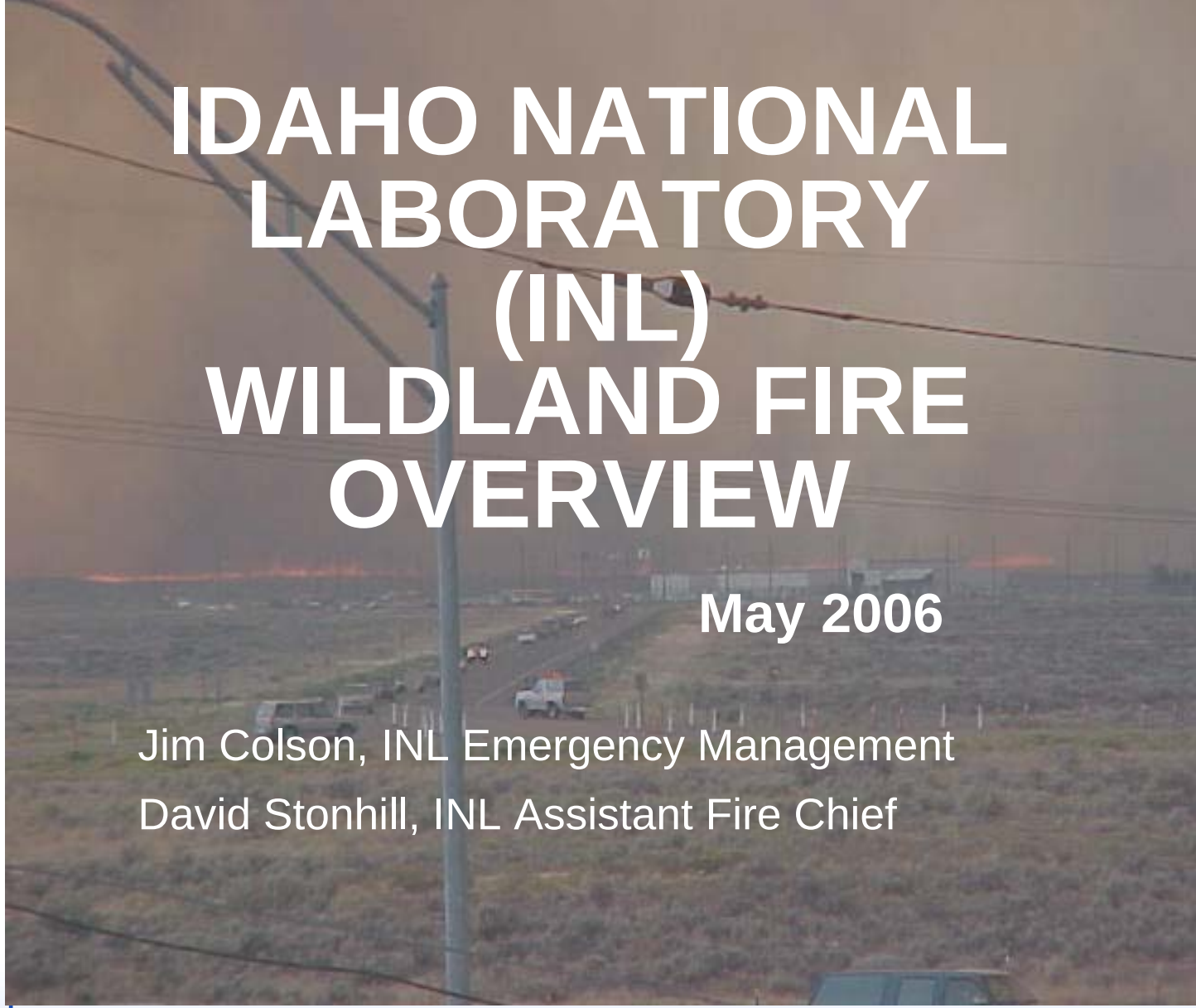


IDAHO NATIONAL LABORATORY (INL) WILDLAND FIRE OVERVIEW

May 2006

Jim Colson, INL Emergency Management

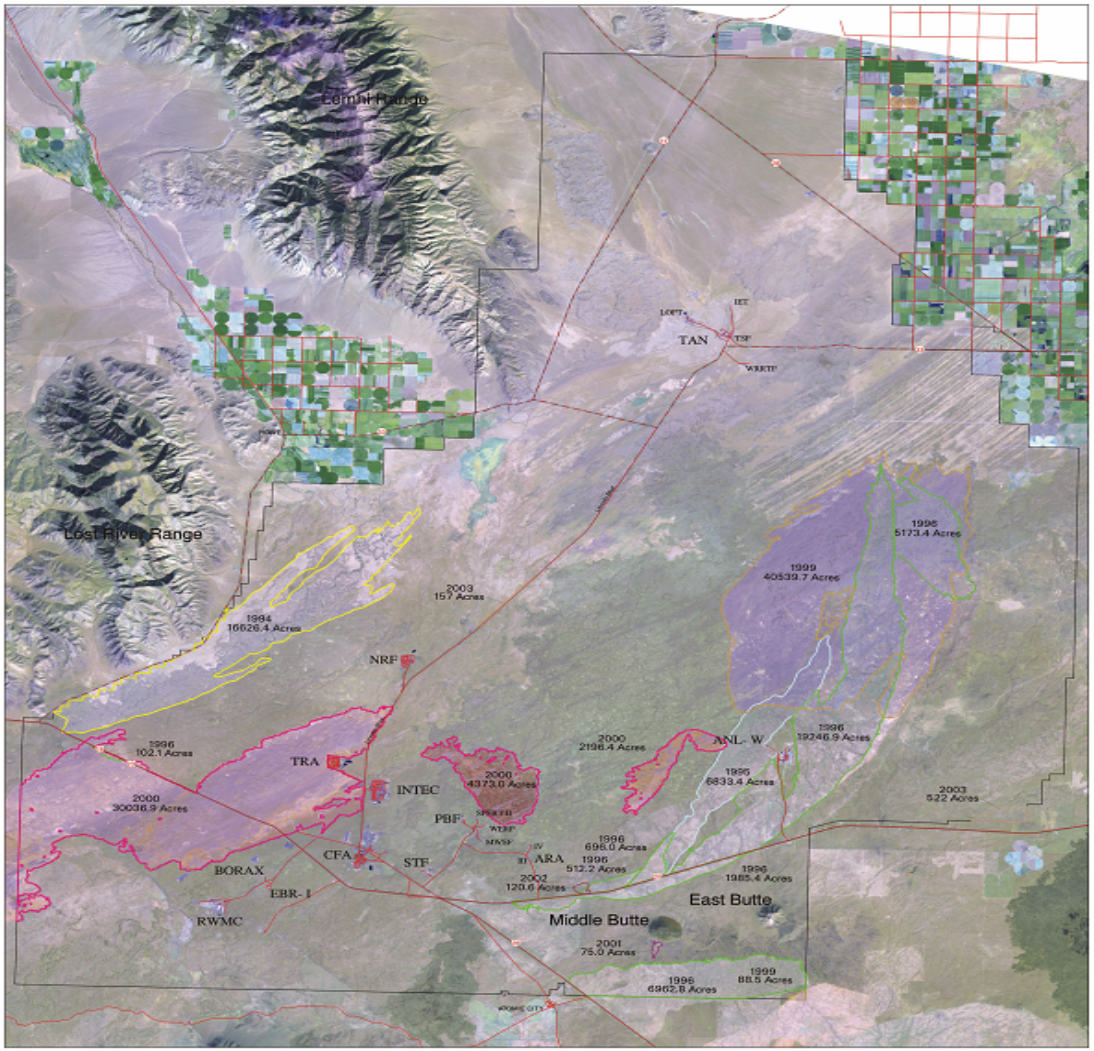
David Stonhill, INL Assistant Fire Chief

