

## **Department of Natural Resources Annual Report on Emergency Fire Expenditures**

**FY 2009**

### **Purpose**

The purpose of this Report is to address the requirements of Minnesota Laws of 2007, Chapter 57, Article 1, Section 4, subd. 4, which states in part:

“By November 15, (This was amended in Laws of 2009 to be due January 15) each year, the commissioner of natural resources shall submit a report to the chairs and ranking minority members of the house and senate committees and divisions having jurisdiction over environment and natural resources finance, identifying all firefighting costs incurred and reimbursements received in the prior fiscal year.”

### **State Funding for Emergency Firefighting**

Emergency Fire Fighting - Direct Appropriation: Laws of 2007 appropriated \$7,217,000 the first year and \$7,217,000 the second year for prevention, presuppression and suppression costs of emergency firefighting, and other costs incurred under Minnesota Statutes, section 88.12. <sup>(1)</sup>

Emergency Fire Fighting – Open Appropriation: Laws of 2007 further state in part that “If the appropriation for either year is insufficient to cover all costs of presuppression and suppression, the amount necessary to pay for emergency firefighting expenses during the biennium is appropriated from the general fund.”)

Under the authority of the Open Appropriation during FY 2009, \$11,695,791 was expended.

*Attachment 1 shows state fire fighting costs by object of expenditure.*

<sup>(1)</sup> Actual expenditure as of September 30, 2009 is \$7,388,440. (\$271,361 was carried forward from FY08 and \$99,921 was canceled.)

## Reimbursements to the General Fund

Payments and Collections : The DNR receives payments for certain fire related activities. These include payments for supplies sold to local government units (e.g. fire departments) from the Inter-agency Fire Cache (Cache Sales – authorized under M.S.§ 88.065), and collections from responsible parties for starting illegal or negligent fires, (Fire Cost Collections – authorized under M.S.§ 88.75). These receipts are deposited directly to the general fund and are not used by the DNR.

In FY 2009, receipts came from the following sources:

- Cache Sales - \$ 176,268
- Fire Cost Collections- \$ 197,518

**Deposited to the  
General Fund - \$ 373,786**

Special Revenue Fund: This is not a use of the state emergency fire appropriations, direct or open, but is included here due to perennial interest on this topic. The DNR provides firefighters and the CL-215 air tankers to assist federal partners in-state, send resources out of state to mobilize on national wildfire emergencies, or assist Compact partners. These costs are initially charged to the Emergency Fire Special Revenue Fund. **During FY 2009 the DNR expended \$2,014,520 in reimbursable costs for national mobilizations and Compact support.** Approximately \$1.98mm is due to firefighter mobilizations and \$0.02 mm is due to CL-215 mobilizations. The federal government reimburses federal costs and Compact partners (adjoining states and provinces) reimburse their costs.

The Special Revenue Fund may over-recover costs reimbursed from out-of-state deployments, mostly from use of the CL-215 airtankers, but also from other equipment such as wildland engines. This is because the state adds a portion of the fixed costs associated with this equipment, which have already been paid out of the emergency firefighting appropriation. This excess recovery is periodically transferred to the General Fund. **Approximately \$461,000 was transferred to the general fund from FY 2009 excess reimbursements.**

## Fire Suppression and Presuppression

The success of the DNR's fire suppression strategy is largely due to aggressive initial attack. The goal is to keep fires small. Once a fire escapes initial attack, costs and damages increase exponentially.

The following discussion is offered to explain how preparedness and suppression activities work together to reduce wildfire damages. Presuppression levels move on a continuum that is proportional to fire danger. Presuppression costs include activities undertaken in advance of fire occurrence to ensure more effective suppression. These activities include overall planning,

recruitment and training of personnel, procurement of firefighting equipment and contracts, and maintenance of equipment and supplies. Suppression costs include activities that directly support and enable the DNR to suppress wildfires during times when fires are likely to occur, including the pre-positioning of resources. As fire danger and fire occurrence increase, the resources that must be positioned for immediate response also increase. **Presuppression costs amounted to 17% of the direct and open fire appropriations in FY 2009. Historically, presuppression has composed 25% or less of the fire account.**

The DNR uses a cost coding system to provide accountability for emergency fire account expenditures. This detailed system captures all fire account expenditures and enables managers to identify costs charged to individual fires. Local supervisors are held accountable for expenditures in their areas.

