Fire Emissions Tracking System for Regional Coordination

Region 10 Smoke Management Meeting

April 14-16, 2008

Portland, OR

AIR SCIENCES INC.

DENVER • PORTLAND

MEETING GOALS & The fets

Barriers to Improved Coordination and Communication

- Smoke Management Programs (SMP) are autonomous
- Many SMP's have their own tracking/ database system
- Fire activity data may not be emissions/ air quality centric

WRAP developed the FETS so that

- Data from all sources are in one system (with little "extra" work from data providers)
- Mapping and reporting tools are web-based so information is easily shared
- Event data are acquired or gap-filled to be suitable for air quality planning.

Opening Remarks

- Introduction to production version of WRAP Fire Emissions Tracking System (FETS).
- Using the FETS as a Regional Coordination Tool.
- Steps to full data acquisition.
- Need, want, ***must have your input & feedback!***

FETS Fly-by

WRAP fets
Login
Home
View My Projects
Enter Project
View My Burn Days
Enter Burn Day
Map
Reports
Contact
FTP
Welcome to the WRAP Fire Emissions Tracking System (FETS).
Map of Current Fire Activity in WRAP Region
Resources
Methods
State and Tribal Smoke Manager Contacts
The WRAP's Fire Emissions Tracking System (FETS) is a database with a web interface for planned and unplanned fire events. Users can view fire data on-screen with a mapping tool and query the database for downloads of data into model-ready formats and CSV or DBF formats.
News and Events
FEJF Meeting and Expanded FETS Training, Sept 26-27, 2007. Salt Lake City, UT. Details...
View Final FETS Workplan
Summary of TSS Workshop on FETS - June 19-20, 2007, Denver, CO. Details...
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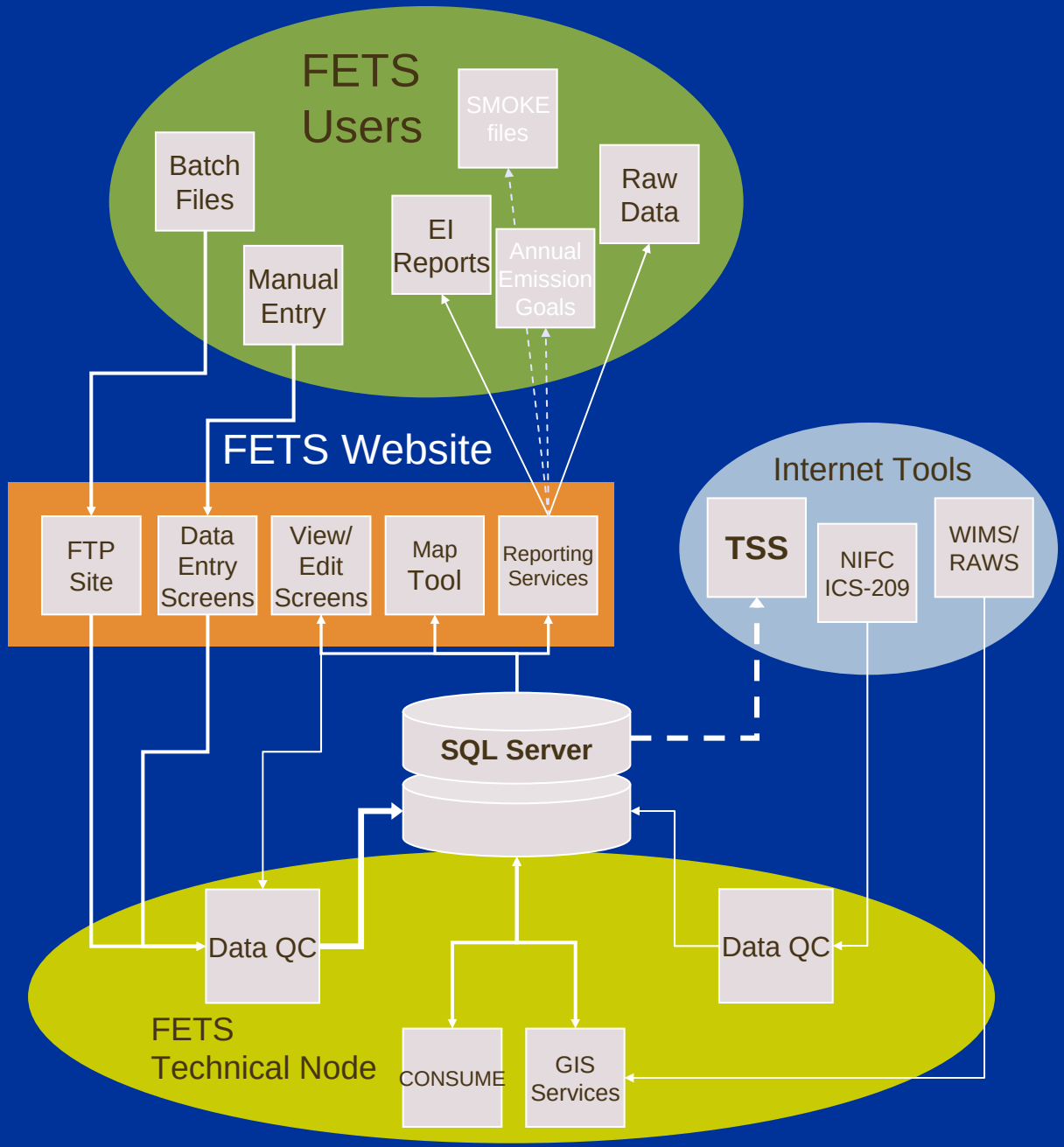
Overview of FETS
Why do we have it?