Idaho National Laboratory

INL

WILDLAND FIRES ARE A SEASONAL OCCURANCE

1994 - 2003 Fire Map



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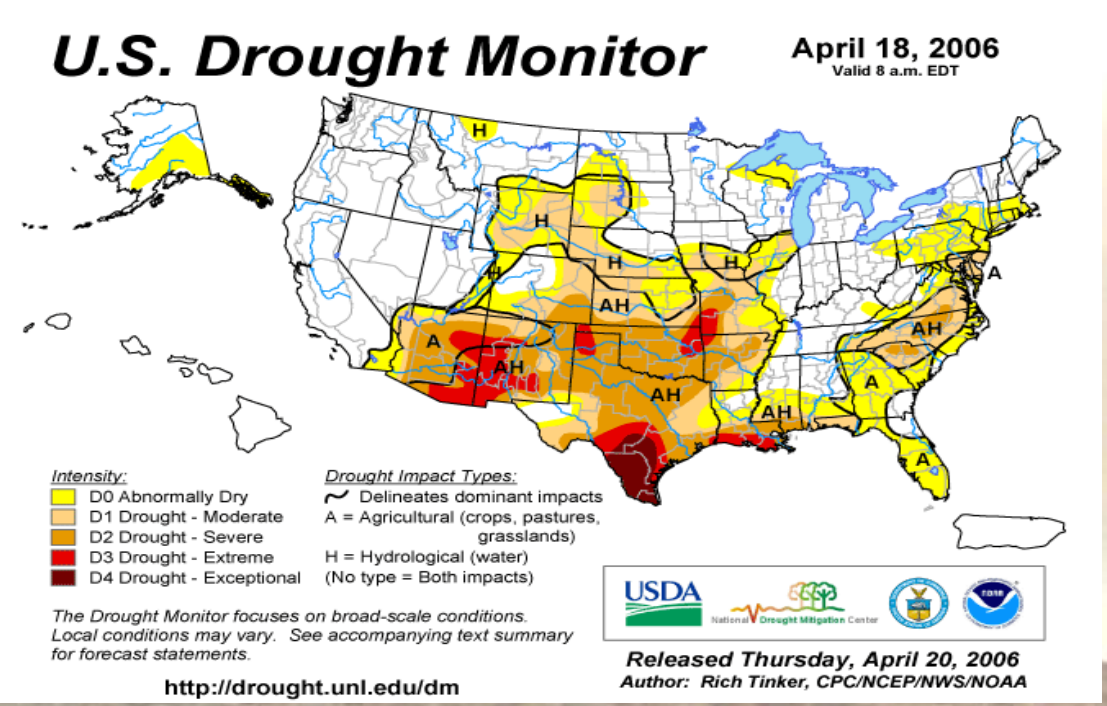

