

Fire Emissions Tracking System for Regional Coordination

Region 10 Smoke Management Meeting

April 14-16, 2008

Portland, OR



DENVER • PORTLAND

MEETING GOALS & The



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](#)

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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?

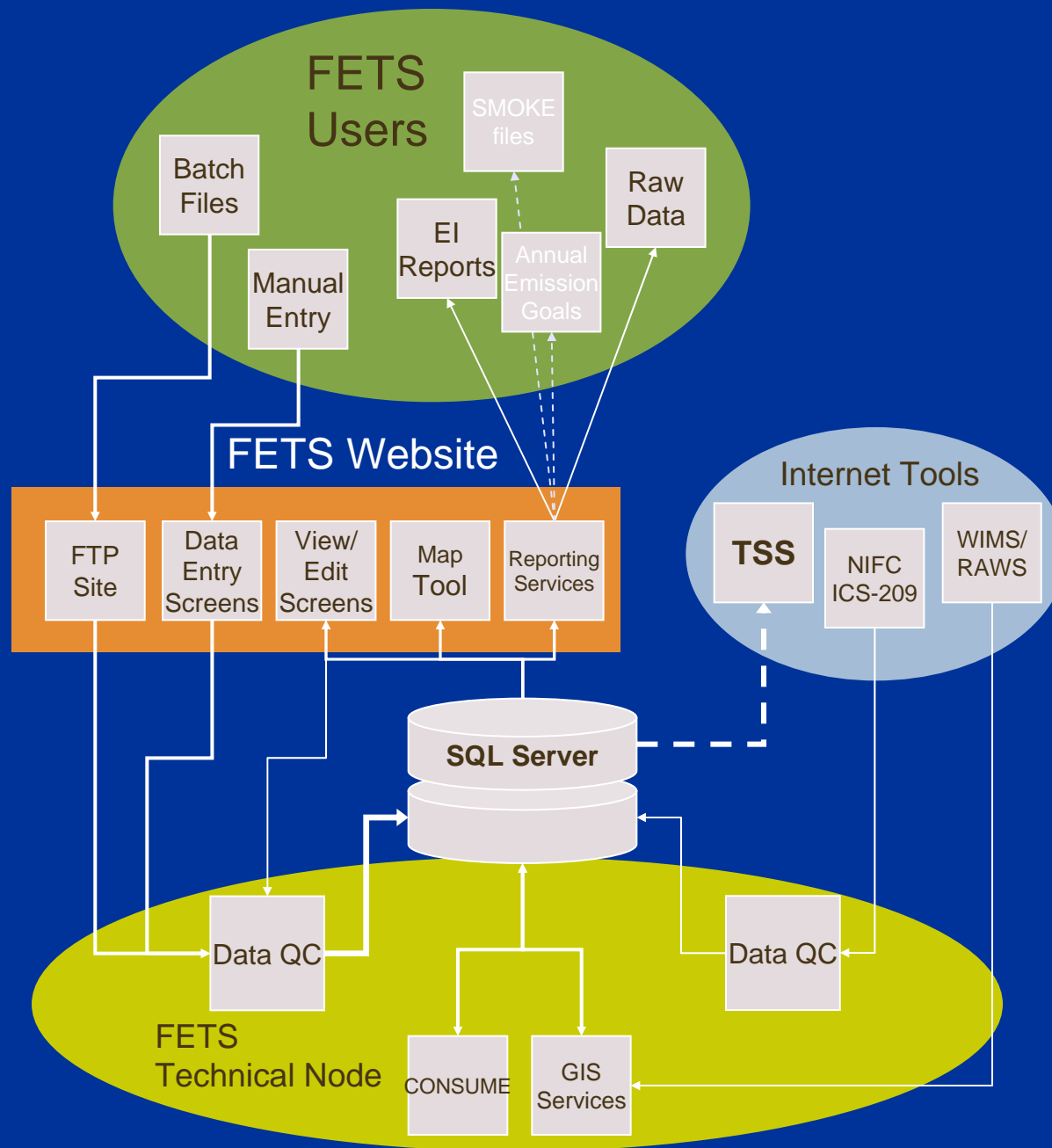
- Section 51.309.(d)(6) of the Regional Haze Rule requires each State to establish an emissions inventory and tracking system (spatial and temporal).
- WRAP's Fire Tracking System Policy approved by the WRAP Board 4/2/2003 (<http://wrapair.org/forums/fejf/documents/fts/WRAPFTSPolicy.pdf>)
- Facilitate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