- Section 51.309.(d)(6) of the Regional Haze Rule requires each State to establish an emissions inventory and tracking system (spatial and temporal).
- WRAP's Fire Tracking System Policy approved by the WRAP Board 4/2/2003 (http://wrapair.org/forums/fejf/documents/fts/WRAPFTSPolicy.pdf)
- Facilitate Regional Coordination among Smoke Management Programs

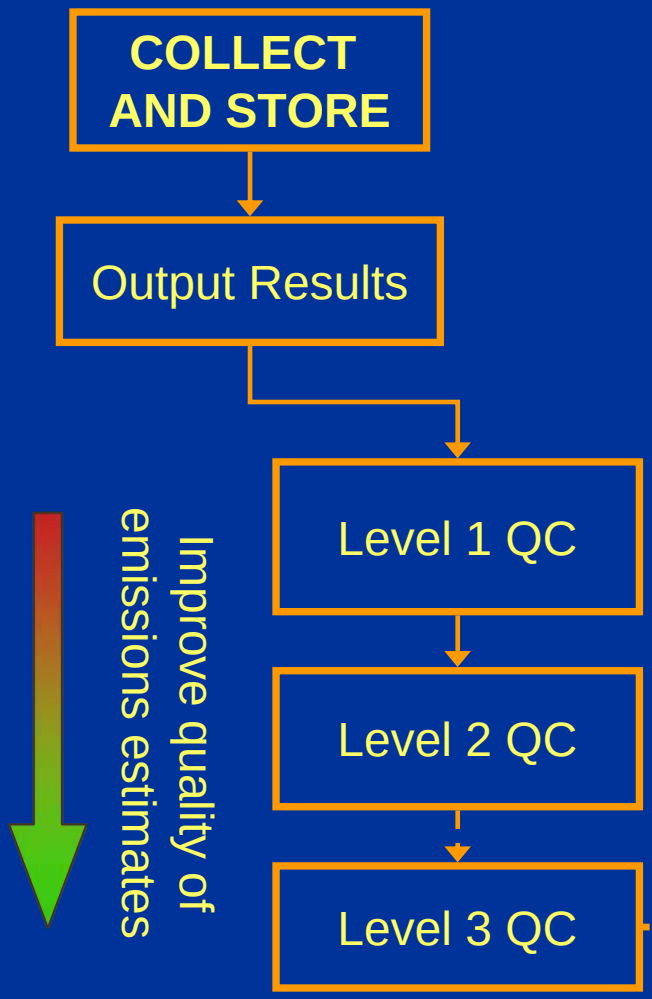
Overview of FETS
What is it?

- A secure, easy-to-implement database software package and development environment.
- Simple, efficient, “commodity” programming and software packages to communicate with a database, control data mining, and provide an effective, fully-functional web interface.

FETS Design


FETS Users
SMOKE files
Batch Files
Raw Data
EI Reports
Annual Emission Goals
Manual Entry
FETS Website
Internet Tools
TSS
NIFC ICS-209
WIMS/ RAWS
FTP Site
Data Entry Screens
View/ Edit Screens
Map Tool
Reporting Services
SQL Server
Data QC
Data QC
FETS Technical Node
CONSUME
GIS Services

Critical Functions of the FETS



Questions to Consider as QC Procedures are Developed

- **After data are used for day-to-day regional coordination, how do we improve the quality of the data?**
- **Will it require additional reporting?**

Planned emissions/regional coordination: very frequent use

QC'd data and periodic reporting

Refined emissions for input to modeling

WRAP tss

Overview of FETS
What Does it Deliver?