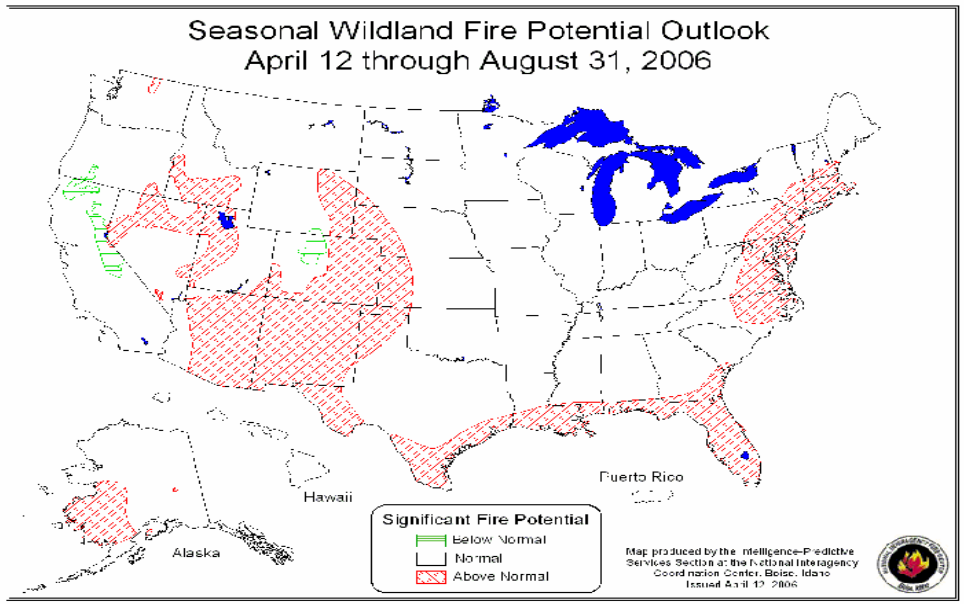

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Recent INL Wildland Fire History

Year	Number Human Fires	Human Fire Acres	Number Lighting Fire	Lightning Fire Acres	Total Fires	Total Fire Acres
1994	5	16,639	0	0	5	16,639
1995	1	6,833	0	0	1	6,833
1996	10	28,714	2	6,973	12	35,687
1997	0	0	0	0	0	0
1998	6	17	0	0	6	17
1999	4	6	3	40,629	7	40,635
2000	5	92	8	36,685	13	36,777
2001	5	2	2	80	7	82
2002	5	121	0	0	5	121
2003	7	718	0	0	7	718
2004	5	1	1	1	6	2
2005						
Eleven Year Total	53	53,143	16	84,368	69	137,511
Eleven Year Average	4.8	4,831	1.5	7,670	6.3	12,501

INL FIRE RESTRICTIONS

Fire Danger Classes:

- Low
- Moderate
- High
- Very High
- Extreme

Current INL Fire Danger:

"LOW"

INL RESTRICTIONS:

Stage 1 Restrictions will go into effect when INL Fire Danger reaches "**Very High**":

- ✓ Off-road vehicles restricted to designated roads and trails
- ✓ At least one additional water tender and one INL dozer on transport maintained at CFA, fully fueled for responses during backshift and weekend hours.
- ✓ A minimum of two equipment operators are maintained available for call back in case of fire.
- ✓ Welding, cutting, and other hot work activities in the field are conducted only upon approval of the INL Fire Marshal or designee.

RESTRICTIONS

Stage 2 Restrictions will go into effect when INL Fire Danger reaches "EXTREME", :

- ✓ Same as Stage 1 restrictions plus additional equipment readiness
- ✓ At least one additional water tender and one dozer on transport maintained at CFA, fully fueled for responses 24/7.
- ✓ Second water tender and second dozer available during backshift and weekends

INL Wildland Fire Management Objectives

- Firefighter and Public Safety First.
  - No wildland fire situation with the possible exception of threat to human survival, requires the exposure of firefighters to life-threatening situations
- Minimize impact to INL systems, structures and components
- Minimize impact on natural and cultural resources and the environment
- Practice prudent expenditure of allocated resources

Source: INL Wildland Fire Management Guide, GDE-7063

WILDLAND FIRE MANAGEMENT COMMITTEE

- **Background**

  The Department of Energy (DOE) made the decision to create a Wildland Fire Management Committee (WFMC) as part of a Finding of No Significant Impact (FONSI) and Environmental Assessment approved April 24, 2003.

