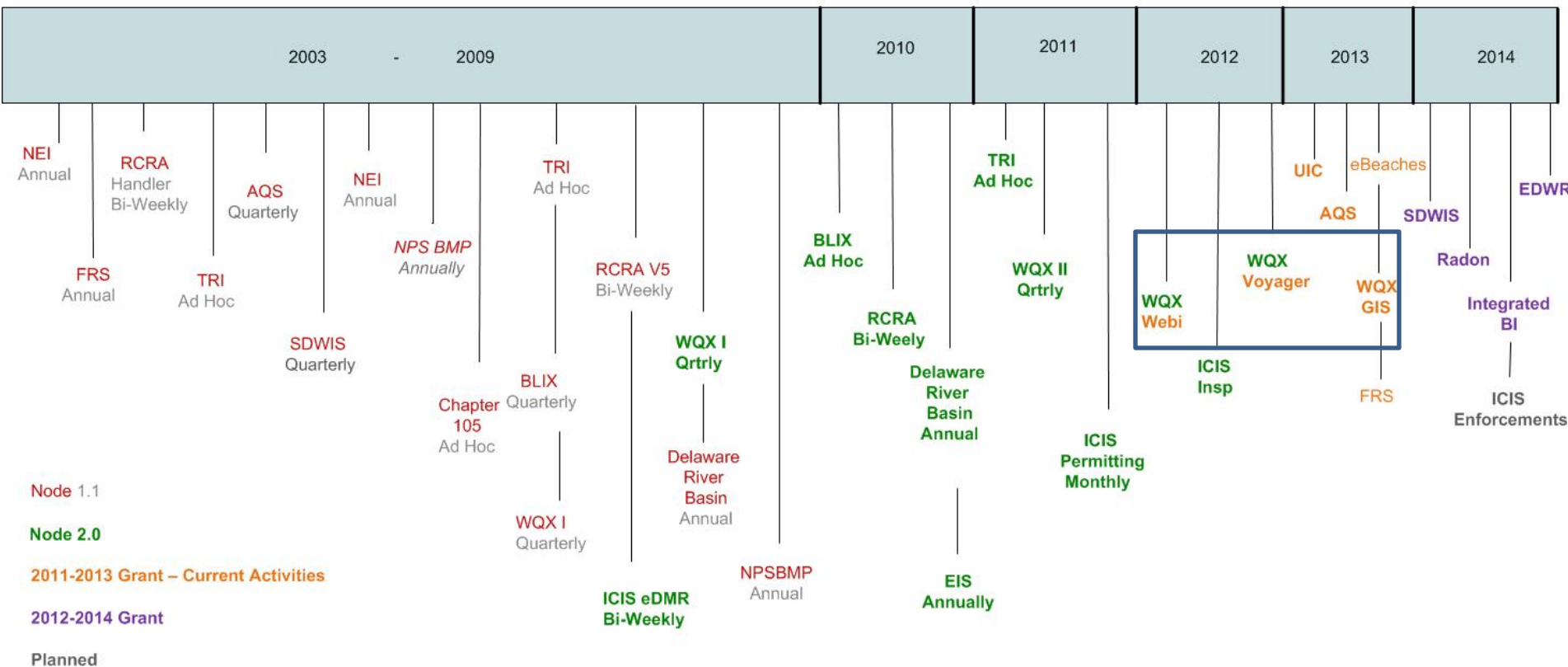
April 11, 2013

Topics



- PA DEP Grant Activities
- Business Intelligence Phases
- Next Steps
- Demonstration

PA DEP Exchange Network Node Timeline



Business Intelligence Phases

- Select NEIEN Flow
- Create Universe and Ad Hoc Report(s)
- Create Cube and OLAP Application
- Create Ad Hoc and GIS Integration