*Attachment 2 shows the percentages of fire expenditures allocated to prevention, presuppression and suppression activities.*

### **Planning and Readiness**

Base costs for wildfire response are affected by general weather and precipitation patterns, in addition to actual fire occurrence. A system for determining potential wildfire risks and establishing fire planning levels is used to guide the level of readiness week to week.

*Attachment 3 shows the criteria and planning levels currently in use.*

These planning level guidelines are reviewed and implemented at weekly conference calls with fire managers from all of the agencies that cooperate in Minnesota wildfire suppression efforts. Planning levels are set for each region of the state, and for the state as a whole. The planning level, combined with daily fire danger indices, establish the preparedness level needed to effectively respond to wildfires. Historically, about 80% of wildfires in the state occur during planning level 3. Major fires also can and do occur at this level.

In FY 2009 there were 260 days of possible wildfire danger. (i.e. at least one region at planning level 2 or higher). Of the possible wildfire days, 137 were at Planning Level 2, 81 were at Planning Level 3, 42 were at Planning Level 4 and 0 were at Planning Level 5. On 12 days, at least one area was at Planning Level 3 while the rest of the state was at Planning Level 2. Persistent drought conditions during the summer resulted in one and a half times the number of moderate planning level days (Level 2) as occurred last year. Even though actual fire occurrence was lower, fire danger was sufficiently present that positioned forces needed to be retained in place for much of the year.

*Attachment 4 shows the ten-year fire expenditure history.*

## Fire Occurrence and Causes

**General Activity:** In FY 2009, 996 fires occurred burning 11,048 acres. Historically, the state has experienced a 20-year average of about 1468 fires burning about 35,400 acres.

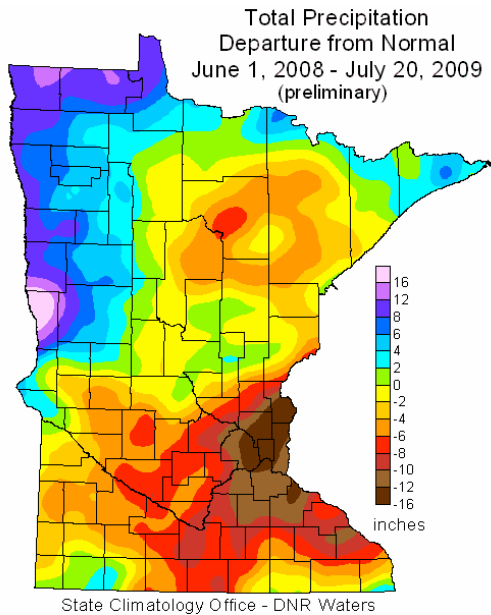
<b># Fires By Cause</b>				
	<b>FY 2009</b>	<b>%</b>	<b>20 Yr. Ave.</b>	<b>%</b>
Lightning	12	1	23	2
Campfires	48	5	48	3
Smoking	24	2	42	3
Debris Burning	328	33	562	38
Incendiary/Arson	235	24	444	30
Equipment Use	125	13	126	9
Railroad	33	3	67	4
Misc./Unknown	191	19	156	11
<b>Total</b>	<b>996</b>		<b>1468</b>	

Overall, FY 2009 turned out to have higher than average percentages of, equipment and unknown causes, and lower than average debris burning and incendiary/arson causes.

*Attachments 5a and 5b graphically illustrate fire history and causes.*

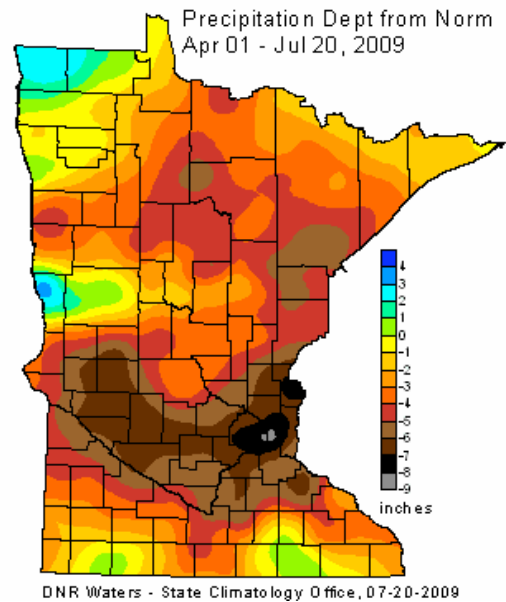
## Fire Behavior and Climatology

During July and August 2008, many areas of Minnesota received less 50% of normal rainfall. These abnormally dry conditions persisted into the summer of 2009 over east-central and southeast Minnesota.



