

FAA TESTING TYNDALL AIR FORCE RESEARCH LABORATORY

TESTING SEQUENCE AND RESULTS- February March 2004

TESTING APPARATUS/SCENARIO	Test #	Used in Analysis	Qualifying	Agents used	Extinguishment time	Test Observations	Agent used estimation
Monday 23 February 2004							
Engine Nacelle on Dry Pan	1	yes	yes	Halotron & CAF	<11 secs	Fire was essentially out just before input of Halotron. Rissinger could not believe what he was witnessing	approximately 8.3 gallons water/2 #s Halotron
Engine Nacelle on Dry Pan	2	yes	yes	Halotron & CAF	~12 secs	Fire was essentially out just before input of Halotron. Rissinger could not believe what he was witnessing	"
Engine Nacelle on Dry Pan	3	no	no	na	na	Burn off of Nacelle and pan	
Engine Nacelle on Dry Pan	4	no	yes	CAF/Halotron/CAF	~38 secs	Used CAF on dry pan only. Used Halotron on Nacelle Only. Then used both CAF & Halotron simultaneously to extinguish. Good example of being to close to fire when trying to fight with Halotron only.	approximately 10 gallons of water/30 #s Halotron
Engine Nacelle on Dry Pan	5	yes	yes	CAF & PKP	10 secs	NOTE: Preheated Nacelle about twice protocol. CAF on Pan and CAF & PKP on Nacelle	approximately 8 gallons of water/16 #s PKP
Engine Nacelle on Dry Pan	6	no	no	na	na	Nacelle burn out 5 minutes	
						STARTED RAINING TESTING DELAYED	
Tuesday 24 February 2004							
Engine Nacelle on Dry Pan	7	yes	yes	CAF & Halotron	~13 secs	Fire was essentially out just before input of Halotron. Rissinger could not believe what he was witnessing	approximately 9 gallons of water/2#s of Halotron
Engine Nacelle on Dry Pan	8	yes	yes	CAF & PKP	~9 secs	CAF on Pan, CAF & PKP on Nacelle	approximately 7.5 gallons of water/16 #s PKP
Engine Nacelle on Dry Pan	9	no	no	na	na	Nacelle burn out	
100' Pit	10	no	no	CAF Only	79 secs	NO TEST - not enough pit coverage	NO TEST

Wednesday 25 February 2004

Engine Nacelle w/ 30' water ring	11	yes	yes	QuadAgent	~11 secs*	NOTE: First test scenario on this test fixture. Start to finish 11 secs. *Actual time fighting fire is 7-8 secs as first 3-4 seconds of discharge was adjusting nozzles pointed out of the pit and not fighting the fire. Way to close to Engine Nacelle to see benefit of Halotron. Halotron being thrown thru fire and Nacelle.	approximately 8.5 gallons of water/66#'s PKP/<4#'s Halotron. * approximately 7 gallons of water/42#'s PKP/~2#'s Halotron
Engine Nacelle w/ 30' water ring	12	yes	yes	QuadAgent	12 secs	Way to close to Engine Nacelle to properly utilize agent delivery technology. Steep learning curve. NOTE: AFCT could not advise on proper fire fighting technique with QuadAgent Technology.	approximately 8.5 gallons of water/66#'s PKP/<4#'s Halotron.
Thursday 26 February 2004							
Engine Nacelle w/ 30' water ring	13	yes	yes	CAF & Halotron	23 secs	CAF on Ring and CAF & Halotron on Nacelle	approx 17 gallons water/~14#'s Halotron
Engine Nacelle w/ 30' water ring	14	yes	yes	CAF & Halotron	22 secs	CAF on Ring and CAF & Halotron on Nacelle	approx 17 gallons water/~14#'s Halotron
Engine Nacelle w/ 30' water ring	15	yes	yes	CAF & Halotron	17 secs	Both CAF & Halotron all on ALL the Time	approx 13 gallons water/17#'s Halotron
Engine Nacelle w/ 30' water ring	16	yes	yes	CAF & PKP	MISSED	Cameraman malfunction did not record!	?
Engine Nacelle w/ 30' water ring	17	yes	yes	CAF & PKP	11 secs	All Agents on all the time	8.5 gallons water/88#'s PKP
Engine Nacelle w/ 30' water ring	18	yes	yes	CAF & PKP	10 secs	All Agents on all the time	8 gallons water/80#'s PKP
Engine Nacelle inside water ring	19	NO	yes	PKP ONLY	<5 secs	Rissinger decided to show that PKP would not put out engine Nacelle by itself. The Nacelle was extinguished in less than 5 secs and Firefighter stay on nacelle for an additional 8 secs for cool down. The engine nacelle DID NOT FLASH Back!!!! This had never been done even off a bumper turret which delivers at a much higher rate!	<40 #'s PKP ONLY
Engine Nacelle inside water ring	20	NO	yes	PKP ONLY	<8 secs	Rissinger did not believe what he saw in the first test, so he preheated the engine nacelle twice as long as protocol. The nacelle was again extinguished in about 8 secs but the Firefighter only stay on the nacelle an additional 7 secs for cool down. This was obviously not enough due to the extended preheat and the nacelle self ignited after ~30 secs.	<64 #'s PKP ONLY
Engine Nacelle inside water ring	21	NO	yes	PKP ONLY	~7 secs	Rissinger was now thinking about how this could be! He decides to attack the Nacelle with the dry chemical nozzle only 50% open. This reduced the dry chemical delivery rate as a result. The nacelle was extinguished, anyway, in ~7 secs with no flash back ALL TO THIER PUZZLEMENT!	<56 #'s PKP ONLY