Overview of FETS

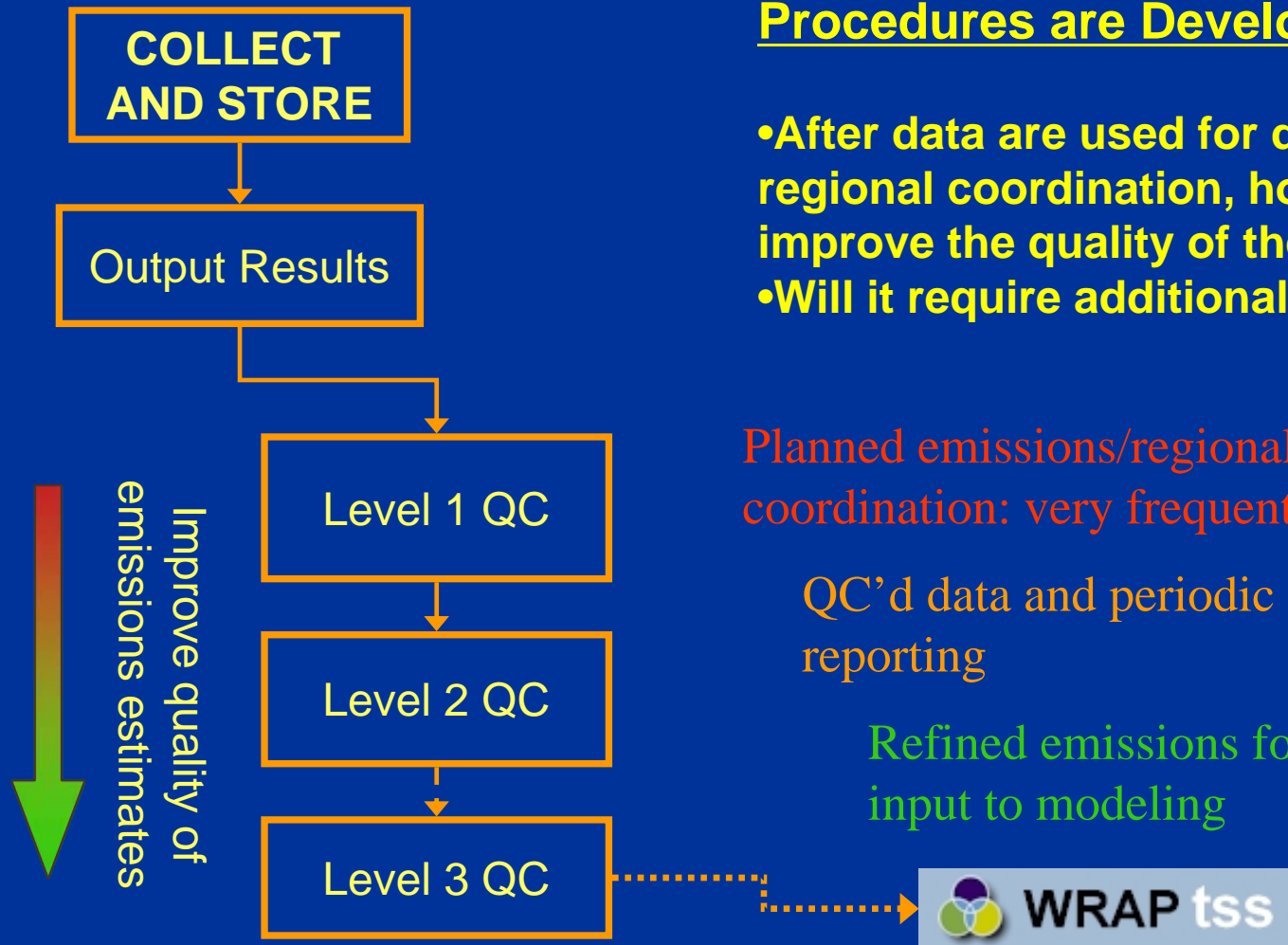
What is it?