Purpose

The purpose of the WFMC is to review environmental impacts and make recommendations, as necessary, for pre-fire, fire suppression, and post-fire wildland management activities. The emphasis of the WFMC is to balance protection of INL infrastructure and natural resource protection

WILDLAND FIRE MANAGEMENT COMMITTEE OBJECTIVES

The WFMC will review pre-fire, suppression, and post-fire activities and associated environmental impacts. The WFMC will make recommendation, as necessary, to maintain an ecosystem of native vegetation and natural fire cycles and other resource values. The committee will do this by making recommendation for:

- Fuel management (such as defensible space, fuel management zones)
- Suppression strategies
- Rehabilitating fire-impacted areas

WLFMC Membership and Responsibilities

The BEA Facility and Site Services (F&SS) Director will champion the WFMC. The committee will consist of advocates and proponents of key INL resources. Standing members will include a chair and representatives from:

- INL Emergency Services
- INL Fire Marshall
- INL Cultural Resource Management Office (Cultural/Historical Resources)
- INL Environmental Compliance (Air, Water, & Soil Resources and NEPA)
- S. M. Stoller Corp., Inc. (Wildlife/Habitat Resources)
- INL Facilities Management Services
- NE-ID Infrastructure
- NE-ID Fire Protection Engineer
- NE-ID NEPA Compliance Officer

2006 Wildland Fire Preparation Activity Schedule

	A	B	C	E	F
1	***ACTIVITY/TASK***	***START***	***FINISH***	***RESPONSIBLE PERSON***	***STATUS***
2	**PLANNING/DOCUMENTATION**				
3	**Wildland Fire Management Guidance Document**				
4	Review WLFMG	02/28/06	05/15/06	Gosswiller	0%
5	Revise WLFMG and Reissue as needed	03/31/06	06/20/06	Gosswiller	0%
6	***Issue Wildland Fire Management Guidance Document***		***06/20/06***		***0%***
7					
8	**Wildfire FONSI Implementation**				
9	Clarify FY 06 FONSI Inplementation (funding)	04/17/06	06/15/06	Tuck/Gosswiller	75%
10	***WLF EA Implemented***		***06/15/06***		***75%***
11					
12	**WILDLAND FIRE VEGETATION ASSESSMENT**				
13	Review and Revise as needed WLF Assessment Documentation	04/17/06	05/01/06	Whittaker	20%
14	Conduct Assessment	04/17/06	06/15/06	Whittaker	0%
15	Communicate Draft Assessment Results to Facility Representatives	04/17/06	06/15/06	Whittaker	0%
16	Complete Assessment Report	04/17/06	06/15/06	Whittaker	0%
17	Coordinate deficiencies and entered into ICARE	04/17/06	06/16/06	Whittaker	0%
18	Complete Site ICARE issues	04/17/06	07/15/06	Facility Managers	0%
19	INL Mowing	04/17/06	07/15/06	Tuck	0%
20	***WLF Vegetation Corrective Actions Complete***		***07/15/06***		***3%***
21					
22	**INL/ICP WILDLAND FIRE COORDINATION**				
23	Draft Service Agreement	04/17/06	4/1/01/06	Marshall/Gosswiller/Colson	100%
24	Approve MOA	04/17/06	05/01/06	Marshall/Hendrix	0%
25	***INL/ICP Wildland Fire Coordination Complete***		***05/01/06***		***50%***
26					
27	**EQUIPMENT/SUPPLIES READINESS**				
28	**Heavy Equipment**				
29	Review Equipment Spare Parts Availability and Re-stock	04/17/06	05/15/06	Winter/Hendrix	5%
30	Identify Critical Heavy Equipment for WLF Needs	04/17/06	05/15/06	Robertson/Winter/Hendrix	5%
31	Identify Equipment Staging Responsibility and Funding	04/17/06	05/01/06	Tuck	50%

Wildland Fire Preparedness Activities

Wildland Fire Briefings

Wildland Fire Documentation

- WLF Guide
- Soil Contamination Area EDF
- Emergency Plan and Procedure Review
- Mapping Resources

WLF Vegetation Assessment

- Issues tracked to closure

WLF Equipment/Supplies

- WLF Vehicles
- PPE
- GPS
- Site Monitoring Team Equipment

BEA/ICP Coordination

- Heavy Equipment Operators (HEO)/Equipment Operators (EO)
- Support Personnel (HEO, EO, Labors, Cafeteria)
- Equipment/Resources
- Training
- Site Radiological Monitoring
- Callout Lists

Offsite Coordination/MOU Reviews

- BLM and other RFFAs (Limited Air Support this year)
- Idaho Dept of Transportation
- INL State Oversight (monitoring activities)

Wildland Fire Preparation Activities (continued)

Communications Readiness

- Radio and Radio System Operability
- Radio Architecture
- Batteries

WLF Training/Awareness

- Firefighters
- HEOs and EOs
- Support (mechanics, laborers, Site Monitoring Teams, etc.)