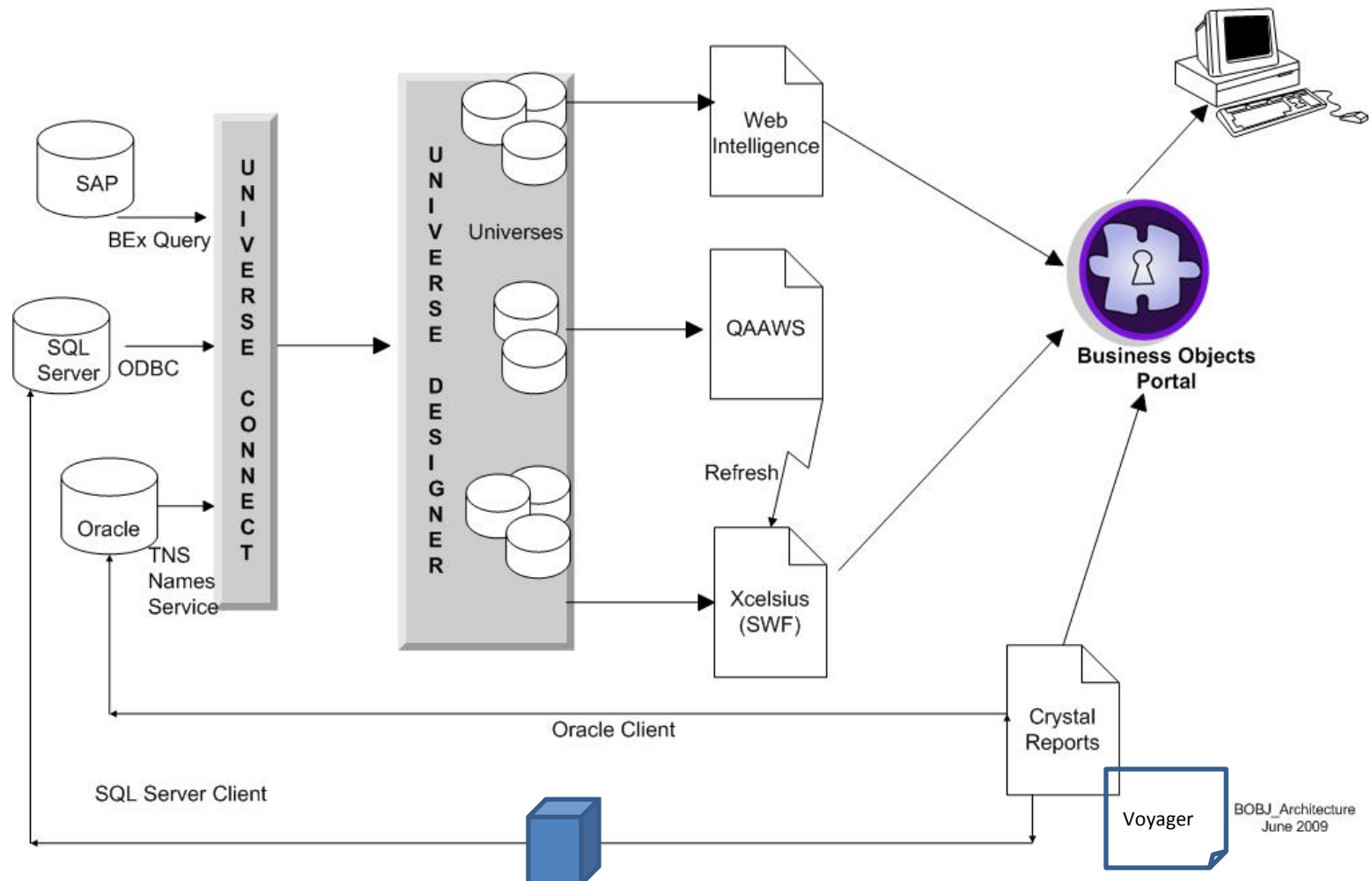
Select NEIEN Flow

- Reviewed existing flows and the state of each flow
- Reviewed and identified data of interest
- Prioritized flows of interest
- Approached program with proposal
- Received Program approval
- Water Quality Exchange

Water Quality Exchange

- Chemical Data from samples taken at defined stream stations (WQN Monitoring Stations)
- Data sourced from DEP's (Oracle) Sample Information System
- XML submissions to EPA STORET on a quarterly basis