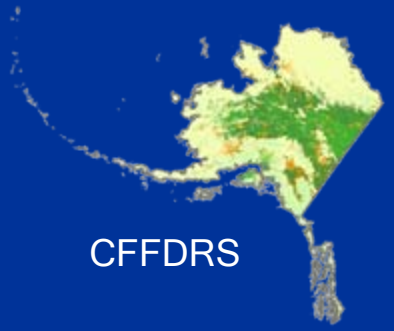
- Storage Device for Fire Activity Data
  - Efficient data acquisition
  - Automated and custom QA/QC
  - Version control / archiving / back-up
- Real-time Information Tool for Smoke Management Programs (maps and fire statistics)
- Cost Effective Data Retrieval Tool
- Integrates Fire Data into Regional Haze SIPs

fets - FUEL AND EMISSIONS

Fuel Consumption

User Provided

GIS overlay with FCCS 1.1 (lower 48) or CFFDRS (Alaska)



CFFDRS

Emission Estimates

User Provided

WRAP Phase II (simple) [always used for Regional Coordination]

CONSUME 3.0 [includes GIS lookup of daily fuel moisture (FM) and precipitation]

FCCS 1.1

1k FM surface
8/8/2007

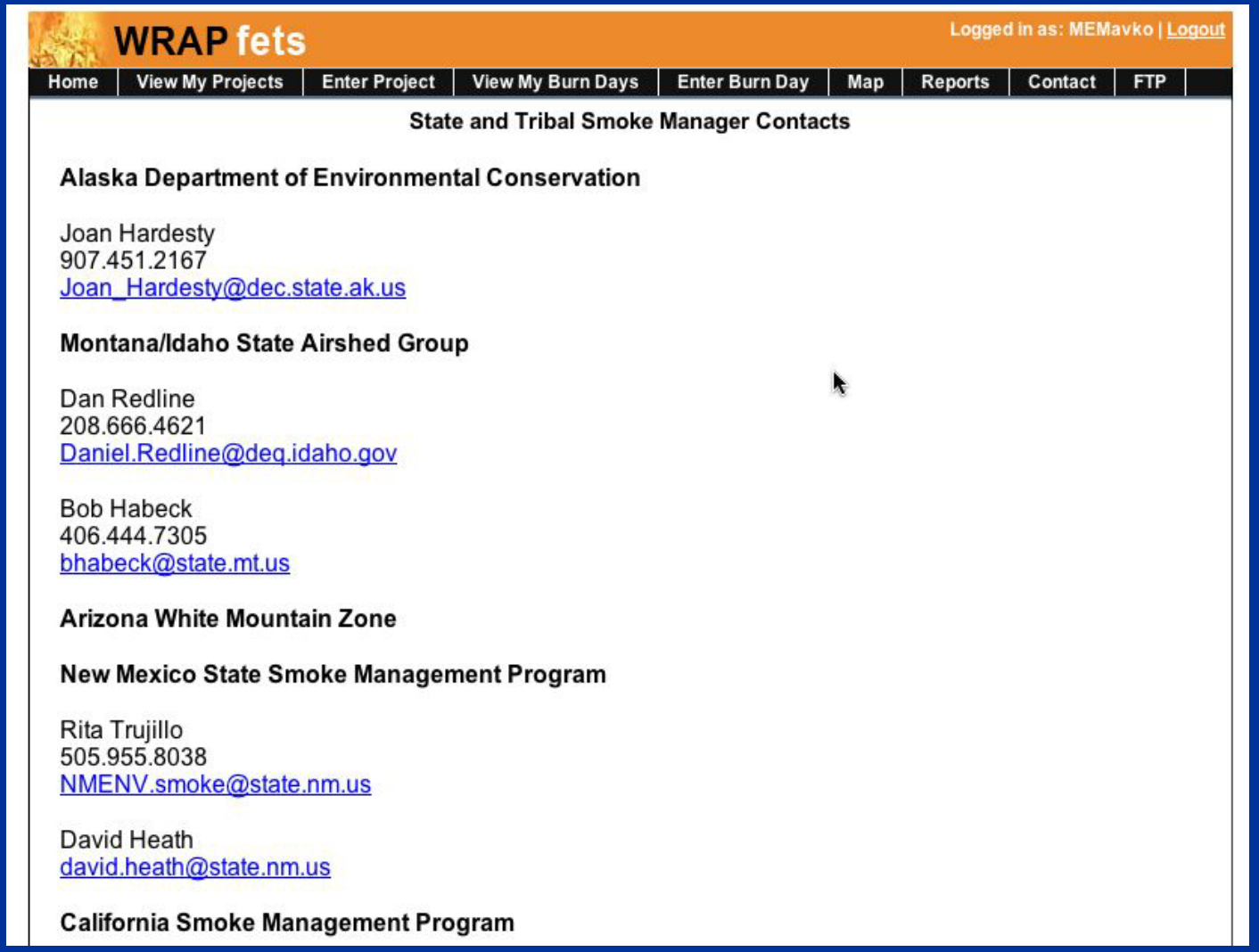
Integration of WRAP Fire Policy Elements