Evacuation Readiness

Meteorological Support

Mapping

Prevention Activities

- Mowing of roadsides to minimize risk of accidental ignition
- Site area vegetation assessment (clean up)
- Wildland Fire Awareness
  - **Posting Fire Danger Ratings**
  - **INL Fire Marshal Advisories**
  - **I-notes**
  - **Implementation of Fire Restrictions (Stage 1 and 2)**
  - **Employee Awareness**

Wildland Fire Suppression Approach

- No “Let it burn” policy on INL property
- Control in first burning period (night time suppression)
- Fight the fire aggressively but provide for personnel safety first
- Top Protection Priorities are People, Property, Environment, Cultural/Natural Resources
- Fire Department trained in BLM Minimum Impact Strategy Training (MIST)

Wildland Fire Recovery Activities

- Personnel/Plant Safety Considerations
- Surveys/Mapping
- Rehabilitation/Environmental Assessment
- Situation Reporting

Wildland Pre-Fire Suppression Planning - A Risk-Hazard-Value Approach

Purpose

To determine the extent of hazards and potential risk to personnel, property, and environment from Wildland fire.

Process

Use defined criteria to assess Wildland fire hazards and evaluate the probability of a fire starting or propagating through the interfaces around INL and quantify the vulnerability and impact of a Wildland fire once it is ignited.

