

WRAP

Fire Emissions Tracking System

Project Update, Outline, and Timeline

WRAP - Fire Emissions Joint Forum Meeting

San Diego, CA

22 February 2007

130p



Talk Agenda

- FETS Project Status
- Review of FTS Policy and Needs
- Outline of FETS development
 - Tasks
 - Division of Labor
 - Timeline for completion

Accomplishments to date

- 2007-02-05
 - Meeting with T. Moore, M. Fitch at WGA in Denver to discuss FETS structure and timeline
- 2007-02-06
 - Meeting with Wingate Designs to discuss Dbase architecture and other options
- 2007-02-13
 - Conference call with FETS Task team to introduce project outline, receive feedback
- 2007-02-22 (in progress...)
 - Present detailed project outline, timeline for completion at FEJF meeting

FETS Functionality

**COLLECT
AND STORE**

After day-to-day regional coordination,
how to make data better?

Output Results

Will it require additional reporting?

Level 1 QC

Intended Use of the Data

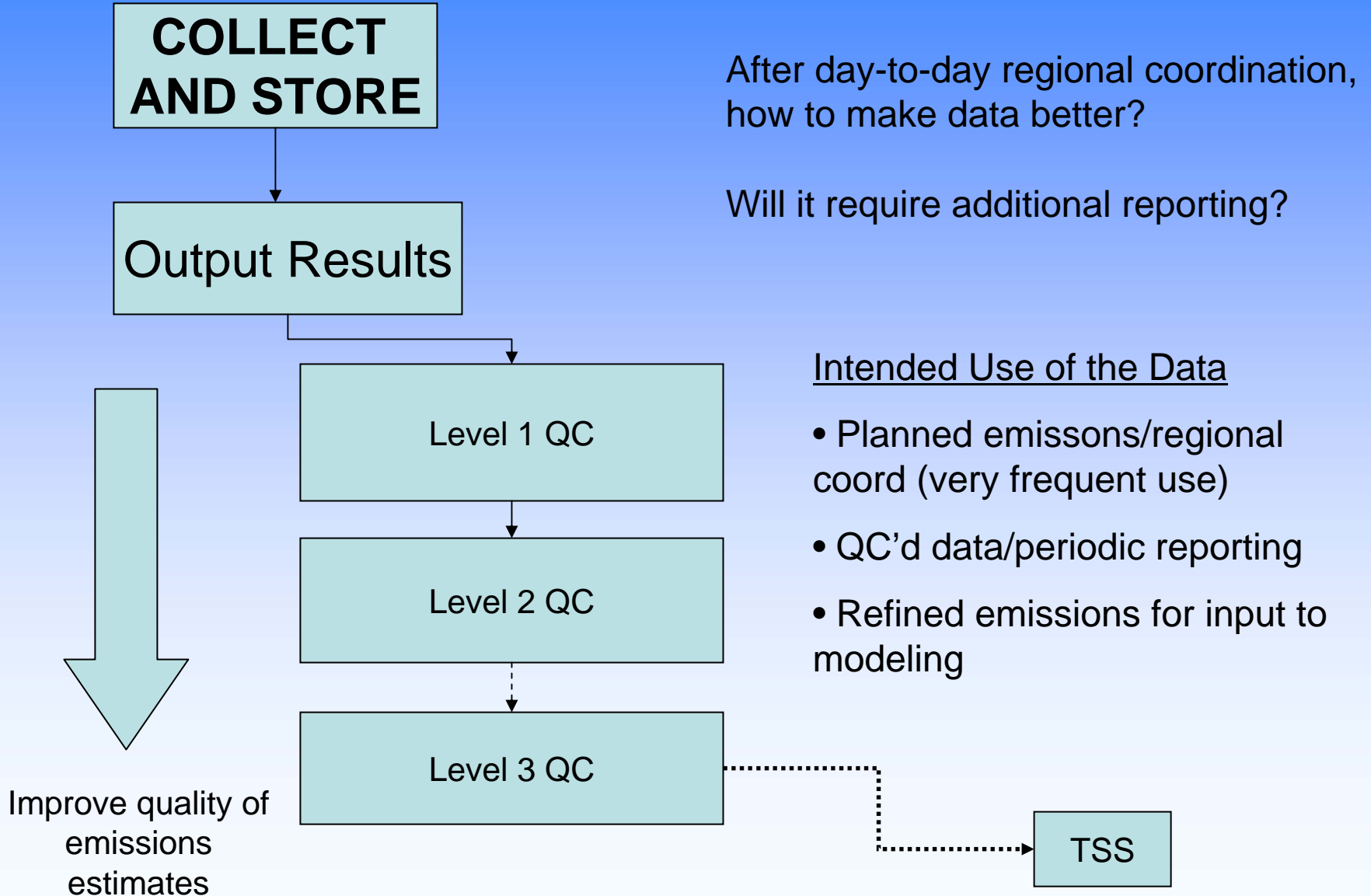
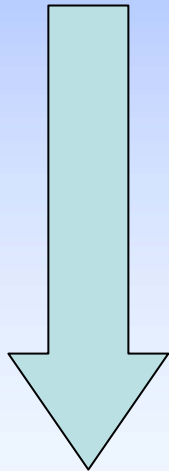
- Planned emissions/regional coord (very frequent use)
- QC'd data/periodic reporting
- Refined emissions for input to modeling