- 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



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

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



- 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

WRAP fets Logged in as: MEMavko | [Logout](#)

[Home](#) | [View My Projects](#) | [Enter Project](#) | [View My Burn Days](#) | [Enter Burn Day](#) | [Map](#) | [Reports](#) | [Contact](#) | [FTP](#)

State and Tribal Smoke Manager Contacts

Alaska Department of Environmental Conservation

Joan Hardesty
907.451.2167
Joan_Hardesty@dec.state.ak.us

Montana/Idaho State Airshed Group

Dan Redline
208.666.4621
Daniel.Redline@deq.idaho.gov

Bob Habeck
406.444.7305
bhabeck@state.mt.us

Arizona White Mountain Zone

New Mexico State Smoke Management Program

Rita Trujillo
505.955.8038
NMENV.smoke@state.nm.us

David Heath
david.heath@state.nm.us

California Smoke Management Program

Mapping Tool - Google Maps

WRAP fets Login

View My Projects | Enter Project | View My Burn Days | Enter Burn Day | **Map** | Reports | Contact | FTP

4/13/2008 End: 4/14/2008 Display: All Events Center: Lower 48 Submit Data Status

Map | Satellite | Hybrid

Whitehawk Tree Torching Prescribed fire

04/13/2008 - 04/14/2008

Reported burns:	1
Planned acres in this period:	3
Accomplished acres in this period:	0
Burns with reported ERT use:	0
PM _{2.5} emissions in this period:	2.04 tons
Reporting State:	ID
Data Source:	MT/ID Airshed Group

Whitehawk Tree Torching Prescribed fire

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(46.52863469527167, -118.6083984375)

Prescribed Fire ● Wildfire ● Wildland Fire Use ● Agricultural Fire ● Non-Federal Rangeland

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Mapping Tool - Google Maps

Incoming Data Status

Source	WF	WFU	RX	AG	NFR	Last Submit	Domain
ICS-209	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-	-	-	04/14/08	WRAP-Wide
AK	-	-	N.D.	N.D.	N.D.	No Data	State/Federal > 40 ac
AZ	-	-	<input checked="" type="checkbox"/>	N.D.	N.D.	10/15/07	State-Wide
CA - PFIRS	-	-	N.D.	N.D.	N.D.	No Data	State-Wide
CO	-	-	<input checked="" type="checkbox"/>	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.	-	-	<input checked="" type="checkbox"/>	-	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	-	-	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	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	-	-	<input checked="" type="checkbox"/>	N.D.	N.D.	04/14/08	Federal Lands
WA - Dept. of Ecology	-	-	-	N.D.	N.D.	No Data	State/Private Lands
WA - Agriculture	-	-	-	N.D.	N.D.	No Data	State-Wide
WY	-	-	-	N.D.	N.D.	No Data	State-Wide

Legend:
● Wildfire
● Wildland Fire Use
● Agricultural Fire
● Non-Federal Rangeland

Mapping Tool - Google *Earth*

WRAP fets Logged in as: MEMavko | [Logout](#)

Home View My Projects Enter Project View My Burn Days Enter Burn Day **Map** Reports **Contact** FTP

Generate Report

Report Type:

Start Date:

End Date:

