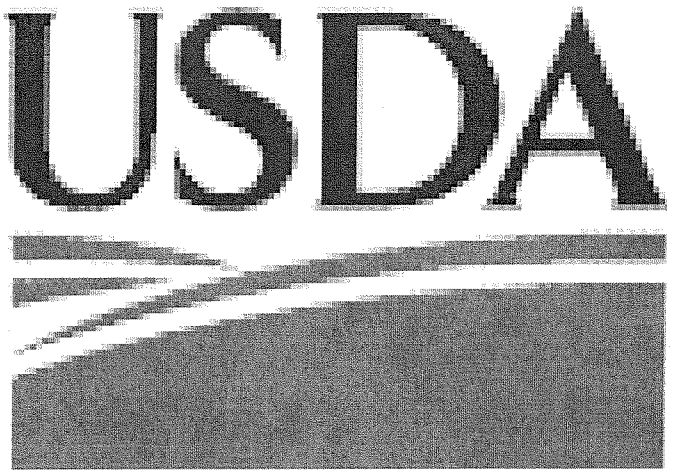

United States Department Of Agriculture

REVIEW TEAM REPORT

INQUIRY REGARDING JUNE 11, 2010 FLASH FLOOD INCIDENT
ALBERT PIKE RECREATION AREA
OUACHITA NATIONAL FOREST

September 24, 2010

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III. INTRODUCTION

On June 14, 2010, Secretary of Agriculture, Thomas J. Vilsack, directed that an inquiry be conducted into the flood event that tragically claimed the lives of twenty campers in the early morning hours of June 11, 2010, at the Albert Pike Recreation Area (APRA) on the Ouachita National Forest, Montgomery County, Arkansas. The purpose of the inquiry was to examine events preceding, during and immediately after the flood and to make recommendations based upon findings of fact.

A Review Team was constituted by the U.S. Department of Agriculture, consisting of a lead attorney from the Department's Office of the General Counsel and three Law Enforcement personnel from the U.S. Forest Service.

The inquiry was conducted under the immediate supervision of Danny L. Woodyard, Attorney, Office of the General Counsel, U.S. Department of Agriculture, with the assistance of U.S. Forest Service Special Agents Harold Young, Jr. and Morgan Amos, and Forest Service LEO Jody Bandy.

IV. STATEMENT OF FACTS AND DISCUSSION

A. Background:

The Albert Pike Recreational Area campground is a developed campground administered by the United States Department of Agriculture, Forest Service, Ouachita National Forest, Hot Springs, Arkansas, and is located in Montgomery County, Arkansas, six (6) miles north of Langley, Arkansas. The campground is administered by Forest Service personnel stationed at the Caddo-Womble Ranger District Office in Glenwood, Arkansas. The Albert Pike Campground is located in the rugged Ouachita Mountains along the Little Missouri River, which is designated a Wild and Scenic River. (Exs. 10A-1

and Ex. 3C). The area has been a popular site enjoyed by visitors for camping and hiking for many years. (Ex. 27A).

The campground is comprised of four separate loops or areas known as Loops A, B, C, and D. Loops A and B are located on the west side of the Little Missouri River, downstream from Loops C and D. Facilities include fifty-four (54) camp sites with tables and grills, a swimming and wading area, a one-mile Bluff Hiking Trail, a 15-mile Little Missouri Hiking Trail, water faucets, flush toilets and showers, a sanitary dump station, and an amphitheater. The eight sites at Loop D also have electric and water hookups for recreation or camping vehicles. The Forest Service has a Recreational Guide and map for the Albert Pike Recreation Area, which may be obtained at the Ouachita National Forest website. (Chrismer MOI, Exs. 3 and 3C).

The Albert Pike Recreation Area has a long history of documented flooding events dating back to at least 1940. (Ex. 27A). Between 1940 and 2010, there are at least ten documented flood events in the years 1940, 1961, 1975, 1982, 1987, 1990, 2001, 2006, 2008, and 2010. (See Exs. 27A, 27G, 27F, 27C, 27H, 5, 7, 36, and 48). There have been thirteen flood incident reports evidencing severe weather, flooding and property damage resulting from severe weather between March 27, 2000, and September 2, 2008. (See Incident Reports, Ex. 2A).

