

Phase 1 – 2002 Fire Emissions Inventory

FEJF Meeting

September 8 – 9, 2004

Worley, ID – Coeur D'Alene Casino Resort Hotel

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Essential Documentation and PPT Presentation posted at:

http://www.airsci.com/jscar/wrap2002/WRAP-2002-EI-Report_20040910.pdf

2002 Fire EI Phase 1 Work

- Phase1
 - Agricultural Burning EI Outreach to States and Tribes
 - **Natural / Anthropogenic Categorization of Fires (& re-delivery of Phase 1 EI files to WRAP / RMC)**
 - Rangeland burning methodology
 - Essential Documentation (revised)

Categorizing Fires – Natural & Anthropogenic (N – A)

- Need
 - WRAP needs events in 2002 Phase 1 EI to be categorized N – A for next round of dispersion modeling runs
- Objectives
 - Develop *data processing* method to assign events in 2002 Phase 1 EI (WF, Rx, & Ag burning)
 - Process & QC data; deliver data files by 9/10.

N – A Categorization

- Data Processing Method
 - Each record will include a new field to flag each event as “Natural” or “Anthropogenic”.
 - Use custom Source Classification Codes to accommodate each specific type of fire

N – A Categorization

- SCC Table

Table 1: SCCs and their Fire Type and Natural/Anthropogenic Classification

SCC	Fire Type	Natural or Anthropogenic
2810001000	Wildfire	Natural
2810001001	WFU	Natural
2811500000	Agricultural	Anthropogenic
2801500001	Agricultural (Native American)	Natural
2810015000	Prescribed	Anthropogenic
2810015001	Prescribed	Natural

N – A Categorization

- Methodology
 - Based on record attribution.
 - Some fire types are simply classified N or A
 - Wildfire – NATURAL
 - WFU – NATURAL
 - Ag Burn – ANTHROPOGENIC
 - Tribal Agricultural Burning
 - Ag burning events in EI located on Tribal Lands
 - EI records lack indicators for “traditional, religious, or ceremonial” purpose
 - Collection of activity data for 2002 Phase 2 EI will include attempts to acquire these indicators

N – A Categorization

- Prescribed Fire
 - Key on National Fire Danger Rating System (NFDRS) fuel model to categorize
 - Every event has an NFDRS fuel model
 - Provided in *raw* event data
 - Assigned to event based on GIS join of latitude / longitude and national GIS layer of NFDRS fuel models
 - Assign “N” or “A” to NFDRS fuel models based on examination of fuel model text descriptions.
 - “above normal” fuels → “A”
 - All pile burns assigned “A”

N – A Categorization

Table 2: NFDRS Fuel Model Categorization as Natural or Anthropogenic

NFDRS Fuel Model	Categorization	Short Vegetation Description
A	Natural	Western Annual Grasslands
B	Anthropogenic	Tall dense older brush
C	Natural	Open pine with grass understory
D	Non-applicable	Southeast Fuel Types
E	Natural	Hardwood after leaf fall
F	Natural	Mature closed Chamise with Oakbrush
G	Anthropogenic	Dense Conifer with heavy downed duff
H	Natural	Short Needled Conifer with thin litter
I	Anthropogenic	Clearcut Conifer Slash <6"
J	Anthropogenic	Clearcut heavily thinned Conifer Slash <6"
K	Anthropogenic	Light conifer slash partial cuts
L	Natural	Western Perennial Grasslands
N	Non-applicable	Southeast Fuel Types
O	Non-applicable	Southeast Fuel Types
P	Non-applicable	Southeast Fuel Types
Q	Natural	Upland Alaska Black Spruce
R	Natural	Hardwoods after leafout
S	Natural	Apline Tundra and Grass
T	Natural	Sagebrush and Grasslands
U	Anthropogenic	Closed Western Long-Needled Pine
Piles	Anthropogenic	Piled activity fuels

N – A Categorization

- What's Next?
 - E-Review of ETT for fatal flaws & refinements.
 - Implementation of N – A Categorization scheme for 2002 Phase 1 EI (delivery of files to WRAP on 9/10/2004).
 - Additional refinements and / or alternative approaches may be developed by FEJF for Phase 2, 3, & 4 EI's.

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 - **Rangeland burning methodology**
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Rangeland Burning EI

- Need
 - Currently underrepresented in fire EI
- Objectives
 - Develop data gathering method
 - Develop emission estimation method
 - Build EI for delivery with 2002 Phase 2 EI

Rangeland Burning EI

- Status
 - Have held preliminary talks on potential technical approaches with subject experts
 - Have developed (internally) draft Strawman methodology for *top-down* collection of rangeland burning activity data
 - Needs ETT review and refinement
 - Activity data hierarchy is part of Strawman
 - Actual rangeland burning data will be used if available.

Rangeland Burning EI

- Sneak Preview at a Strawman Method
 - Built by layering increasing levels of detailed activity information
 - Top Down
 - Layer 1 – Region-wide data sources
 - Layer 2 – Sub-regional data sources
 - Bottom Up
 - Layer 3 – Summary burn activity data
 - Layer 4 – Burn event-based activity databases

Rangeland Burning EI

- Sneak Preview at a Strawman Method
 - Layer 1 – Region-wide Data Sources
 - Rangeland utilization / crop harvested data by county by crop (National Ag Statistics Service)
 - % burned factors by crop (ETT / expert)
 - Monthly Activity calendars by state by crop (ETT / expert)

Rangeland Burning EI

- Sneak Preview at a Strawman Method
 - Layer 2 – Sub-regional Data Sources
 - Rangeland utilization by county by crop from individual States & Tribes
 - % burned factors by crop from S & T
 - Monthly Activity calendars by state by crop from S & T

Rangeland Burning EI

- Sneak Preview at a Strawman Method
 - Layer 3 – Summary Burn Activity Data
 - Burned acres estimates by county by month by crop from states, Tribes, districts.
 - Layer 4 – Burn Event-based Activity Databases
 - Activity inventory of daily crop-specific burn events form permit / tracking database

Rangeland Burning EI

- Sneak Preview at a Strawman Method
 - Emission calculations
 - Acres burned
 - Residue loading
 - Crop-specific emission factor
 - Allocation of monthly / county emissions into realistically sized fire events (similar to the FEJF's 2018 spatial / temporal allocation methods).

Rangeland Burning EI

- What's Next?
 - ETT (including rangeland burning subject experts) review & refinements of Strawman.
 - Evolve Strawman into technical method & implement for activity data collection and EI development.
 - Include rangeland EI in 2002 Phase 2 EI.

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Essential Documentation

- Initial draft posted June 15th (Portland FEJF meeting)
- Essential document revised to include:
 - Ag Outreach to States & Tribes
 - Rangeland EI methodology
 - Natural / Anthropogenic categorization
 - 9/10 PT files delivery
 - Expect posting by 9/17/2004.