Natural/Anthropogenic

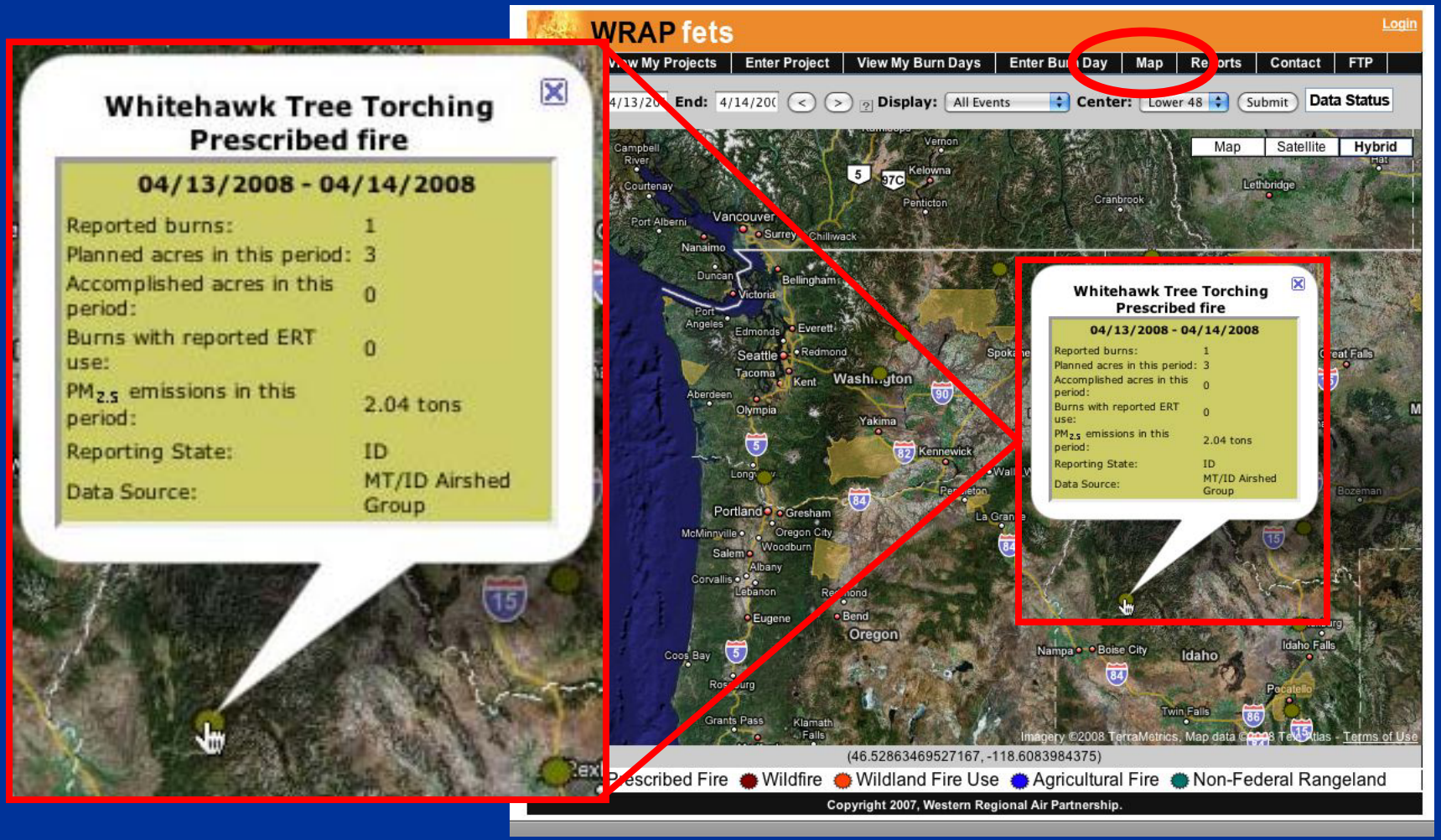
Emission Reduction Techniques

REGIONAL COORDINATION

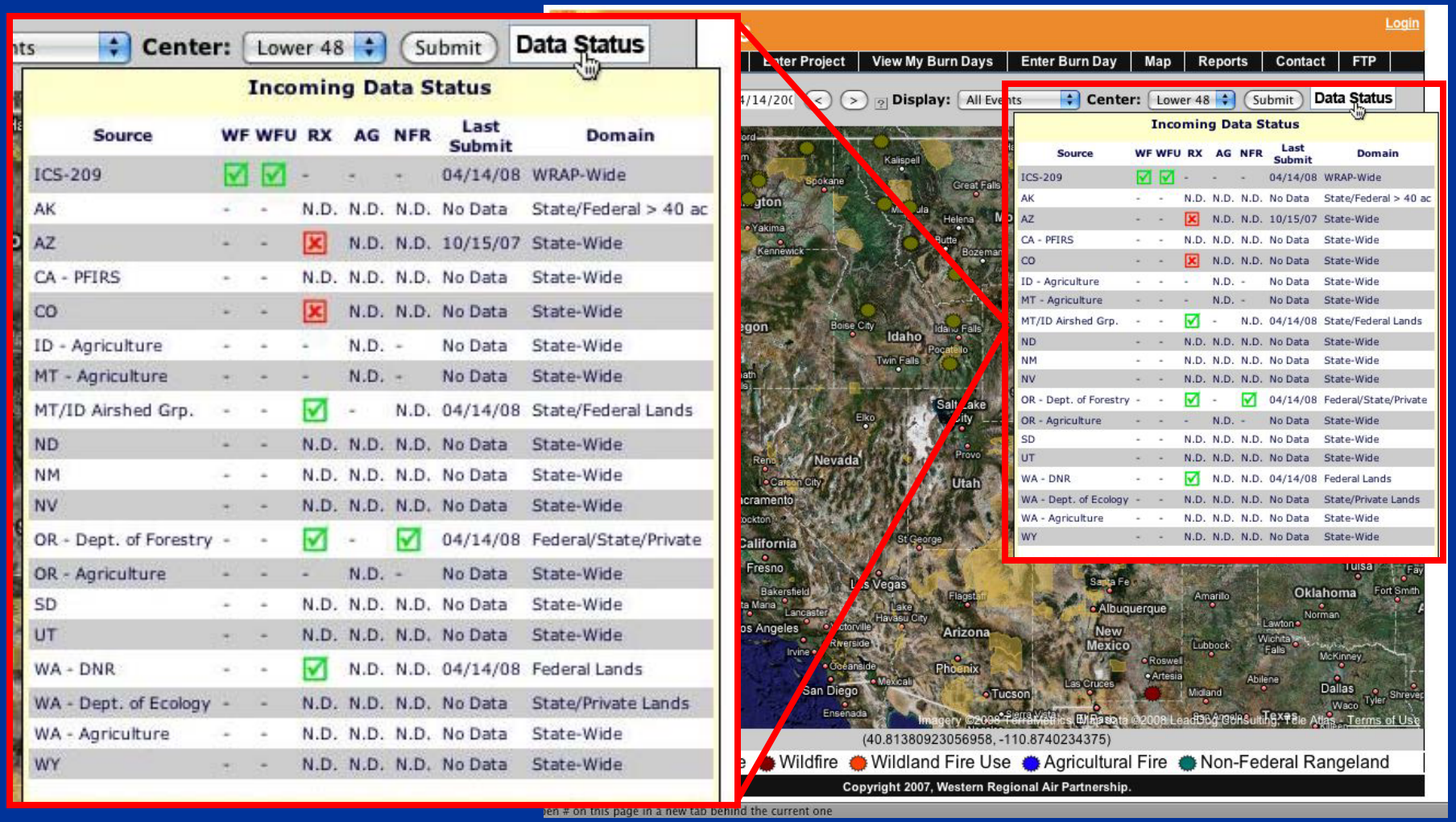
State and Tribal Smoke Manager Contacts



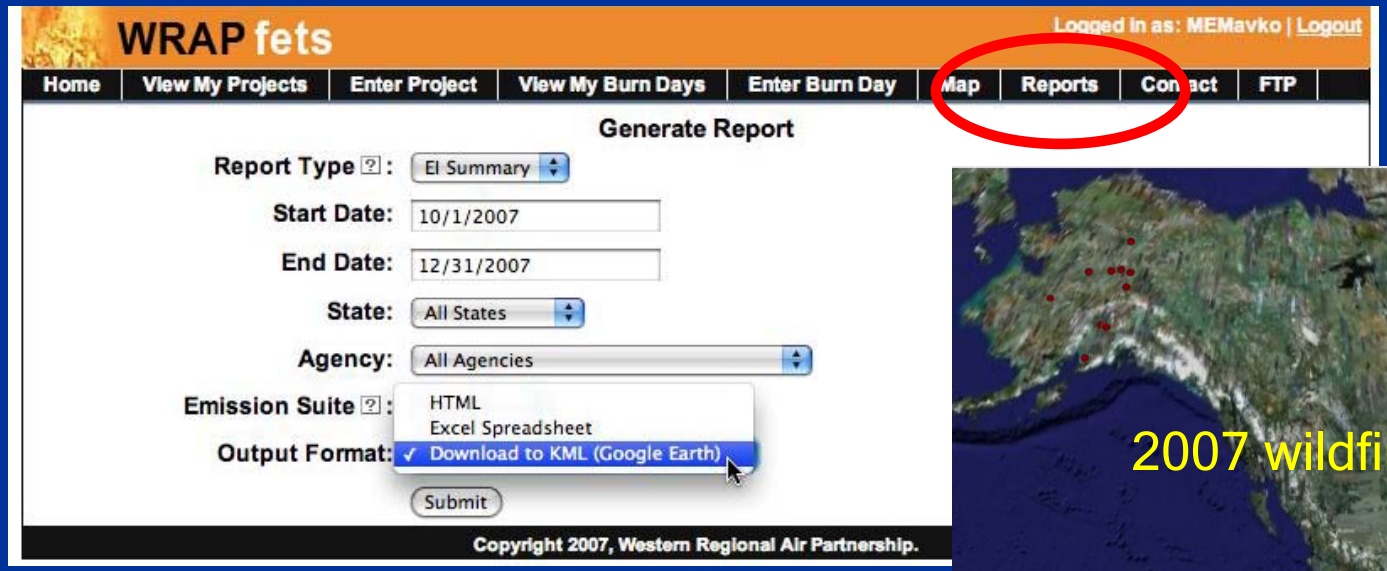
Mapping Tool – Google Maps

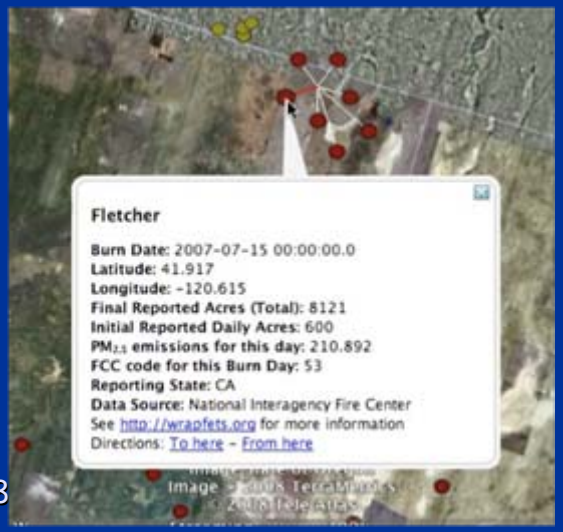


Mapping Tool – Google Maps



Mapping Tool – Google *Earth*





DATA ACQUISITION

Overview of Data Elements

Minimum Data Elements (per WRAP's FTS Policy)

Other Data Elements, e.g., fuel moisture. Not essential to tracking

*Date of Burn	*Burn Location
*Area of Burn	Fuel Type
Fuel Loading	*Type of Burn
Natural/Anthropogenic	Emissions