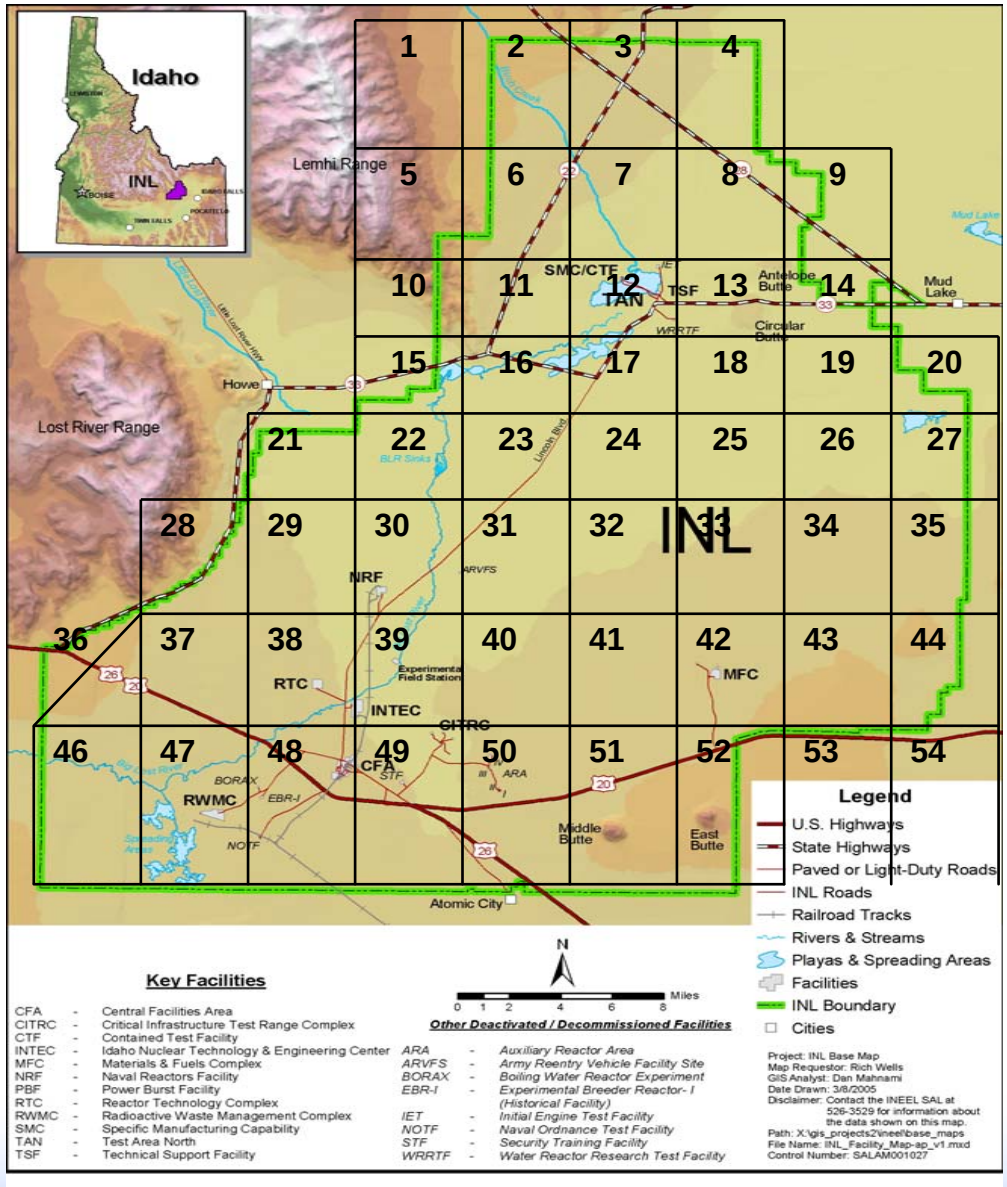
Goal

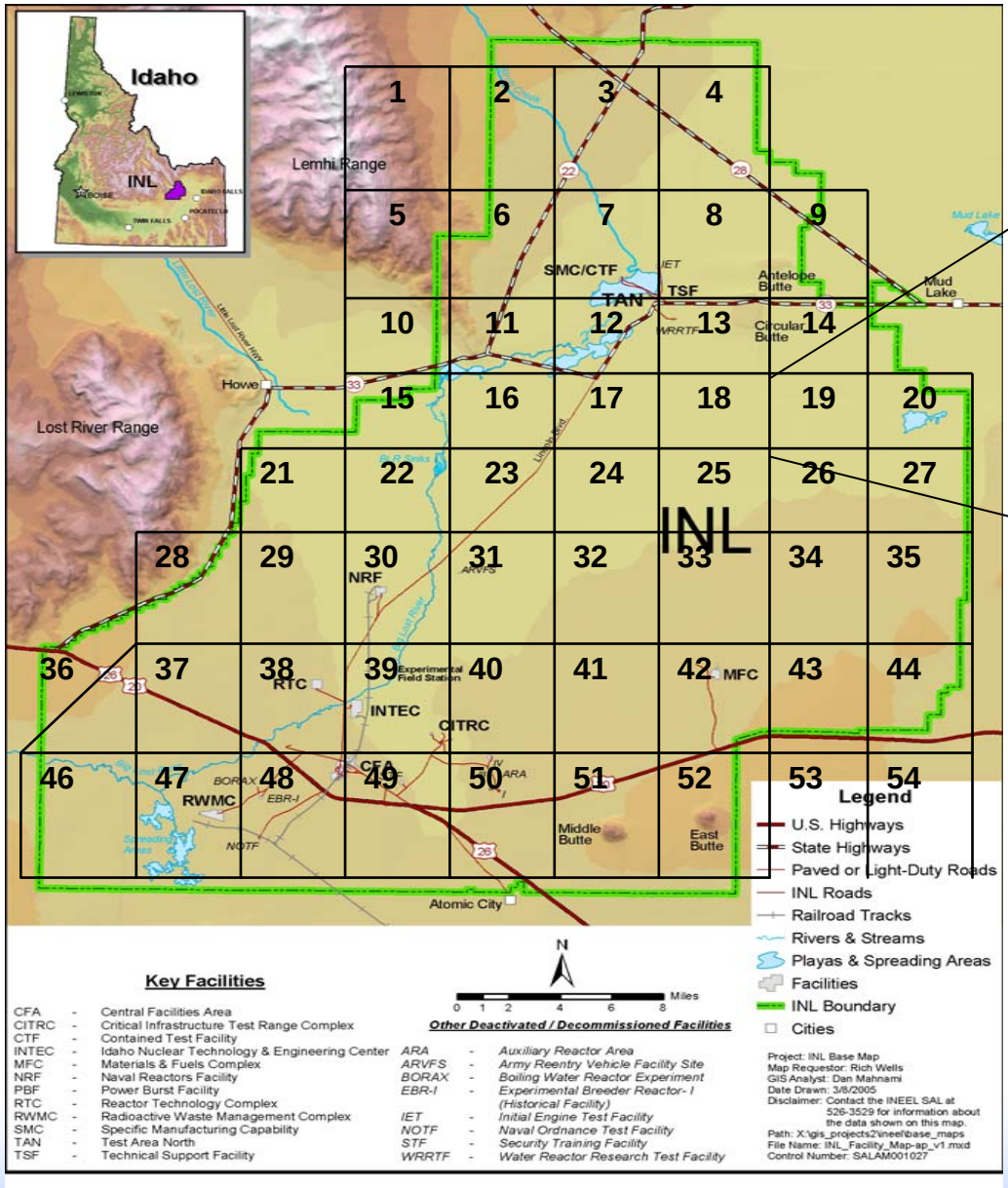
Reduce the specific risk to each complex and the overall risk to the INL by mitigating identified hazards.