On June 11, 2010 a storm system culminated in an unprecedented flood event in the Little Missouri River channel that far exceeded all previous flood incidents. According to the National Weather Service (NWS), a flash-flood watch was issued at 11:58 a.m., Thursday, June 10, 2010. This watch was set to remain in effect until 7:00 p.m., Friday, June 11, 2010. At approximately 3:00 a.m. on June 11, 2010, campers in the APRA and specifically in Loop D experienced the apex of rising water in the Little Missouri River which rose from a pre-storm level of just under four (4) feet deep to an estimated depth of over twenty-three (23) feet. The fast rising water and heavy rain caused campers to either remain in their camp trailers, or seek refuge in their automobiles. Because campers could not adequately assess the developing circumstances in the dark and heavy rainfall, they were caught unaware of the impending flood that swept down the river channel at an estimated volume of sixty-thousand (60,000) cubic feet per second. The Loop D campground was completely inundated and trailers and automobiles were swept downstream in the ensuing flood. Twenty campers lost their lives in this maelstrom: three (3) in a dispersed campsite above Loop D, and the remaining seventeen (17) at campsites in Loop D. The magnitude of this event has subsequently been described by a USGS expert as exceeding a 500-year flood event. The flood far exceeded all historical perspective and the expectations, planning, and reactive capability of Forest visitors as well as the Forest Service, and local residents.

B. The Loop C and D Construction Project at the Albert Pike Campground

1. NEPA Process:

a. The Renovation and Construction Proposal

In October 2000 (Fiscal Year 2001) the Forest Service received a special congressional appropriation of $600,000 to renovate and expand the facilities at the Albert Pike Recreation Area located on the Caddo Ranger District in Glenwood, Arkansas. Under the National Environmental Policy Act of 1969, Pub. L. 91-190, 42 U.S.C. 4321 et seq., (NEPA) and its implementing regulations contained in 40 C.F.R. 1500 - 1508, the Forest Service was required to prepare an analysis of environmental impacts of any proposal to expand the facilities at the APRA.[1] Scoping for this project began in December 2000. The project began under the direction and supervision of then Caddo District Ranger James Watson, who is now retired. (Ex. 36). District Ranger Watson was to be the deciding official for the project.

The Forest Service's NEPA Handbook provided for the use of an interdisciplinary approach in planning and determining how the project would be constructed. Under this approach, input was collected from various interdisciplinary team members, including a Forest Service Soil Scientist named Ken Luckow. On November 28, 2001, Mr. Luckow sent a letter to District Ranger Watson referencing a "GIS soil map" contained in the project file. The letter advised the District Ranger that the proposed construction was located in the 100-year flood plain and subject to frequent flooding. (Ex. 48). The letter referenced several issues or concerns including the site being located in the flood plain, prior flooding, and the need to post flood warning signs.

b. Flood Plain Determination:

One method used by the Forest Service to determine the location of flood plains is to consult soil maps. Soil maps are prepared using soil data from field studies. This soil data is used to prepare soil maps that represent certain soil types in specific locations. Soil Scientists use soil types to define certain areas that are prone to flooding. Luckow used the maps listed herein as Exhibits 49A, 49B, 49C and 49D to make his determination that the proposed construction site of Loop D was within the boundaries of the 100-year flood plain. (Exs. 48, 34). As part of his interview, Ouachita Forest Hydrologist James Clingenpeel printed a colored Geographic Information System (GIS) map to overlay onto

[1] The Forest Service's internal guidelines for NEPA compliance are set forth in the Forest Service Manual 1950 (Environmental Policy and Procedures) and Handbook 1909.15 (NEPA Handbook).

the area where Loop D had been constructed. (Ex. 14B). Placing the soil map overlay on the site map where the construction took place, reveals that the construction sites in Loop D are located within the soil map unit 55 boundaries, and therefore, in the 100-year flood plain. (Clingenpeel, Ex. 14 and 14B, Cline Ex. 8 and 16, Soil Map 55, Ex. 16B, Luckow, Ex. 34, Luckow letter, Ex. 48).