The map to the left, produced by the DNR State Climatology office, illustrates the area of precipitation deficit over a thirteen-month period from June 1, 2008 to late July 2009. Wetter than normal conditions across the Red River valley are also evident.

The south central portion of the state experienced a large increase in the number of acres burned during the 2009 spring season. This was due in part to increased fuel accumulation resulting from dry conditions over the previous twelve-month period. Farther north, even though the months of April and May were slightly drier than normal, periodic light rain minimized springtime fire occurrence and fires that started did not grow quickly. The map to the right illustrates the rainfall departure from normal during the spring and early summer of 2009.



### **Activity in FY 2009**

For the second consecutive year, fire occurrence has been less than normal in Minnesota. The low numbers this year are mainly due to another cool spring season. The exception to the quiet spring fire season was the Cambridge Forestry Area in east-central Minnesota, which experienced a near four-fold increase in the number of acres burned in April and May compared to an average spring. On the other side, northwest Minnesota experienced prolonged flooding this past spring and therefore much less fire occurrence.

Rainfall remained lacking over a large part of the State through the summer months, but temperatures remained cooler than normal, helping to keep fires small.

While wildfire numbers were down this year, the early spring of 2009 saw the worst flooding in the Red River Valley since 1997. MN DNR firefighting resources were made available to fight the flood in the valley. Help was requested through the Department of Public Safety, Division of Homeland Security and Emergency Management and resources were sent to the City of Moorhead to assist the City's Fire Department. Personnel were utilized to monitor and operate large pumps in critical areas on and around the dikes and a water treatment facility. MN DNR Conservation Officers also took part in the effort, utilizing their expertise and boats to perform search and rescue operations in and around Moorhead. Several MN DNR employees also worked at the State Emergency Operations Center in St. Paul, assisting with planning and logistical efforts related to the flood.

## **CL - 215 Water Scooping Air Tankers**

The DNR purchased two Canadair CL-215 water scooping aircraft in FY 2001. The cost for both aircraft was \$6,390,000. The purchase was financed by borrowing at the direction of the Department of Finance. This debt was retired in December 2005

Two state-owned CL-215 water scooping air tankers are each capable of dropping 1,400 gallons of water per pass over a wildland fire. Scoopable water is abundant in the lakes of northern Minnesota; aircraft turnaround times between a water source and the wildfire can be as short as three minutes, enabling each aircraft to deliver up to 28,000 gallons of water every hour.

In FY 2009 these aircraft made 238 water drops, delivering 333,200 gallons of water on 21 wildfires in Minnesota. During times of low fire danger the air tankers may be temporarily sent to other states under cooperative contracts. In FY 2009, the aircraft remained in Minnesota due to fire conditions in the state. In addition to working on state fires, the air tankers flew on two fires for the U.S. Forest Service, for which costs were reimbursed to the state. The air tankers may also be dispatched under cooperative agreements with other partners in the Minnesota Incident Command System (MNICS) such as the B.I.A., U.S. Fish and Wildlife Service, National Park Service and on day flights to neighboring states and provinces in the Great Lakes Forest Fire Compact (GLFFC) such as Wisconsin, Michigan and Ontario.

*Attachment 6 summarizes the ownership costs for the CL-215's*

Land-based airtankers continue to be used in-state, with large retardant aircraft and single engine airtankers (SEATs) supplementing Minnesota's CL-215's. (In the spring of 2009, the DNR utilized a "Fire Boss" water-scooping SEAT, and five different air attack platforms.)

*Attachment 7 illustrates where CL-215's fought fire in FY 2009.*

## Attachments

**Attachment 1** – State Fire Expenditures by Object Category for Emergency Fire Appropriations

**Attachment 2** – Percentage of State Fire Costs in Prevention, Presuppression and Suppression

**Attachment 3** - Guideline for Statewide Planning Level Determination

**Attachment 4** - Ten Year Expenditure History of State Fire Fighting Costs.

**Attachments 5a and 5b** – Graphical Representation of Wildfire History and Causes.

**Attachment 6** - Summary of Costs for CL-215 Air Tankers

**Attachment 7** – CL-215 Dispatches in FY 2009

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Attachment 1

<b>Emergency Fire Direct and Open Appropriations</b>		
<b>State Expenditures by Category</b>		
<b>FY 2009</b>		
Direct Appropriation		7,388,440
Open Appropriation		11,695,791
	Total	19,084,231
Salary Costs	9,500,977	
Operating Costs	9,583,254	
Total	<u>19,084,231</u>	*

\* Actual expenditure as of September 30, 2009.