Manipulating Fire Data

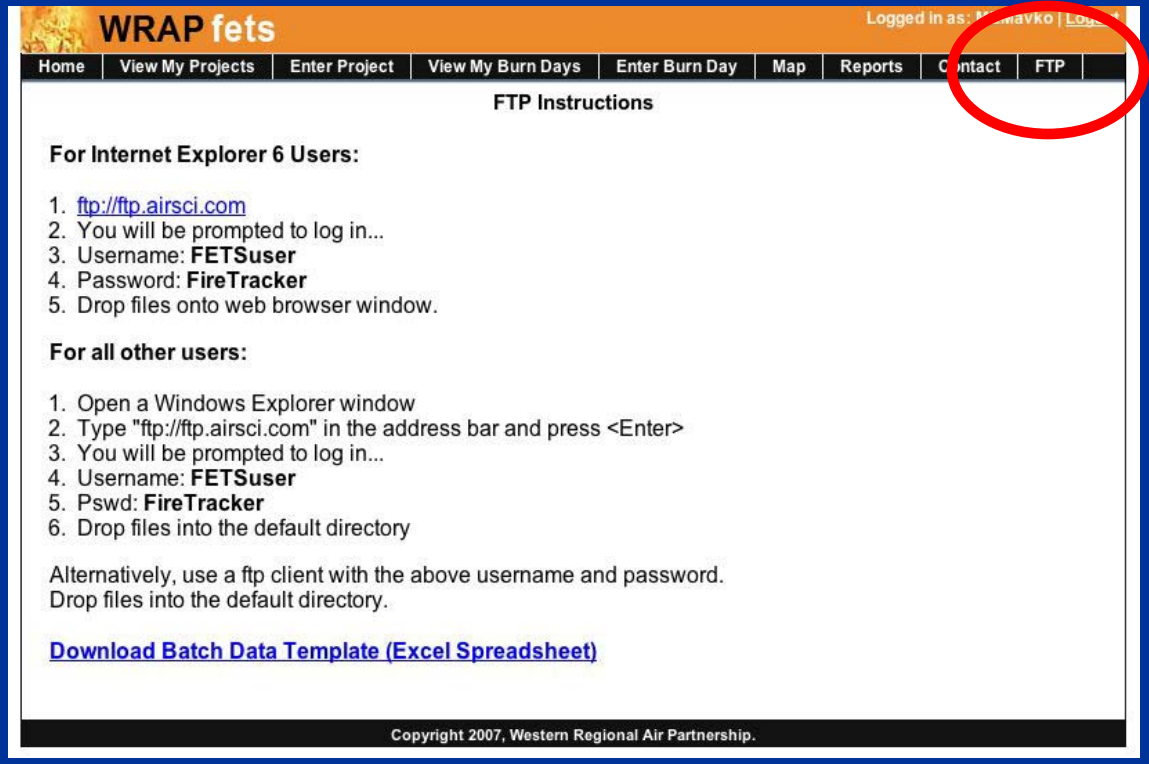
Data Acquisition Plan

- Wildfire
  - FTP-get ICS-209 data set from federal site. Pulls previous day's burns.
- All other fire types
  - FTP-get from Agency sites (OR, WA, NM)
  - FTP-put to FETS site from Smoke Management Programs (AZ)
  - Automated direct acquisition from SMP databases (MT,ID, Nez Perce)
  - Manual data entry at FETS