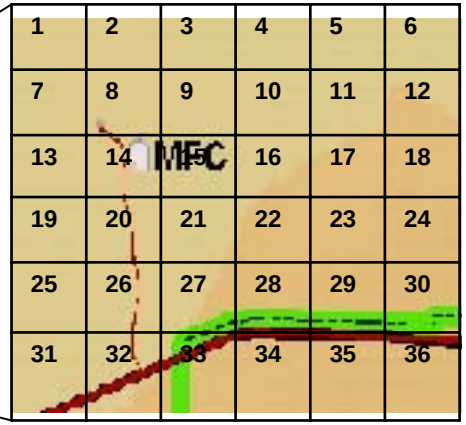
Assessing Risks Supports Sound Wildland Fire Management Planning

- Performed annually
- Engages and educates the INL community
- Targets hazards
- Integrates GIS mapping
- Basis of emergency response planning

Planning Using Primary Grids







Grids segmented into square miles

Criteria for assessing the risk factors:

- Relevant sections from NFPA standards
- National Wildland Coordinating Group (NWCG)
- United States Forest Service (USFA)
- United States Department of the Interior, Bureau of Land Management (BLM)
- Federal Emergency Management Agency (FEMA)
- National Association of State Foresters
- United States Department of Agriculture (USDA)
- Wildland/Urban Interface Fire Protection Program
- INL Wildland Fire Management Guide.

VEGETATION ASSESSMENT CHECKLIST

Roads (Access, Ingress, Egress, and Evacuation)

Any gate on an access road shall be located a minimum of 30 ft from the intersection of the road.	
The gate opening shall swing inward and shall provide a clear opening no less than2 ft wider than the gated road.	
The fire department shall have ready access to locking mechanisms on any gate that restricts access.	
1.Roads shall be are identified with the proper name using a system consistent with the wildland fire base map or facility maps used for emergency response.	
All road signs lettering, numbers and symbols are a minimum of 4 in. in height, with a .5 in. stroke, are reflectorized and contrasting with the background color of the sign.	
Signs shall be visible from the road and mounted not less than 6 ft or more than 6 ft to 8 ft above the surface of the road.	
Street and road name signs and supporting structures shall be of noncombustible materials.	

Fuels Modification and Treatment

Maintenance of a 30 ft, defoliated zone around the perimeter of all INEEL significant buildings and storage areas at the wildland urban interface or intermix	
Ground fuels within the defined defensible space shall be treated or removed.	
Live vegetation within the defensible space shall be irrigated or mowed.	
Dead and/or downed fuels within the defensible space of buildings shall be removed or treated to maintain the fuel modification area.	
Vegetation under trees within the fuel modification area shall be maintained at a height that will preclude ground fire from spreading in the tree crown.	
Perimeter fences are maintained free of tumbleweed and debris.	

Combustible Materials

Outdoor propane tanks, fuel canisters, tanks, and other combustible liquids storage shall be provided 30 ft. of defensible space.	
Other combustible materials shall be removed from the defensible space or stored in conformance with requirements.	
Maintenance of a 30 ft. defoliated zone around the perimeter fence of all INEEL substations.	
Clearances not less than those established by Table 1 shall be maintained between vegetation and power lines.	

Line Voltage	Minimum Clearance (in)
750–35,000	**6**
35,001–60,000	**12**
60,001–115,000	**19**
115,001–230,000	**30.5**
230,001–500,000	**115**
Source: NFPA 1 “Uniform Fire Code”	

Roofing, exterior overhangs, eves, and other building features that may be exposed to direct flame contact, radiant heat or firebrands should be identified and protected.	
An exposure protection plan shall be developed for all buildings and structures located within 50 ft of the interface.	
Personnel normally on the construction site shall be instructed in the use of the fire extinguishers provided.	

VEGETATION ASSESSMENT CHECKLIST

Potential and Historical Ignition Sources

Assess risk associated with natural and human sources of ignition including, but not limited to, the following: •Lightning •Utility corridors •Transportation corridors •Arson	
Assess the difficulty to control wildland fires within, or threatening the area. • Vegetation • Topography • Aspect • Fire History • Historical fire weather • Potential fire behavior • Fire fighting capabilities and limitations	
Has an Exposure plan been developed which includes include at a minimum: •Response number and type of emergency response apparatus. •Primary and secondary water supply. •Minimum water flow required •Location of water cannons/master stream devises (pre-deployed or placed as needed).	

Water Supply

At a minimum, every building within 30 feet of the interface shall be provided with a water supply meeting the requirements of NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting, for the purpose of fire fighting.	
Hydrant shall be located so they can be operated from within a defensible space protected from the approach of fire.	
Water supplies shall be of sufficient volume and pressure to adequately supply water cannons/master streams determined as part of the exposure protection plan.	
Water supplies planned for exposure protection shall not be subject to interruption from wildland fires as a result of power isolation or damage and shall have an established backup capability.	