# FY 2009 State Fire Cost Summary

By Type of Activity and Appropriation

	<b>Emergency Firefighting Direct</b>	<b>Emergency Firefighting Open</b>	<b>Total</b>		
<b>Fire Prevention</b>	6%	0%	<b>2%</b>		
<b>Fire Presuppression</b>	13%	20%	<b>17%</b>		
<b>Fire Suppression</b>	81%	80%	<b>81%</b>		
<b>Total</b>			<b>100%</b>		

	PLANNING LEVEL I	PLANNING LEVEL II	PLANNING LEVEL III	PLANNING LEVEL IV	PLANNING LEVEL V
<b>BI (Q) spring</b> , pre-green, floating 5 day average	Not applicable	0-45	46-70	71-95	96+
<b>BUI</b> (after June 1. floating 5 day average)	Not applicable	0-25	26-50	51-67	68+
<b>ERC (Q)</b> (alternate summer/fall indicator, after June 1. floating 5 day average)	Not applicable	0-15	16-29	30-36	37+
<b>8-14 day Weather Forecast</b>	Winter conditions, most of State snow covered, temps below freezing.	Normal conditions for season, adequate precip. expected	Less than normal precip. and RH, higher than normal temps forecast	Dry weather patterns persisting, no change forecast	Dry pattern intensifying. Unstable weather forecast leading to extreme fire behavior conditions.
<b>MN Regional Planning Levels</b>	All Regions/Agencies at P.L. I	One or more Regions/Agencies at P.L. II	Two or more Regions/Agencies at P.L. III	Two or more Regions/Agencies at P.L. IV	Two or more Regions/Agencies at P.L. V
<b>Eastern Area Planning Level</b>	I	I-II	I-III	I-IV	I-IV
<b>National Planning Level</b>	I-II	I-III	I-IV	I-V	I-V
<b>Fire Occurrence</b> (Initial Attack)	Rare, infrequent fire occurrence	Fires reported in scattered Areas. Generally less than 10 fires/day Statewide.	Multiple Areas/Agencies reporting fires. 10 to 20 fires/day Statewide	Multiple Areas/Agencies reporting fires. 20 to 30 fires/day Statewide	Multiple Areas/Agencies reporting fires. 30+ fires/day Statewide.
<b>Fire Occurrence</b> (Escaped fires)	None	None	1-2 fires requiring extended attack Statewide (more than mop-up)	3-5 fires requiring extended attack Statewide	5+ fires requiring extended attack Statewide
<b>Sociopolitical Considerations</b>	Statewide or Regional events such as fishing opener or the Fourth of July; natural events such as floods or windstorms; other unexpected or unusual events that may have large scale impacts should be considered.				
<b>Resource Availability</b>	Normal complement of personnel.	No shortages expected.	Moderate demand for some in-state resource types expected	Shortage of certain in-state resource types	Most in-state resources committed. Out of State assistance necessary.
<b>In-State Mobilization</b>	None	Less than 5% of statewide resources assigned out of home unit.	Some short term movement occurring , 5-10% of statewide resources assigned out of home unit.	10-20% of statewide resources assigned out of home unit.	20%+ of statewide resources assigned out of home unit.
<b>Out of State Mobilization</b>	If out of State mobilization is occurring or anticipated to occur, an 'A' designator will be applied at the current Planning Level.				

- Once Planning Level has reached level III in spring, preparedness will not drop below P.L. III until May 31 or later.
- Terms used above, which are calculated daily from weather and fuel measurements:
  - BI (Q) = **Burning Index**, fuel model Q: A measure of fire danger based on the probability of ignition and fire spread in a specified forest type.
  - BUI = **Build Up Index**: An indication of the dryness of larger sized woody fuels, which becomes a significant factor during a drought.
  - ERC (Q) = **Energy Release Component**, fuel model Q: A measure of the expected heat release from a fire, which will be experienced by firefighters on the fireline.