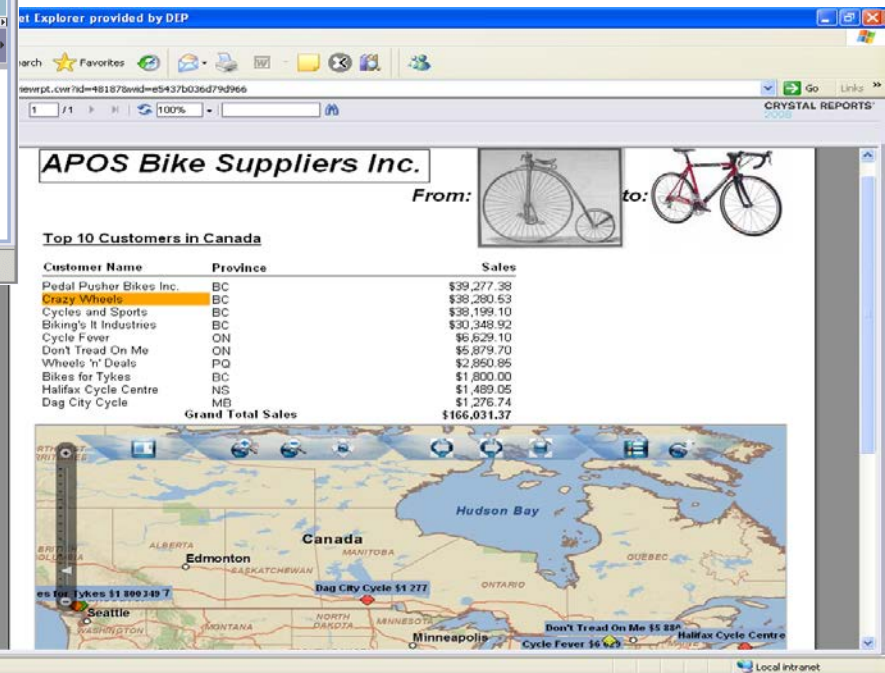
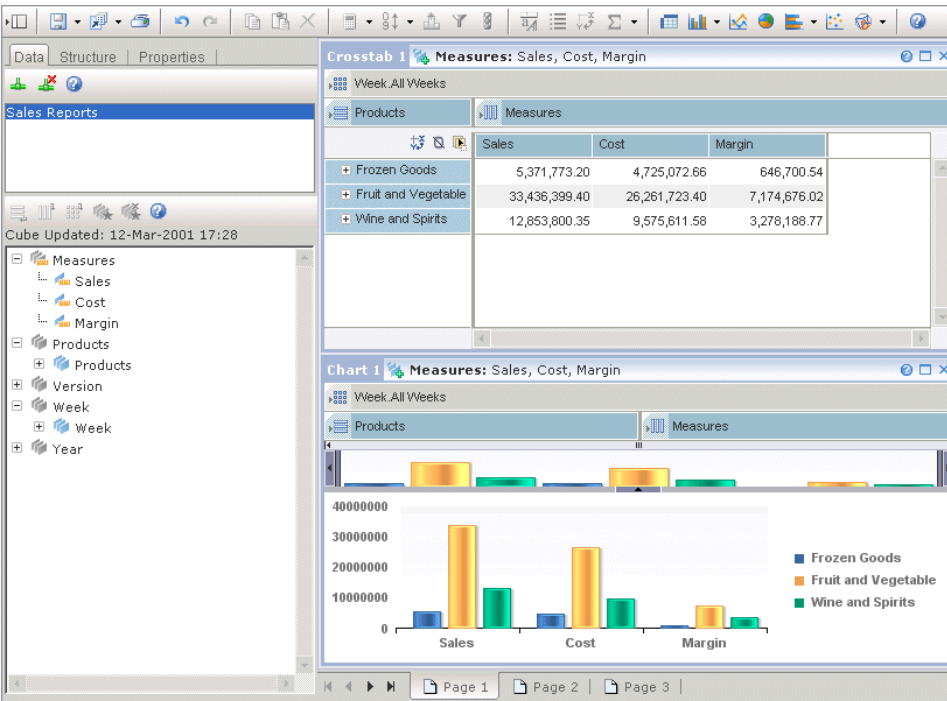
Business Objects Architecture