Uploading Batch Data

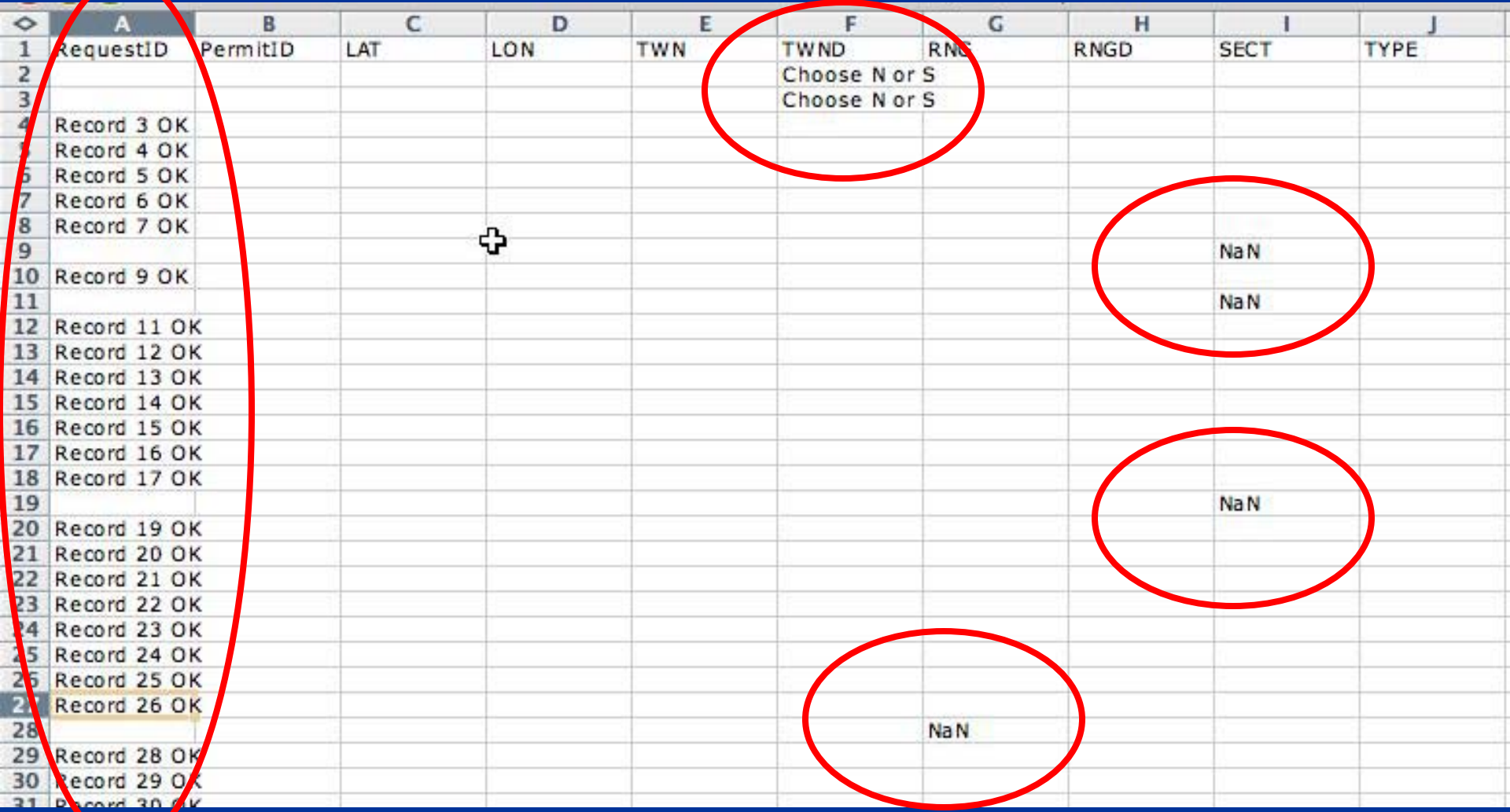
MS-Excel or CSV files

- Same fields as required by manual data entry + extras
- Download Format Template (MS-Excel)



•Schedule for Automated Data Acquisition – midnight; 0200; 0700 – 1900 MDT

Quality Control - Batch File Error Reports



	A	B	C	D	E	F	G	H	I	J
1	RequestID	PermitID	LAT	LON	TWN	TWND	RNG	RNGD	SECT	TYPE
2						Choose N or S				
3						Choose N or S				
4	Record 3 OK									
5	Record 4 OK									
6	Record 5 OK									
7	Record 6 OK									
8	Record 7 OK									
9									NaN	
10	Record 9 OK									
11									NaN	
12	Record 11 OK									
13	Record 12 OK									
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25	Record 24 OK									
26	Record 25 OK									
27	Record 26 OK									
28							NaN			
29	Record 28 OK									
30	Record 29 OK									
31	Record 30 OK									

Known Data Sources as of 12/31/2007

Incoming Data Status

Source	WF	WFU	RX	AG	NFR	Last Submit	Domain
ICS-209	☑	☑	-	-	-	04/14/08	WRAP-Wide
AK	-	-	N.D.	N.D.	N.D.	No Data	State/Federal > 40 ac
AZ	-	-	☒	N.D.	N.D.	10/15/07	State-Wide
CA - PFIRS	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
CO	-	-	☒	N.D.	N.D.	No Data	State-Wide
ID - Agriculture	-	-	-	N.D.	-	No Data	State-Wide
MT - Agriculture	-	-	-	N.D.	-	No Data	State-Wide
MT/ID Airshed Grp.	-	-	☑	-	N.D.	04/14/08	State/Federal Lands
ND	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
NM	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
NV	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