**Attachment  
4**

<u>By Source of Funds</u>	<u>FY 2000(b)</u>	<u>FY 2001(c)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>Nominal Dollars</u>						<u>10 Year Average</u>	
					<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008 (g)</u>	<u>FY 2009(h)</u>		
Forestry General	\$2,658,615	\$2,640,289	\$2,748,183	\$2,884,809	\$0 (e)	\$0	\$0	\$0	\$0	\$0	\$0	\$1,093,190
Emergency Fire- Direct	\$2,822,957	\$4,412,245	\$5,998,430	\$5,983,070	\$7,650,000	\$7,136,680	\$7,084,432	\$7,319,596	\$6,938,928	\$7,388,440	\$6,273,478	\$6,273,478
Cost Recovery(a)	\$777,690	\$952,255	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	\$172,995
Emergency Fire- Open	\$7,768,174	\$9,435,941	\$8,870,452	\$9,084,514	\$9,560,026	\$6,934,419	\$8,424,271	\$16,518,294	\$12,221,642	\$11,695,791	\$10,051,352	\$10,051,352
Fire Activity Total	\$14,027,436	\$17,440,730	\$17,617,065	\$17,952,393	\$17,210,026	\$14,071,099	\$15,508,703	\$23,837,890	\$19,160,570	\$19,084,231	\$17,591,014	\$17,591,014
Cost Recovery(a)	\$777,690	\$952,255	\$391,698 (d)	\$448,568	\$634,163	\$955,343	\$976,131	\$277,226	\$884,278	\$834,786	\$713,214	\$713,214
Net Cost to State	\$13,249,746	\$16,488,475	\$17,225,367	\$17,503,825	\$16,575,863	\$13,115,756	\$14,532,572	\$23,560,664	\$18,276,292	\$18,249,445	\$16,877,801	\$16,877,801
Reimbursable Mobilization Fire Costs (i)			\$2,876,747	\$2,962,300	\$4,440,968	\$3,384,226	\$3,997,899	\$4,317,572	\$2,442,486	\$2,014,520	\$3,006,956	\$3,006,956

(a) Fire Cache Sales, Fire Cost Collections, excess recovery from Special Revenue Fund transferred to General Fund.

Beginning in FY 02, Cost Recoveries were deposited to the general fund and not retained by the DNR.

(b) \$1.9mm NE MN preparedness initiative (Blowdown)

(c) Purchase of CL-215's

(d) Does not include a one-time Fed Disaster (FEMA) payment of \$1.7mm for the Carlos Edge Fire of 1999

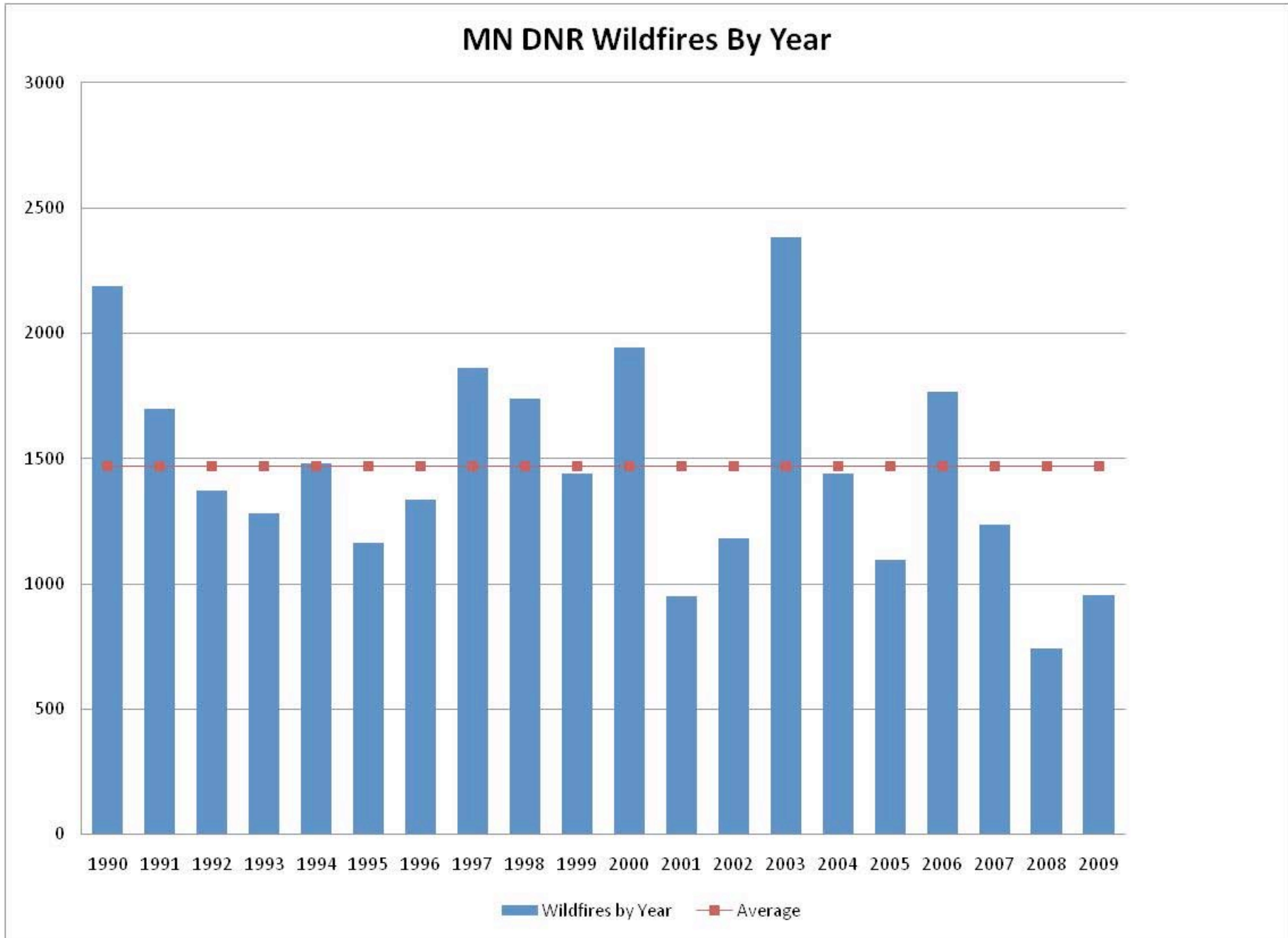
(e) Beginning in FY 2004, all firefighting costs are paid by the emergency fire appropriations.