Business Intelligence

Business Intelligence

APOS Location Intelligence



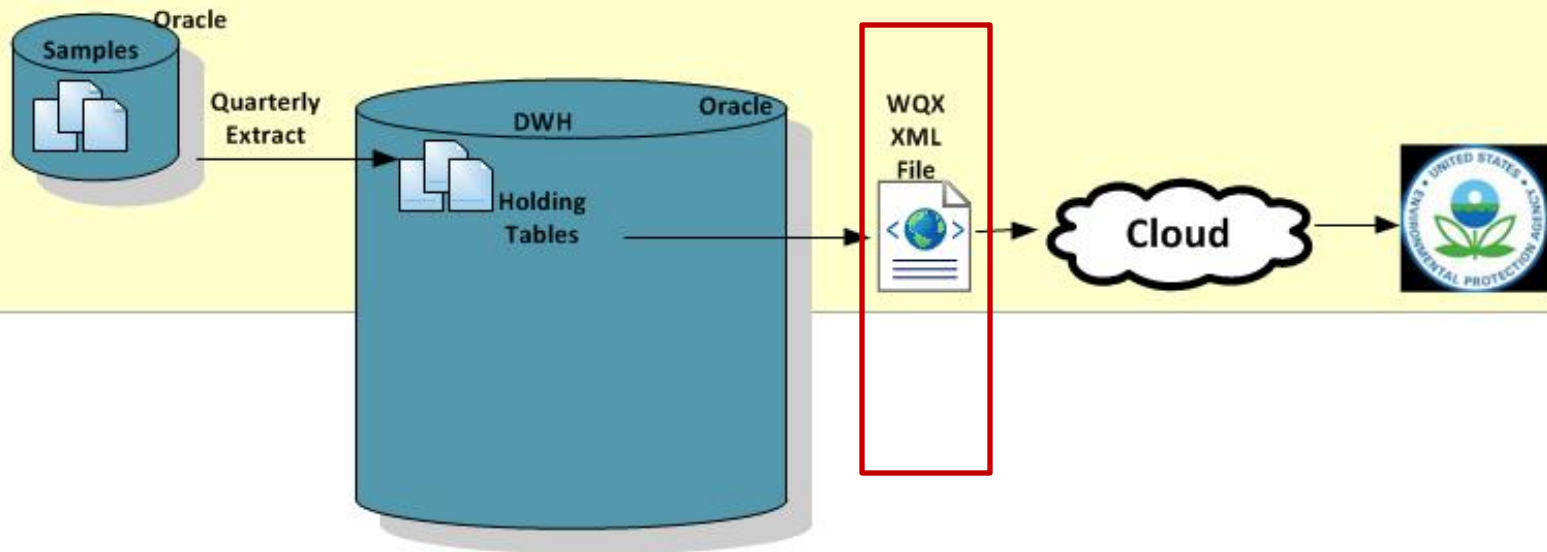
Voyager

Web Intelligence

ESRI GIS

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NEIEN Water Quality Exchange
And
Business Objects Integration