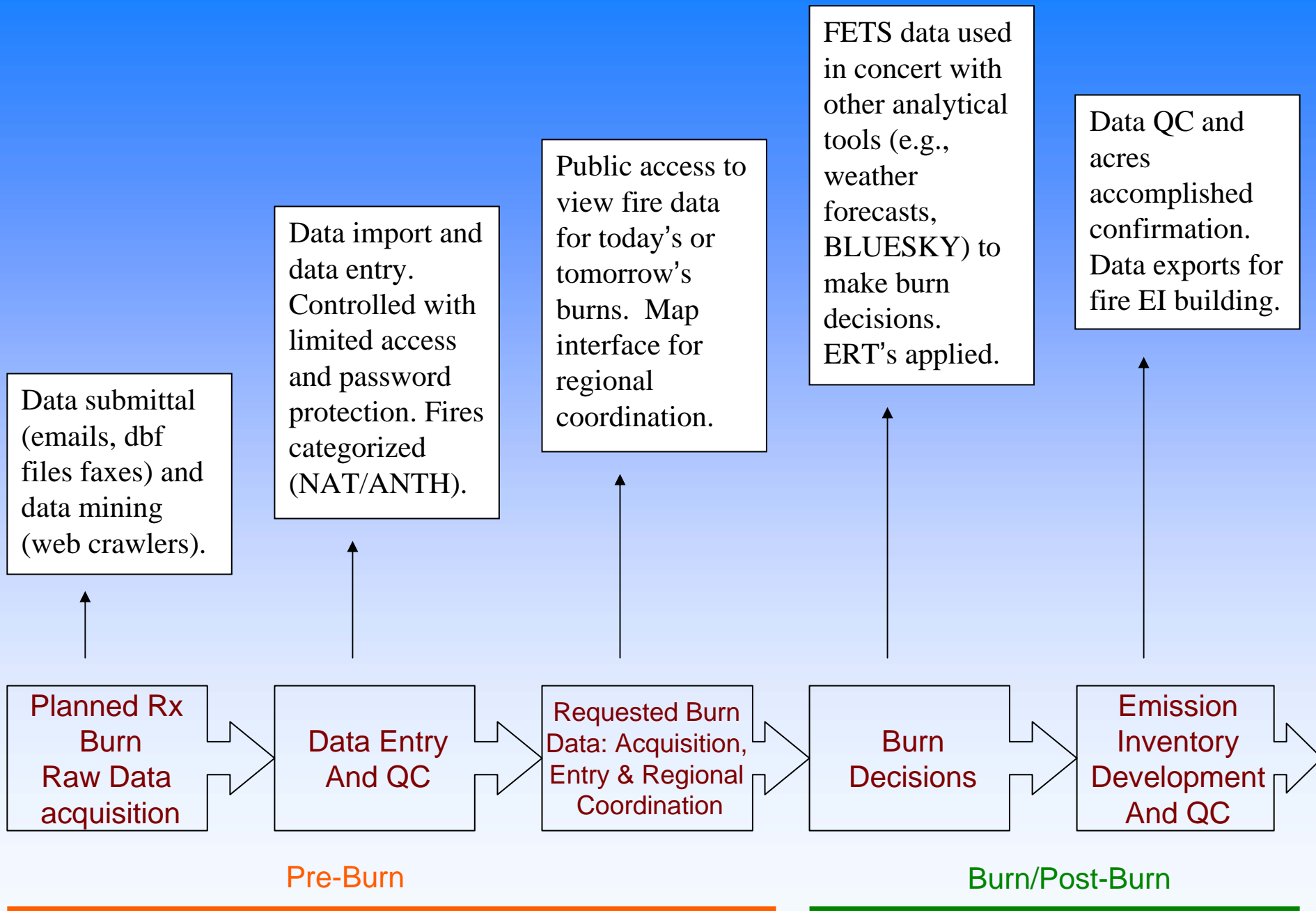
Level 2 QC

Level 3 QC

TSS

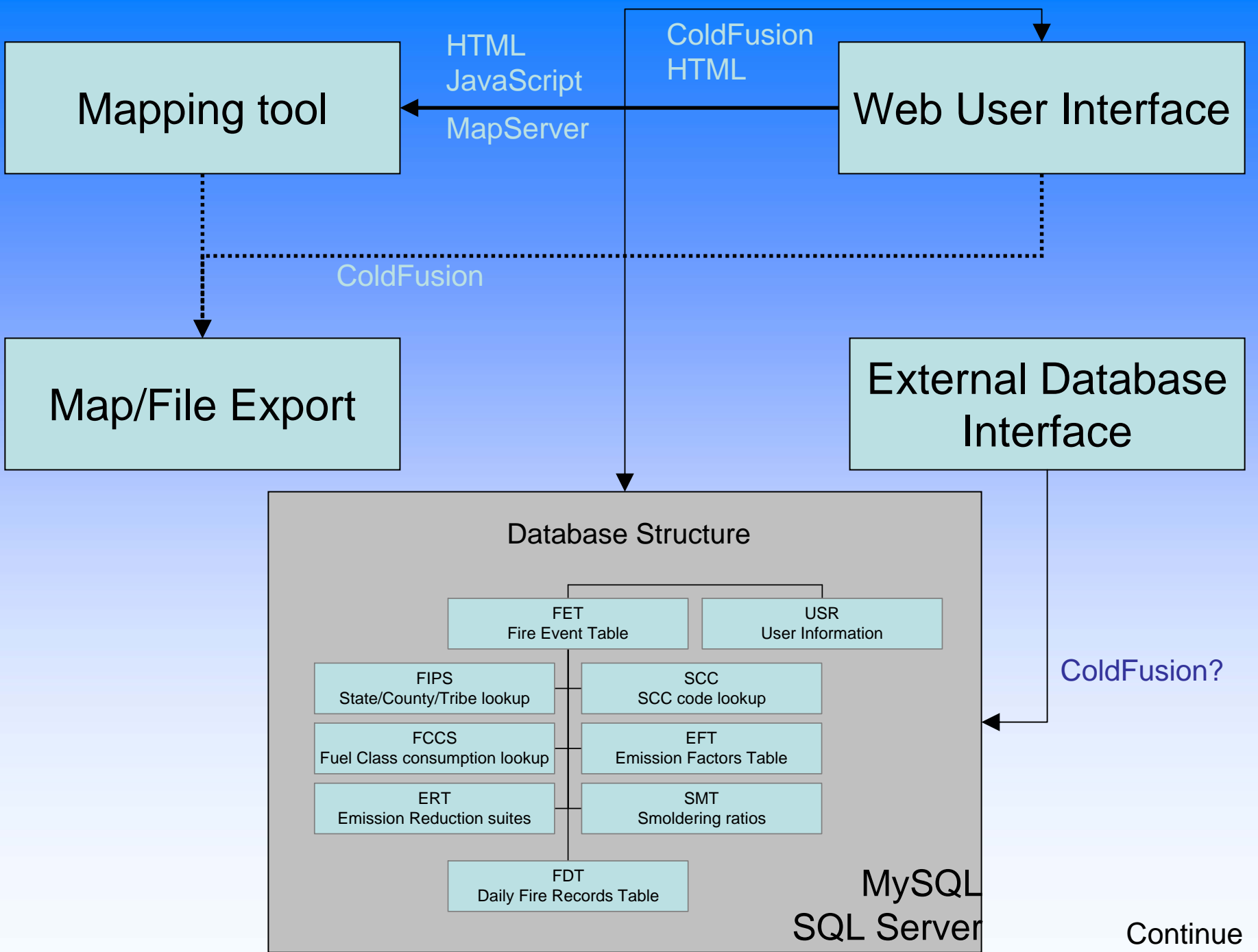
Improve quality of
emissions
estimates





Mechanical Description of WRAP Fire Emissions Tracking System

	<u>Data Tag</u>	<u>FETS Function</u>	<u>Action</u>	<u>Who?</u>	<u>What?</u>	<u>When?</u>
	E(ntry of all planned burns)	Planned Rx Burn Raw Data Acquisition	Data collection & submittal (for WF, web crawler for data acquisition)	Federal Land Managers (FLM); private (timber) industry; state forests; private land owners	Planned burning events; Updates	1x per year (dbf) Real time (fax)
	L(ibrary of all burns in FETS)	Data Entry and QC	100% of data entry and data manipulation	Smoke Management Program (SMP) personnel (State/Tribe/Local)	All submitted events and updates	Upon submittal