(f) Fire costs are no longer paid from the Forestry division's general appropriation. In FY 03, just prior to this change, the 10 year average was \$2,266,992

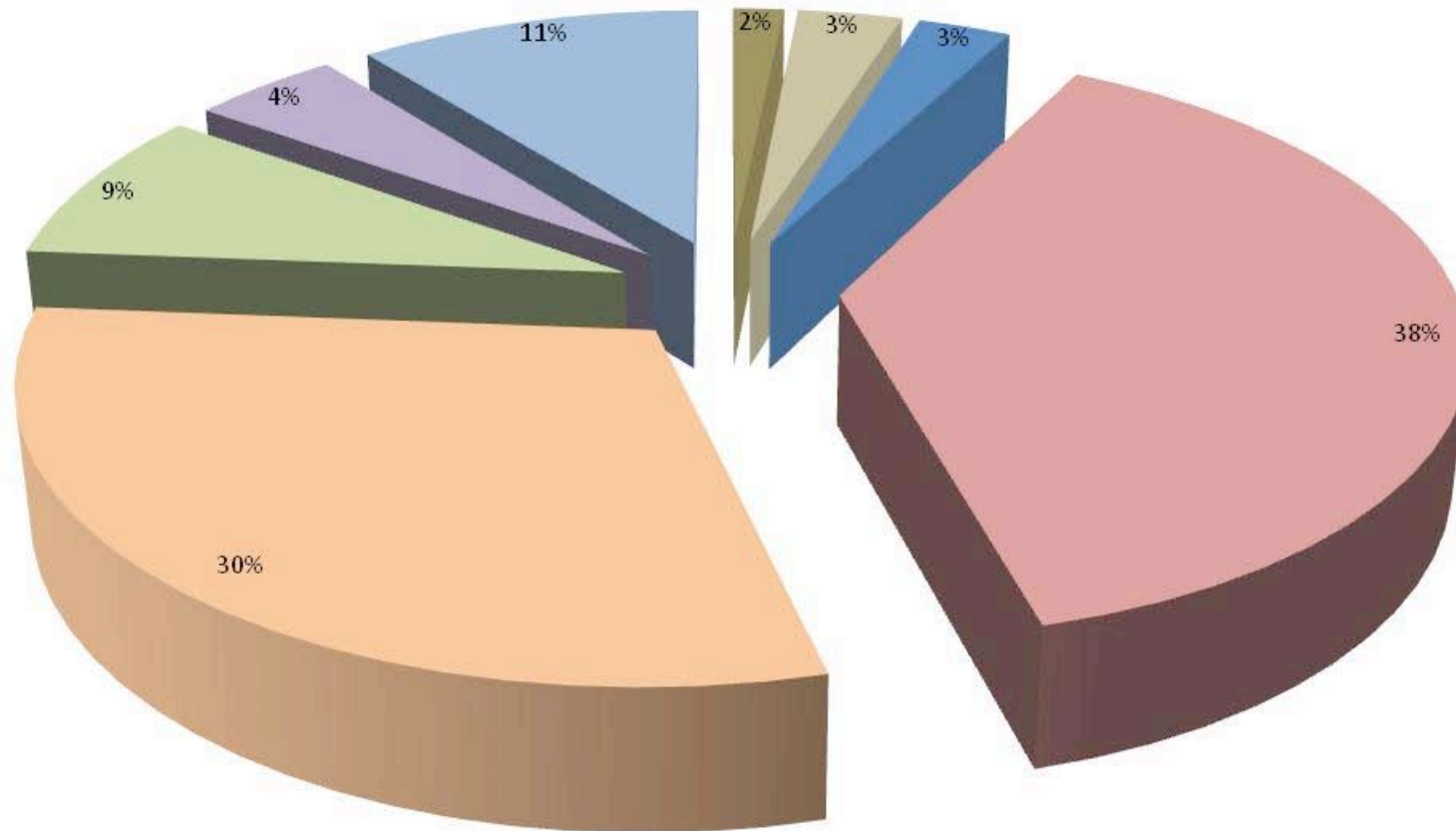
(g) \$600m direct fire support that had been funded through the forest management account, moved to the emergency fire appropriation in FY 08