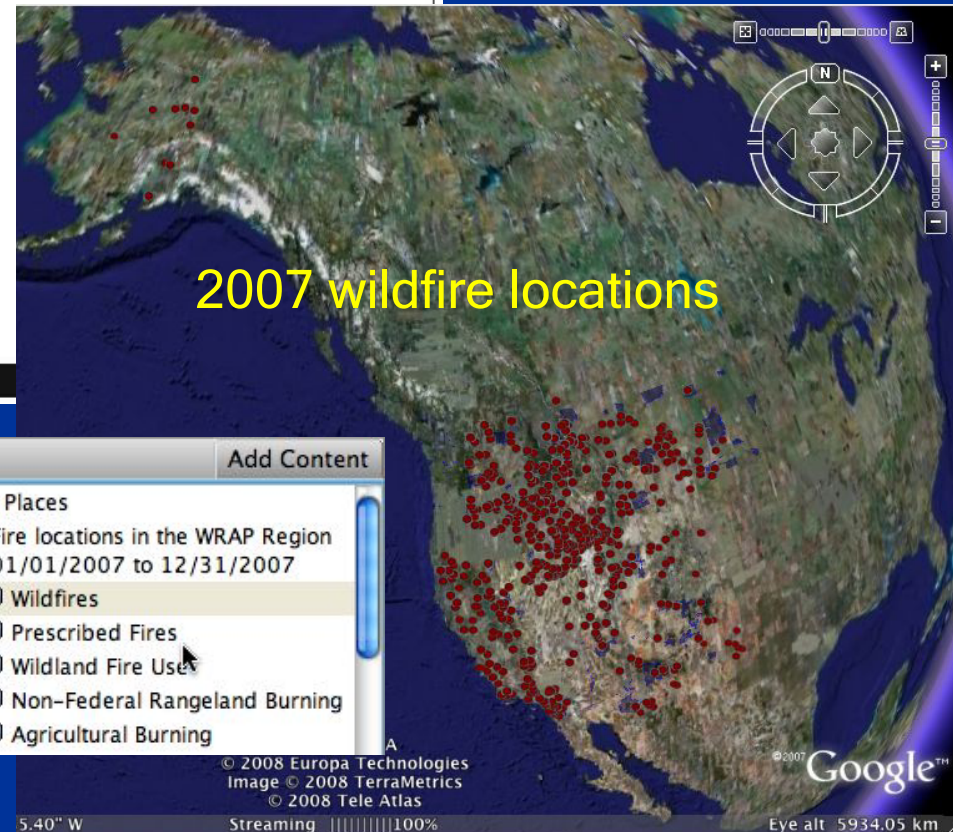
State:

Agency:

Emission Suite:

Output Format:

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Fletcher

Burn Date: 2007-07-15 00:00:00.0
Latitude: 41.917
Longitude: -120.615
Final Reported Acres (Total): 8121
Initial Reported Daily Acres: 600
PM_{2.5} emissions for this day: 210.892
FCC code for this Burn Day: 53
Reporting State: CA
Data Source: National Interagency Fire Center
See <http://wrapfets.org> for more information
Directions: [To here](#) - [From here](#)

- ▼ Places Add Content
- ▼ My Places
 - ▼ Fire locations in the WRAP Region 01/01/2007 to 12/31/2007
 - Wildfires
 - Prescribed Fires
 - Wildland Fire Use
 - Non-Federal Rangeland Burning
 - Agricultural Burning