Friday 27 February 2004

100' Diameter Pit w/ 1000 gallons JP fuel	22	NO	NO	CAF ONLY	na	NO TEST - not enough pit coverage/wind to high	
100' Diameter Pit w/ 1000 gallons JP fuel	23	yes	yes	CAF ONLY	83 secs	CAF Only	
100' Diameter Pit w/ 1000 gallons JP fuel	24	yes	yes	CAF & PKP	78 secs	CAF & PKP together	
100' Diameter Pit w/ 1000 gallons JP fuel	25	yes	yes	CAF ONLY	82 secs	CAF Only	
100' Diameter Pit w/ 1000 gallons JP fuel	26	yes	yes	CAF ONLY	80 secs	CAF Only	

Monday 1 March 2006

100' Diameter Pit w/ 1000 gallons JP fuel	27	yes	YES/NO	CAF & PKP	84 secs/74 secs*	Rissinger interrupted test in progress barking instructions to turn all agents on at once. This cause at least a 10 sec delay not to mention the loss of concentration on what the firefighter was doing and planning. Test should be adjust down by 10 secs or not counted, one or the other.	
100' Diameter Pit w/ 1000 gallons JP fuel	28	NO	no	CAF & PKP	65 secs	NO TEST - not enough pit coverage/wind to high	

Tuesday 2 March 2006

100' Diameter Pit w/ 1000 gallons JP fuel	29	yes	yes	CAF & PKP	66 secs	This is a REDO for test #28.	
100' Diameter Pit w/ 1000 gallons JP fuel	30	yes	YES/NO	QuadAgent	82 secs/68 secs*	Rissinger interrupted test in progress barking instructions to ensure Halotron was on (which it was)!. This cause at least a 10 sec delay not to mention the loss of concentration on what the firefighter was doing and planning. Rissinger continued to bark instructions and in the process forgot to back the truck up causing the firefighters to again wait to advance the hose. Test should be adjust down by 12-15 secs or not counted, one or the other.	40 gallons water/18#'s Halotron/318 #'s PKP
100' Diameter Pit w/ 1000 gallons JP fuel	31	no	no	QuadAgent	na	NO TEST - not enough pit coverage/wind to high. However, Rissinger instructed Bill to practice. This was Bill's second attempt with the QuadAgent technology on this pit scenario.	
100' Diameter Pit w/ 1000 gallons JP fuel	32	yes	yes	QuadAgent	60 secs/55 secs*	Best Attempt. Bills third attempt with the QuadAgent. Learning curve is obvious as Bill only enters pit approximately 20' to extinguish half the pit. <u>"The case can be made that the last part of the fire to be extinguished was indeed outside the pit and up in the rocks. This part of the extinguishment would therefore not count in the extinguishment time. This new time is 55 secs to pit extinguishment.</u>	30 gallons water/13#'s Halotron/240#'s PKP. *24 gallons water/12 #'s Halotron/216 #'s PKP
100' Diameter Pit w/ 1000 gallons JP fuel	33	yes	yes	QuadAgent	109 seconds	AI's first attempt with QuadAgent on 100' pit and it is obvious. As he is really going up a steep learning curve.	Impossible to estimate for whole pit.

Bumper Turret Practice

100' Diameter Pit w/ 1000 gallons JP fuel	34	no	yes	CAF & PKP	188 secs	This was not a protocol test, but just PLAY TIME! Rissinger was the one operating the RIV from the CAB. It became very obvious very fast that Rissinger's hand-eye coordination was lacking as he could not direct the nozzle where he intended it to go. THIS TEST WAS NOT TO BE USED AND WAS A FULL PIT TEST!	Rissinger used about all the agents to extinguish the pit.
100' Diameter Pit w/ 1000 gallons JP fuel	35	no	yes	CAF & PKP	157 secs	Dave the truck driver and 3rd firefighter at Tyndall got to try his hand at this also during PLAY TIME! His hand-eye coordination was better but he still struggled to master the joystick control. THIS TEST WAS NOT TO BE USED AND WAS A FULL PIT TEST!	Dave did not run out of agent in his efforts.

12 December 2006

Engine Nacelle w/ 30' water ring	36	yes	no	CAF Only	24 secs	Engine Nacelle Reversed	16 gallons water used
Engine Nacelle w/ 30' water ring	37	yes	no	CAF Only	27 secs	Engine Nacelle Reversed	18.9 gallons water used
Engine Nacelle w/ 30' water ring	38	no	no	CAF Only	N/A	Engine Nacelle Reversed - Training ARFF Firefighter never 1st fire ever at Tyndall.	
Engine Nacelle w/ 30' water ring	39	yes	no	CAF Only	25 secs	Engine Nacelle Reversed	17.5 gallons water used

15 December 2006

100' Diameter Pit w/ 1000 gallons JP fuel	40	yes	yes	CAF & Halotron I	75 secs	AI (ARFF FF) fought all fires as Bill was on vacation (most aggressive).	52.5 gallons water used & 75#s Halotron I
100' Diameter Pit w/ 1000 gallons JP fuel	41	yes	yes	CAF & Halotron I	93 secs	AI experimented with another fire attack approach	65.1 gallons water used & 93#s Halotron I
100' Diameter Pit w/ 1000 gallons JP fuel	42	yes	yes	CAF & Halotron I	90 secs	AI experimented with still another fire attack approach	63 gallons water used & 90#s Halotron I

[..AFFF Halotron Engine Nacille dry pan.mpg](#)