EPA Quarterly Submission Process

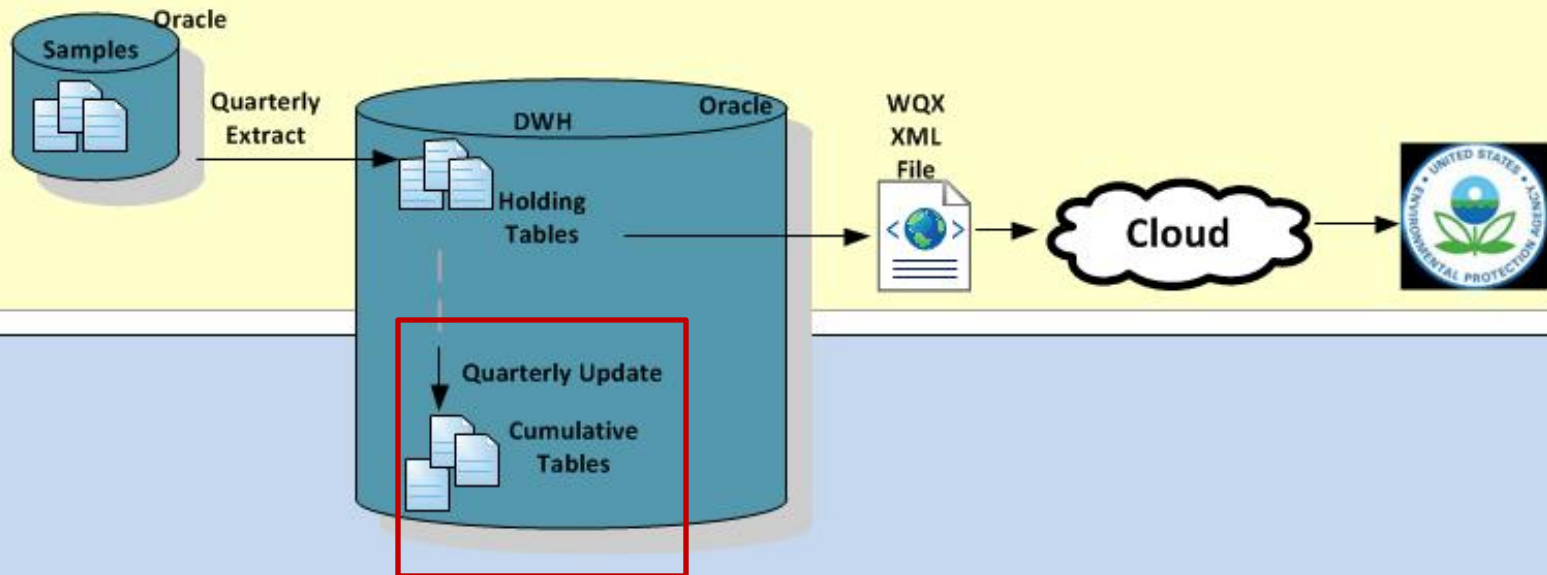


Reasons we couldn't use the WQX XML File

- **An XML file or a web service** URL can be used directly as a data source to create reports in Crystal Reports, but we weren't using Crystal for this project
- Business Object Universes can be created from XML files **conforming to data source standards**
 - Common Warehouse Model (Relational or OLAP)
 - Oracle Warehouse Builder (Oracle WB)
 - Business Objects Data Integrator
 - IBM DB2 Data Warehouse Center and Cube Views
- Quarterly WQX XML file was for 3 months only, we needed cumulative data

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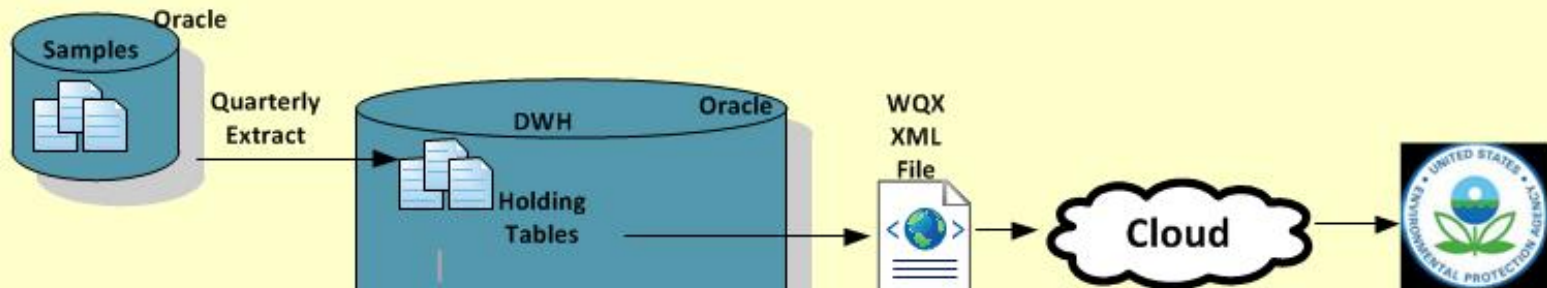
EPA Quarterly Submission Process