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

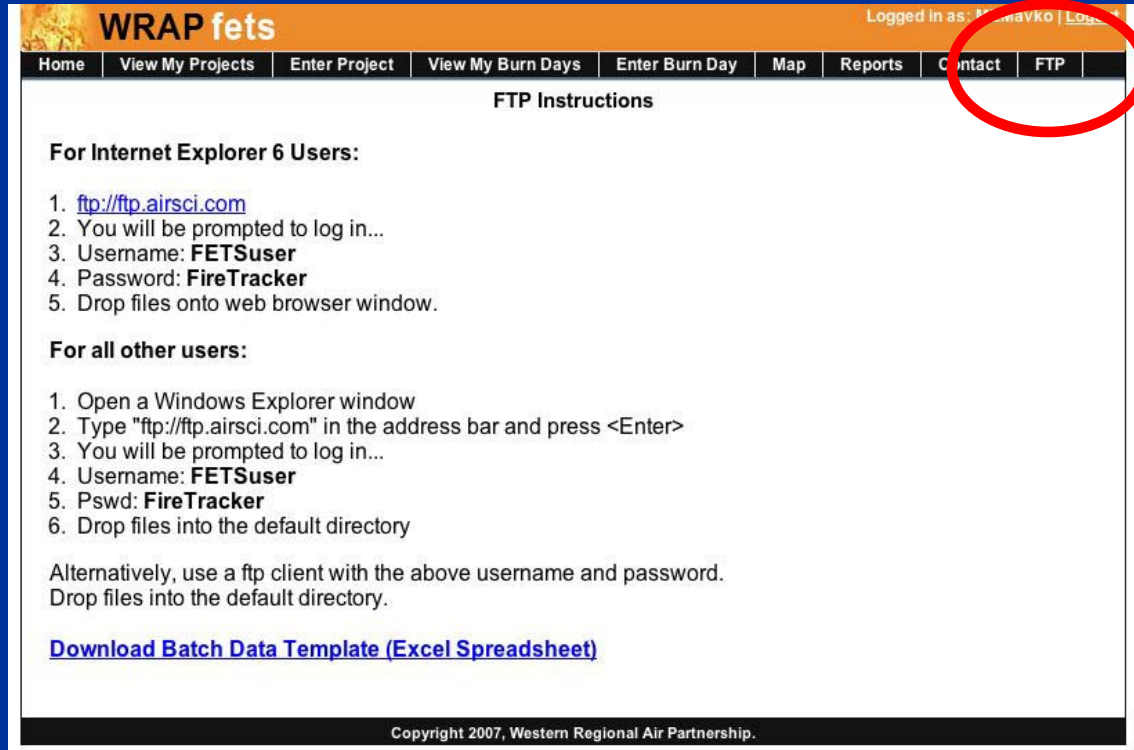
Data Acquisition Plan

- 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)



WRAP fets

Logged in as: [username] | Log out

Home | View My Projects | Enter Project | View My Burn Days | Enter Burn Day | Map | Reports | **Contact** | FTP

FTP Instructions

For Internet Explorer 6 Users:

1. <ftp://ftp.airsci.com>
2. You will be prompted to log in...
3. Username: **FETSuser**
4. Password: **FireTracker**
5. Drop files onto web browser window.

For all other users:

1. Open a Windows Explorer window
2. Type "ftp://ftp.airsci.com" in the address bar and press <Enter>
3. You will be prompted to log in...
4. Username: **FETSuser**
5. Pswd: **FireTracker**
6. Drop files into the default directory

Alternatively, use a ftp client with the above username and password.
Drop files into the default directory.

[Download Batch Data Template \(Excel Spreadsheet\)](#)

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

Quality Control - Batch File Error Reports

The image shows an Excel spreadsheet with columns A through J. The data is as follows:

	A	B	C	D	E	F	G	H	I	J
1	RequestID	PermitID	LAT	LON	TWN	TWND	RNGD	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								NaN	
11										
12	Record 11 OK									
13	Record 12 OK									
14	Record 13 OK									
15	Record 14 OK									
16	Record 15 OK									
17	Record 16 OK									
18	Record 17 OK									
19									NaN	
20	Record 19 OK									
21	Record 20 OK									
22	Record 21 OK									
23	Record 22 OK									
24	Record 23 OK									
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									

Red circles highlight the following areas:

- Column A (rows 1-31)
- Cells F2 and F3
- Cells I9 and I10
- Cell I19
- Cell G28

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

 Data stream **active**
 Data stream **pending**
 Data stream known, not initi

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

Dave Randall, Air Sciences
drandall@airsci.com
303.988.2960 x221

Matt Mavko, Air Sciences
mmavko@airsci.com
503.525.9394 x115

Tom Moore, WRAP
mooret@cira.colostate.edu
970.491.8837

Questions?