	R(equested burns)	Requested Burn Data Acquisition, Data Entry, & Regional Coordination	Requested burns "posted" for regional coordination and burn/no-burn decision	Burners request and SMP assigns Data Tag All can view requested burns (Regional Coord)	Burn requests	1-2 days pre-burn
Burn/Post	G(go/no-go Épproved burns)	Burn Decisions	Burn approval	SMP All can view approved burns (Regional Coord)	Approved burns	1 day before burn or day of burn
	A(ccomplished burns)	Emission Inventory Development and QC	Burn confirmation	SMP (with input from burners) All can view accomplished burns (SIP planning)	Accomplished burns	Post burn



Continue

Other Milestones

- FTS Evaluation Draft Report POSTED for review/comment (Feb 22, 07)
- Integration to TSS
 - Format to TSS needs
 - Manual QA/QC before release
 - Eventually port over to CIRA completely?
- Integrate fire emissions into emission summary tools
- Annual Emission Goal demonstration tool
- Support Regional Haze SIP content pertaining to fire emissions
- FETS Support and Maintenance
 - QA/QC
 - System Repair
 - Training
 - TSS Workshop in Denver - 6/19/2007
 - Emissions Inventory "Lessons Learned" meeting - mid-Sept. 2007
- Documentation
 - Technical Support Document
 - FETS User Guide

Calculating Emissions - Considerations

- Consistency
 - Database calculates actual emissions
 - Flexibility with fuels/activity data
 - User-defined
 - Crosswalk over FCCS
 - FEPS-based (a la Inter-RPO method)