Business Intelligence Process

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EPA Quarterly Submission Process



Business Intelligence Process

Business Intelligence

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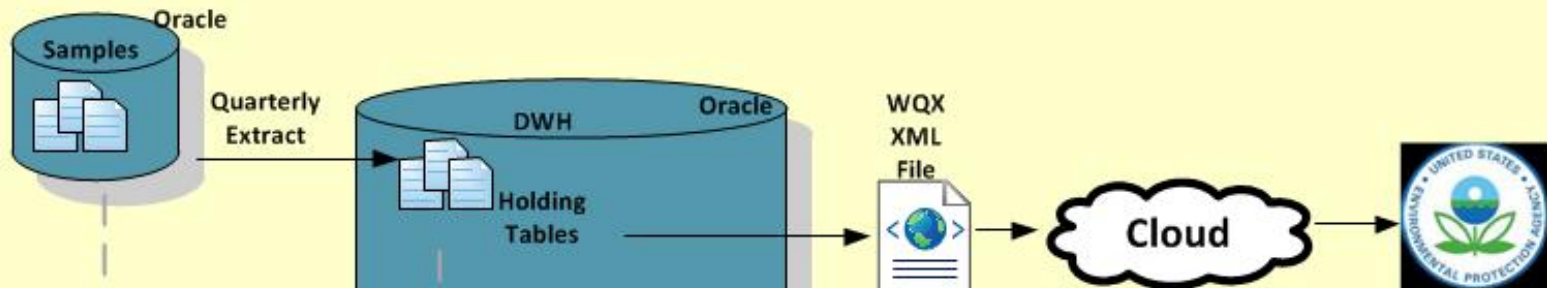
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WQN Statistical Information Report

| Monitoring Locati | Monitoring Locatic | Latitude Measure | Longitude Measur | Analyte Name | Average Test Result | MIN Test Result | MAX Test Result | Number of Result |
|-------------------|--------------------|------------------|------------------|------------------------|---------------------|-----------------|-----------------|------------------|
| SCHUYLKILL RIVER | FALLS BR | 40.01 | -75.59 | Oxygen | 9.98 | 7.53 | 12.08 | 5 |
| SCHUYLKILL RIVER | FALLS BR | 40.01 | -75.59 | pH | 8.63 | 7.38 | 8.1 | 9 |
| SCHUYLKILL RIVER | FALLS BR | 40.01 | -75.59 | Total dissolved solids | 217.2 | 122 | 322 | 5 |
| COWANESQUE RIVE | US RT 15 BR NORTH | 42 | -77.13 | Oxygen | 9.87 | 8.04 | 12.77 | 4 |
| COWANESQUE RIVE | US RT 15 BR NORTH | 42 | -77.13 | pH | 8.56 | 6.35 | 8.1 | 7 |
| COWANESQUE RIVE | US RT 15 BR NORTH | 42 | -77.13 | Total dissolved solids | 124.5 | 64 | 196 | 4 |
| Allegheny River | | 40.81 | -79.52 | Oxygen | 9.95 | 6.73 | 12.14 | 5 |
| Allegheny River | | 40.81 | -79.52 | pH | 8.2 | 5.56 | 7.96 | 9 |
| Allegheny River | | 40.81 | -79.52 | Total dissolved solids | 156.4 | 124 | 206 | 5 |