OR - Dept. of Forestry	-	-	☑	-	☑	04/14/08	Federal/State/Private
OR - Agriculture	-	-	-	N.D.	-	No Data	State-Wide
SD	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
UT	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
WA - DNR	-	-	☑	-	-	04/14/08	State-Wide
WA - Dept. of Ecology	-	-	-	N.D.	N.D.	No Data	State-Wide
WY	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
Nez Perce Tribe	-	-	N.D.	N.D.	N.D.	No Data	Nez Perce Tribal Land

The FETS currently accepts data from

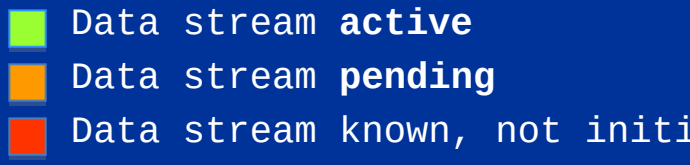
- A FTP site dedicated to FETS
- Individual State and federal FTP sites
- Individual States via Web Services

Data handshakes are varied and customizable to States' and Tribes' individual requirements.

FETS Developers have a list of State/Tribal contacts and will continue to initiate handshakes.

Recent Data Acquisition Developments

- New Data providers
  - Oregon: Federal (USFS and BLM), State, County, Municipal, and Private **Prescribed** burning
  - New Mexico: Federal and State **Prescribed** burning
  - Arizona: Federal and State **Prescribed** burning
  - Idaho: **Agricultural** burning
  - Nez Perce Tribal land **Prescribed** burning
- Registration requests continue to come in



Concluding Remarks

- FETS is up and running with growing participation among data providers and Smoke Management Programs.
- WRAP would support efforts to integrate the FETS with other tracking or forecasting systems.

Links/Contact Information

- www.wrapfets.org

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Questions?