(h) \$600m leave time (vacation, sick leave) attributable to fire activity that had been funded through the forest management account, moved to the emergency fire appropriation in FY 09.

(i) Fire assistance to federal partners and other states that is reimbursed to the state. (This is not a state expenditure)



### MN DNR Fires by Cause 20 year average 1990-2009



■ Lightning ■ Campfire ■ Smoking ■ Debris ■ Incendiary/Arson ■ Equipment ■ Railroad ■ Misc



## Attachment 6

### CL – 215 AIR TANKER OWNERSHIP and OPERATION COSTS FY 2009

#### State Owned (2 aircraft):

Availability Cost: 234 days @ \$5,995	=	\$1,402,830	
Availability Cost: 166 days @ \$6,098	=	\$1,012,268	
<b>(rate change 4/08/2009)</b>			
200 days availability x 2 aircraft	=		\$2,415,098

Flight time: 1.71 hrs @ \$3,889	=	\$ 6,650
Flight time: 21.6 hrs @ \$3,935	=	\$84,996
Flight time: 8.74 hrs @ \$3,584	=	\$31,324
Flight time: 14.79 hrs @ \$3,647	=	\$53,939

Total state flight time (46.84 hrs) / cost	=	\$ 176,909
(Flight rate changes due to fuel price adjustments)		

Annual liability insurance policy		<u>\$ 32,250</u>
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**Ownership Cost: \$2,624,257**

Reimbursements via MNICS/GLFFC partners flight time (5.25 hrs)	=	<u>(\$ 20,659)</u>
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**Net Ownership and Operation Cost: \$2,603,599**