Pennsylvania DEP NEIEN Water Quality Exchange And Business Objects Integration

EPA Quarterly Submission Process



One time
only extract
– Historical
Data

Quarterly Update
Cumulative
Tables

BOXI
Universe
Metadata Layer

Web
Intelligence
Ad Hoc
Reports

Phase 1

SQL Server
Analytical Cube

Voyager
Application

Phase 2

Business Intelligence Process

Business Intelligence

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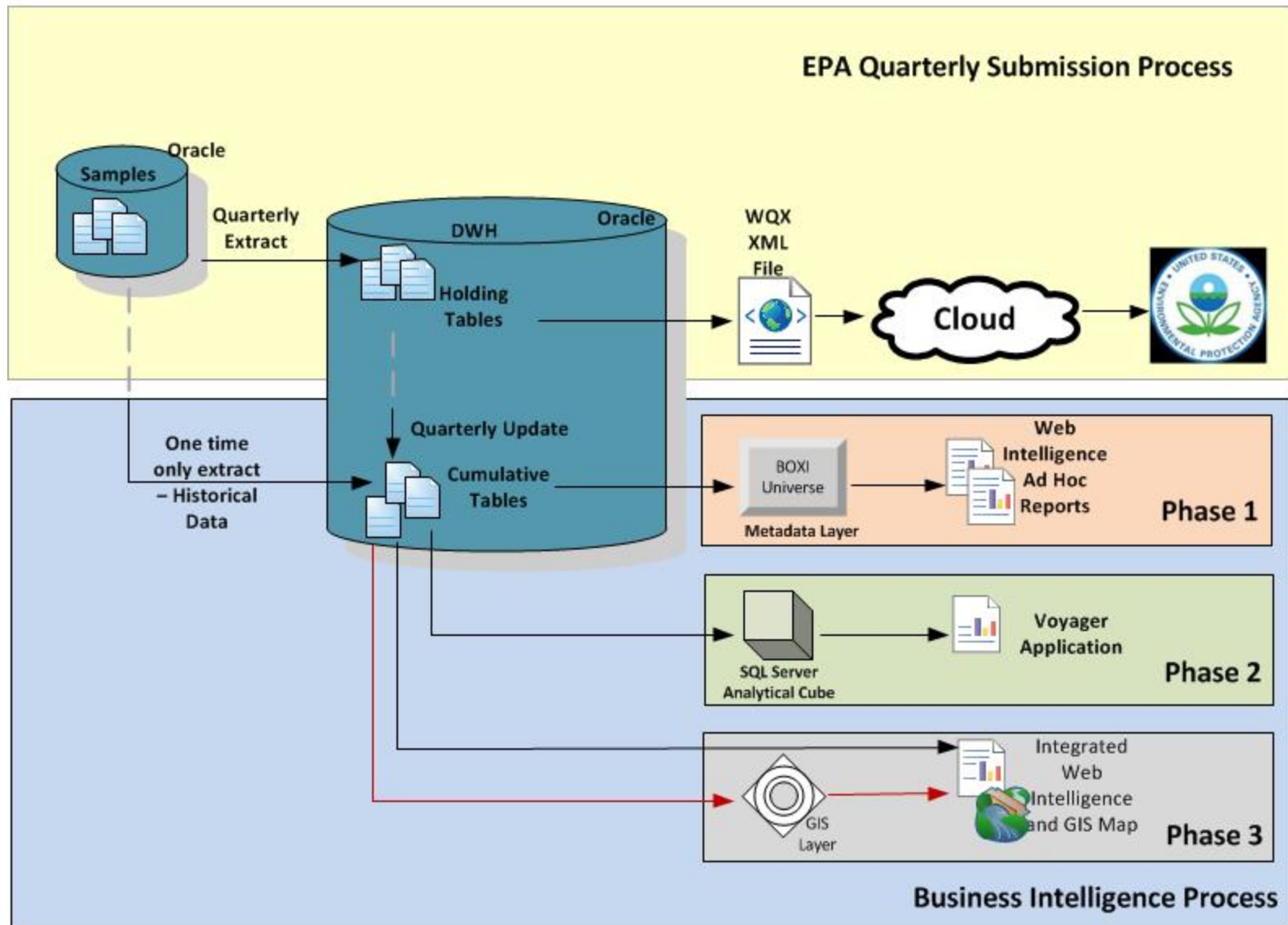
Crosstab 1 Measures: Average