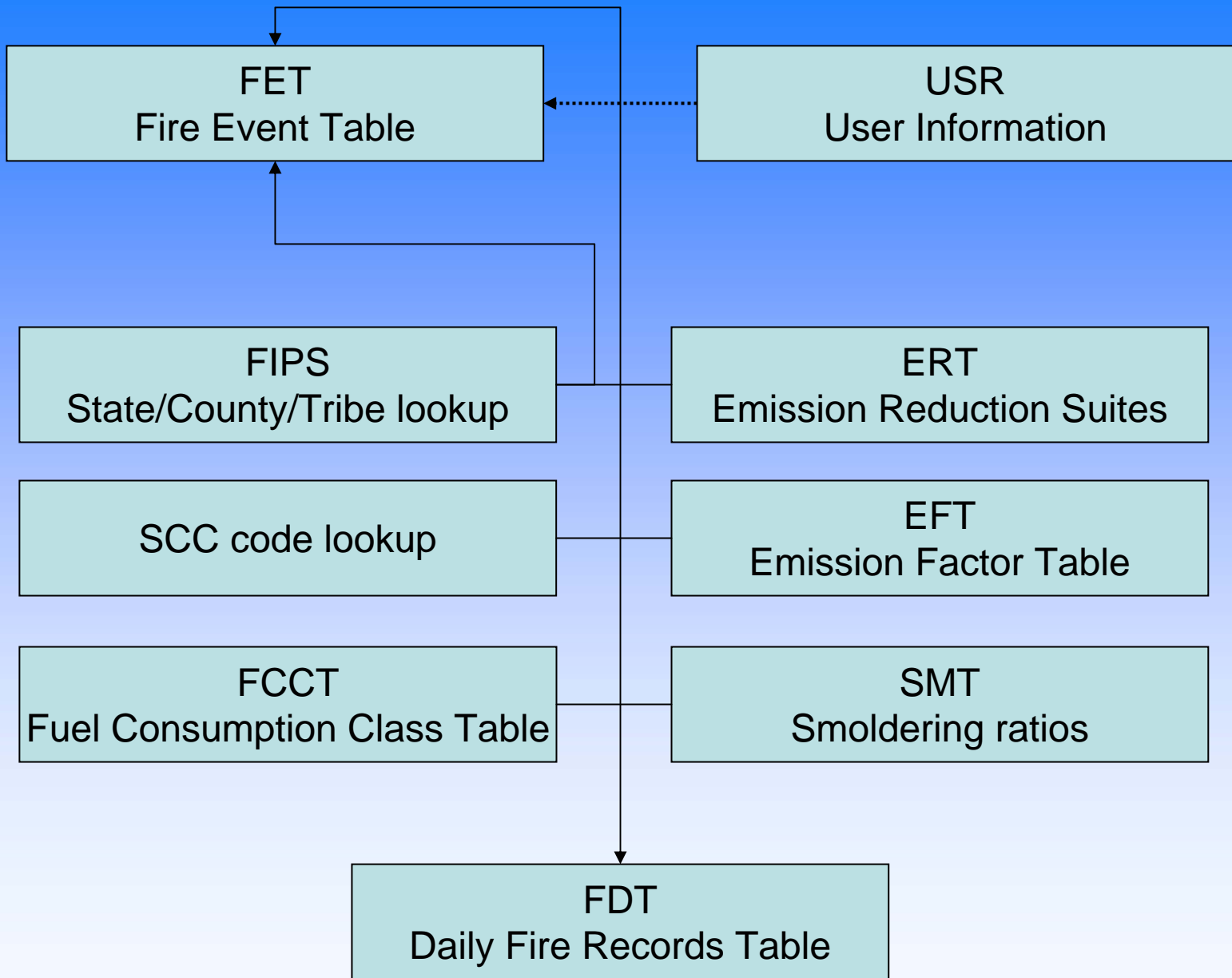
VERSUS

- State/agency preferred method
 - User calculates and enters emissions
 - Emissions from external sources accepted
 - Link to calculator on website?
- Flexible depending on QC level?

Back

Database Structure Highlights

- Platform: MySQL or SQL Server?
 - Depends on access to CIRA server
 - Both are fully functional relational Dbases
 - Possible to port over to SQL server later on
- Event configuration
 - Entry for each day of a fire
 - Editable event entries (e.g. to change fire duration)
- Functionality
 - Emissions calculations
 - Store calculated emissions or do "on the fly" each time data are queried
 - Partly depends how we handle calc updates
 - If calcs are updated, how to store data?
 - Fuel consumption calculations
 - Flexible data entry
 - Link to fuel cons. calculator?
 - Archiving and Backup