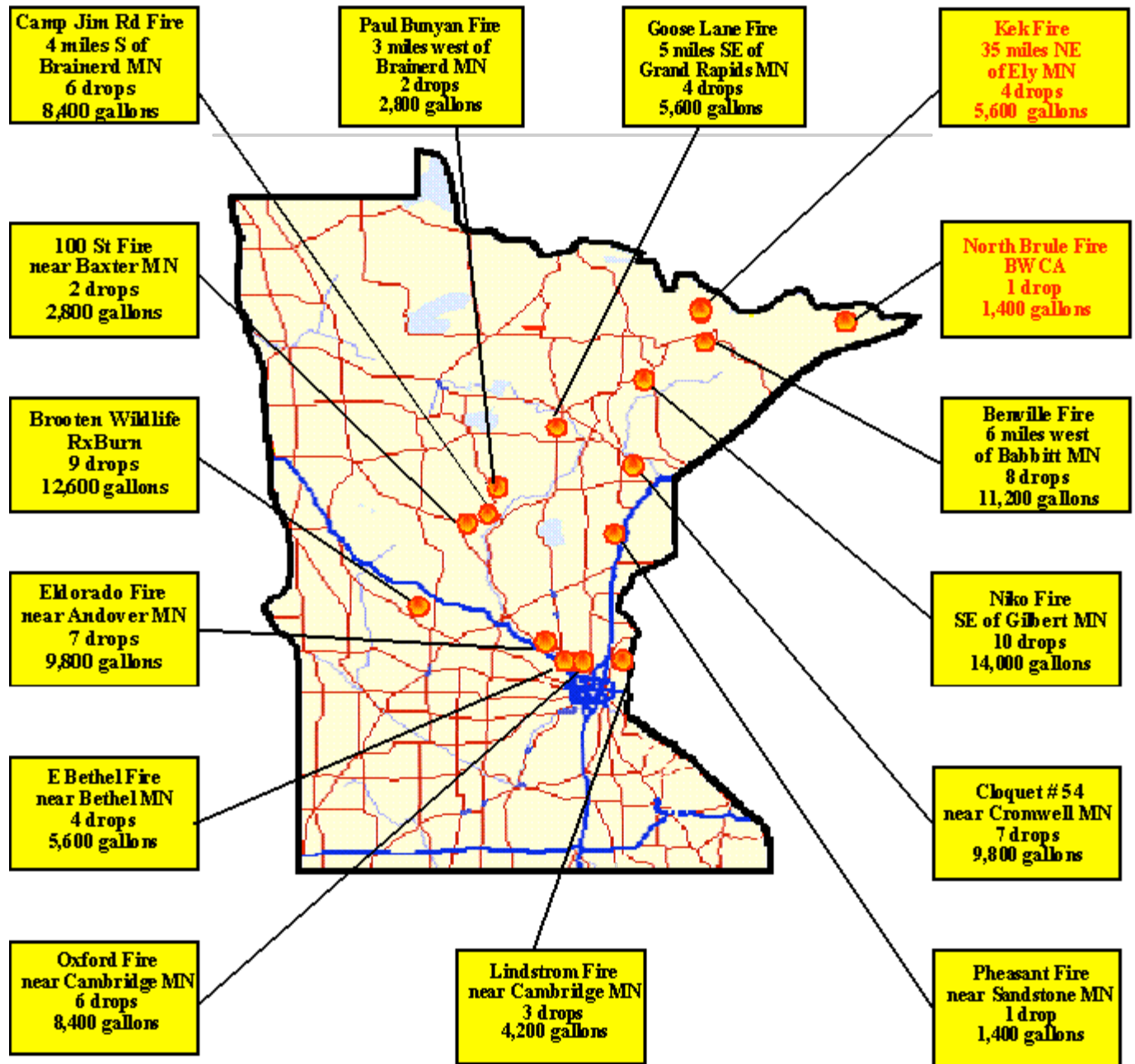
#### **Discussion:**

Components of ownership costs include liability insurance and a contract to operate, maintain, and repair the aircraft. Contract costs comprise flight time and availability amounts paid to the contractor.

- 1) Liability Insurance - protects the state from the loss of the aircraft.
- 2) Flight time - is an hourly rate paid to the contractor that operates the aircraft for hours actually flown on firefighting missions.
- 3) Availability is a daily rate paid to the contractor that operates the aircraft. This covers the annual costs of having the aircraft "ready to fly" for the required 200 days per year (which is the anticipated season of need in Minnesota).

# Fiscal Year 2009 CL-215 Dispatches

Red text indicates reimbursable missions





DATE: January 5, 2010

**LEGISLATIVE REPORT – Cost of Preparation**

NAME OF LEGISLATIVE REPORT – Minnesota Department of Natural Resources, Division of Forestry—Emergency Fire Account Expenditures; Fiscal Year 2009 Legislative Report

Based on: Legislatively Mandated Report

Minnesota Statute Reference: Minnesota Laws of 2007, Chapter 57, Article 1, Section 4, Subd. 4

Prepared by: Steve Simmer, Division of Forestry, Department of Natural Resources

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Description of Cost	Further explanation if necessary	Amount
Staff Time	64 hours among five people	\$2304.00
Duplication Cost (includes paper)	\$0.10 x 16 pages x 21 copies	\$33.60
Other: Postage		\$12.00
<b>TOTAL TO PREPARE REPORT</b> <i>(Note: Right click on amount cell and choose update to complete)</i>		\$2162.40