Chemical in Unit.pH in None Huc 8 to WQN.All

County to WQN Year To Date Measures

| | 2009 | 2010 | 1 | 2 | 3 | 4 | 2011 | 2012 |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Average | Average | Average | Average | Average | Average | Average | Average |
| Montgomery | 6.77 | 6.85 | 6.35 | 7.05 | 6.69 | 8.14 | 7.93 | 8.39 |
| Montour | 7.48 | 7.62 | 7.30 | 7.76 | 7.89 | 7.69 | 7.70 | 7.76 |
| Northampton | 7.45 | 7.59 | 7.44 | 7.55 | 7.78 | 7.63 | 7.49 | 7.67 |
| Northumberland | 7.36 | 7.42 | 6.98 | 7.50 | 8.01 | 7.39 | 7.36 | 7.64 |
| Perry | 7.87 | 7.77 | 7.42 | 7.97 | 7.84 | 7.96 | 7.84 | 8.02 |
| Philadelphia | 8.11 | 8.21 | 8.40 | 8.37 | 8.17 | 7.75 | 8.02 | 8.23 |
| PHILADELPHIA | 8.11 | 8.21 | 8.40 | 8.37 | 8.17 | 7.75 | 8.02 | 8.23 |
| WQN0115 | 8.11 | 8.21 | 8.40 | 8.37 | 8.17 | 7.75 | 8.02 | 8.23 |
| Pike | 7.02 | 7.00 | 6.80 | 6.97 | 7.27 | 6.89 | 7.02 | 7.06 |
| Potter | 7.37 | 7.30 | 7.36 | 7.69 | 7.18 | 7.15 | 6.88 | 6.86 |
| Snyder | 7.64 | 8.20 | 7.53 | 8.40 | 8.70 | 8.08 | 7.64 | 8.09 |
| Somerset | 7.42 | 7.28 | 6.96 | 7.38 | 7.27 | 7.32 | 7.16 | 7.18 |
| Sullivan | 6.44 | 6.84 | 6.47 | 6.73 | 7.02 | 7.12 | 7.16 | 7.27 |
| Susquehanna | 7.68 | 8.05 | 8.33 | 8.15 | 8.07 | 7.58 | 7.71 | 7.82 |
| Tioga | 7.48 | 7.02 | 7.10 | 7.37 | 7.33 | 6.38 | 6.63 | 6.23 |
| Union | 7.59 | 7.66 | 7.63 | 7.94 | 8.25 | 7.33 | 7.58 | 7.79 |
| Venango | 7.84 | 8.04 | 8.31 | 8.08 | 8.10 | 7.85 | 7.79 | 8.13 |

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Business Objects Integration



APOS Bike Suppliers Inc.

From: 9/01/2012 to: 12/31/2012

Top 10 Customers in Canada

| Customer Name | Province | Sales |
|-------------------------|----------|--------------|
| Pedal Pusher Bikes Inc. | BC | \$39,277.38 |
| Crazy Wheels | BC | \$38,280.53 |
| Cycles and Sports | BC | \$38,199.10 |
| Biking's It Industries | BC | \$30,348.92 |
| Cycle Fever | ON | \$6,629.10 |
| Don't Tread On Me | ON | \$5,879.70 |
| Wheels 'n' Deals | PQ | \$2,850.85 |
| Bikes for Tykes | BC | \$1,800.00 |
| Halifax Cycle Centre | NS | \$1,489.05 |
| Dag City Cycle | MB | \$1,276.74 |
| Grand Total Sales | | \$166,031.37 |



Phase 3: Ad Hoc and GIS Integration

- Data Requirements
- Establish connections and open firewalls
- Identify/Create Webi Report (OA Server)
- Identify/Create GIS Layer (DEP internal)
- Hire SAP/APOS Expert
 - Create and Configure APOS/Web Intelligence Link between OA and DEP technologies
- Complete User Acceptance Testing
- Deploy to PROD Enviroment

Business Objects Demonstration



[Web Intelligence Analyte Report](#)

[Voyager Analytical Report](#)



Questions?

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