Web-based User Interface

- Write in ColdFusion
 - Easiest to integrate DB with web forms
 - Software purchase is \$1300
 - Find host where CF already exists
 - - a) GoDaddy.com
 - - b) Other?
- Options for easy data entry (web forms)
- Reporting/visualization
 - Model formats
 - PT files for SMOKE/CMAQ
 - BlueSky-ready formats
 - Planned coordination with BlueSky developers
 - Emissions Inventory formats
 - Tabular online viewing
 - CSV or DBF download

Data Retrieval and Editing

- Retrieval
 - Manual data entry
 - web-crawl
 - batch-load
- QA/QC procedure on all stored records
 - Planned events (Ag, prescribed, NFR)
 - Restrict write permissions
 - manual check by DBA
 - Restrict editable records
 - lookup table of existing fires
 - limited time window (e.g. 6 months) for editing
 - ▪ Automated email to FM before window expires
 - Unplanned events (wildfire, WFU)
 - Automated QC where possible

Mapping Tool

- Essential Features
 - Fire locations, planned and active
 - Symbolization?
 - Able to query fires
 - Options for download, printing
 - Zoom in/out of regions of interest
 - Options for data overlay (towns, roads, FCCS, etc)
- Choose a web-based mapping program
 - MapServer
 - Free
 - Many tools already written, available
 - Translates ESRI, E00, GRID, GRASS, etc
 - ArcIMS
 - Present at CIRA already
 - Possible to access, purchase license?
 - May be quicker, easier to implement
 - Coding is platform independent

Fire Event Table

- Stored values for each fire event
 - User ID of record creator
 - timestamp of creation/last edit
 - Unique DB ID for each fire event
 - not necessarily public
 - link to each daily record (i.e. ID goes with event, not record)
 - Minimum data elements required (from FTS Eval)

Date of Burn	Burn Location
Area of Burn	Fuel Type
Pre-Burn Fuel Loading	Type of Burn
Natural/Anthropogenic	Annual Emission Goal Info
Projections	Emissions

SCC Codes

- EPA classification used for emission inventories
- Stored with fire events for NEI export

Proposed EPA SCC Codes & Codes for any Future RPO EIs

SCC	SCC Name (L3/L4)
261000500	Construction, Land Clearing Debris & Other / (Non logging) Unspecified burn method (Note: Use 2810005000 for slash and logging-related debris burning)
2810005000	Managed Burning, Slash (Logging Debris) / Unspecified burn method (Note: Use 2610000500 for non logging (e.g., construction)-related debris burning)
2810001000	Wildfire / Unspecified fire stage, class/purpose, ownership
28100010F0	Wildfire / Flaming, Unspecified class/purpose, ownership
28100010S0	Wildfire / Smoldering, Unspecified class/purpose, ownership
2810001001	Wildland Fire Use / NATURAL (Maintenance), unspecified fire stage, ownership

Fuel Consumption Classes

- Lookup table for emission calculation
- FCC-based classification
 - CFFDRS/NFDRS for Alaska
 - May also include WRAP-modified NFDRS for flexibility
- Dependent on fire type
 - Wildfire
 - WFU
 - Prescribed
- Include FEPS-based fuel loading table?

Emission Reduction Suite Table

- Lookup table for use with prescribed fire events
- Based on Phase III/IV Inventory
 - Seasonal suites
 - Percent emission reduction based on 4 basic fuel types
 - Timber
 - Brush
 - Grass
 - Agriculture
 - Four Regions:
 - Northwest
 - Southwest
 - Inter-mountain West
 - Alaska
 - Single option for each Region/Season/Fuel type
- Entered as “Yes/No” on data entry screen

Data Exchange Interface

- Communication with existing databases
 - WRAP EDMS
 - Federal database systems
 - US Department of Agriculture
 - Natural Resources Conservation Service
 - EPA National Emission Inventory
 - WFMI
 - FACTS
 - NIFPORS
 - TEISS
- Requires coordination with individual Systems Managers
- Set as automated task?
 - query script unique to each system
 - How to deal with changes outside of FETS?
 - How to avoid duplication?
- Manual data dump
 - Frequency?