Construction Activities

Construction sites located at the wildland urban interface/intermix shall be provided a minimum of 30 ft. defensible space.	
At least one portable fire extinguisher having a rating of at least 4-A-30-BC shall be within a travel distance of 75 ft or less to any point of a structure under construction.	

INL Complex/Grid:				
	Assessed Probability Level			
	Low 1	Moderate 2	High 3	Comments
Roads (Access, Ingress, Egress, and Evacuation)	☐	☐	☐	
Fuels Modification and Treatment	☐	☐	☐	
Combustible Materials	☐	☐	☐	
Water Supply	☐	☐	☐	
Construction Activities	☐	☐	☐	
Potential and Historical Ignition Sources	☐	☐	☐	
Total of Columns	☐	☐	☐	**Total of Row** ☐

Probability of Occurrence (6-9 = Unlikely, 10-13 = Possible, 14-18-Likely)

Overall Probability Rating

INL Complex/Grid: XXXX				
	Assessed Probability Level			
	Low 1	Moderate 2	High 3	Comments
Roads (Access, Ingress, Egress, and Evacuation)		• 2		
Fuels Modification and Treatment			• 3	
Combustible Materials			• 3	
Water Supply		• 2		
Construction Activities	• 1			
Potential and Historical Ignition Sources			• 3	
Total of Columns	• 1	• 4	• 9	**Total of Row** 14

Probability of Occurrence (6-9 = Unlikely, 10-13 = Possible, 14-18-Likely)

Overall Probability Rating **Likely**

Risk Rating		
INL Complex/Grid:	Probability	Population Affected

Vulnerability Assessment	Impact Rating
Personal Harm (High=3, Moderate = 2, Low =1)	
Economic (Permanent =3, Temporary=2, Immediate=1)	
Environmental (High=3, Moderate=2, Low=1)	
Mission Impact (High=3, Moderate=2, Low=1)	
Organizational Planning Level (Complex=1, Site-Wide=2, Off-Site =3)	
Total Vulnerability Rating (sum of all factors)	
Rank Low = 5 to 8 Moderate = 9 to 11 High = 12 to 15	

Wildland Risk Rating (probability x vulnerability)		
Probability of Occurrence unlikely =1, possible-2, likely=3	Vulnerability low-=1, moderate=2, high=3	Risk Rating 1-3 =Lowest, 4-6=moderate 7-9 = highest

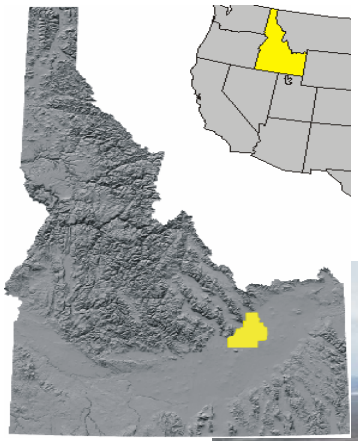
Risk Rating		
INL Complex/Grid: XXXX	Probability	Population Affected
	Likely	850

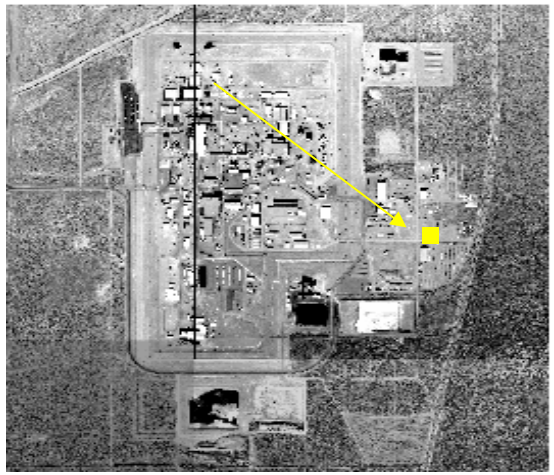
Wildland Vulnerability Assessment	Impact Rating
Personal Harm (High=3, Moderate = 2, Low =1)	3
Economic (Permanent =3, Temporary=2, Immediate=1)	2
Environmental (High=3, Moderate=2, Low=1)	3
Mission Impact (High=3, Moderate=2, Low=1)	2
Organizational Planning Level (Complex=1, Site-Wide=2, Off-Site =3)	2
Total Vulnerability Rating (sum of all factors)	**12**
Rank Low = 5 to 8 Moderate = 9 to 11 High = 12 to 15	High

Wildland Risk Rating (probability x vulnerability)		
Probability of Occurrence unlikely =1, possible-2, likely=3	Vulnerability low-=1, moderate=2, high=3	Risk Rating
Likely (3)	High (3)	**Highest Risk (9)**

Eliminate the Hazard or Reduce the Risk

- Hazards prioritized by risk rating
- Corrective actions sent to complex representatives
- Reevaluation scheduled and performed





GIS mapping improves hazard targeting