Once Luckow determined that the proposed Albert Pike Loop D was in the soil map area 55 (flood plain classification), he concluded that, *"it would be advisable to plan these proposed campsites only as primitive camping areas and minimize any soil and flood plain disturbance. Things such as electricity, water and sewer hookups should not be planned."* (Ex. 48. p. 2, Ex. 50). He referenced FLMP and EO-11988 guidance that proposed critical facilities, such as systems roads and buildings be located outside the 100-year flood plain.[2]

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[2] EO-11988 is an Executive Order instructing agencies of the U.S. Government to:

"take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare . . ." (Ex. 62).

"FLMP" is an acronym for "Forest and Land Management Plan." In his interview, Luckow explained that his "FLMP" reference was actually to the Amended Land and Resource Management Plan, March 1990 (ALRMP) (Ex. 51). Each National Forest is required to develop a Land and Resource Management Plan. The plan includes the following directives:

- Inspect recreation facilities annually to comply with health and safety requirements (0.13)
- Protect the health and safety of Forest visitors. Perform annual Safety inspections at all developed sites. (3.13)
- Locate proposed critical facilities (system roads, recreation facilities, and buildings) outside 100 year flood plain (Executive Order 11988) and wetlands (Executive Order 11990) unless no practicable alternative location exists. Where present and future facilities cannot be located out of the 100 year flood plain, use structural mitigation and best management practices. (9.72) (Executive Order 11988 - Ex. 62 and Executive Order 11990 - Ex. 61).

In December of 2001, Caddo-Womble District Ranger Watson met with Ouachita Forest Hydrologist James Clingenpeel to determine the 100-year flood plain for the Albert Pike construction. They met at the Albert Pike Recreation Area in Montgomery County, Arkansas. The Hydrologist was shown the approximate site of the proposed construction by the District Ranger. There were no proposed building markers, strings, or flags to indicate the location of buildings or their proposed elevations.

The Hydrologist went to the APRA to conduct a field evaluation to determine the 100-year flood plain elevation. He was using the Bankfull Evaluation Method for the evaluation. The Hydrologist began to establish the flood plain elevation by sighting through an instrument towards a point established by another Forest Service employee assisting on that day. The District Ranger walked to a point between the Hydrologist and the other Forest Service employee and stated that he could visually tell where the flood plain line was and that the construction he proposed at site number 7 would be above the level he thought Clingenpeel had established. The Hydrologist informed the District Ranger that if all of the campsites would be built above the flood plain elevation he had sighted, there should be no flooding issues. (Ledbetter, Ex. 18, Clingenpeel, Exs. 14, 14A, 14B, and Watson Ex. 36). Clingenpeel stated, *"...he never told Ranger Watson that it was OK to proceed with the project."* (Ex. 14, p. 2) He said that Ranger Watson just took the project and ran.

When interviewed, the Hydrologist stated that he only took one field reading for one location (Future Site No. 7, Loop D) in making the flood plain determination in December of 2001. He said the use of one reading is not uncommon practice, if that reading is used within 100 feet up or downstream of the reading site. If areas are to be considered outside that parameter, other flood plain readings would be necessary. The Hydrologist was not informed of any proposal to do additional construction in Loop C. The Hydrologist stated that he did not prepare a written report for the District Ranger with respect to his field determination as none was requested, and he was not asked by the Ranger to install any marks for future use by other personnel with respect to the proposed construction. The Hydrologist admitted that after the flood event of June 11, 2010, he discovered that the Bankfull field determination method for determining a flood plain elevation was not an authorized method according to U.S. Forest Service directives contained in Region 8 Supplement 2500-92-1. He discovered this in discussions with the Regional Hydrologist after the Albert Pike flood event of June 11, 2010. He also stated that this method is less accurate than the approved methods for determining flood plain elevation.

2. Knowledge of Recent Flooding at the APRA

The Review Team discovered a well known record of significant flooding events at the APRA prior to the tragedy on June 11, 2010. For example, Soil Scientist Ken Luckow acknowledged in his letter dated November of 2001 that the area contained within soil map number 55 is within flood plain areas and is "subject to frequent flooding." He continued by stating: *"Evidence of a recent major flood event was observed along the river corridor."*

Knowledge of prior flooding in the area of Loop D is consistent with multiple interviews conducted by the Review Team.

For example, District Ranger Watson, who signed the Decision Notice for implementation of the construction plan for Loops D and C, advised that he was aware of prior flood events at the Albert Pike. One particular incident he recalled involved an incident he believed occurred in 2000 or 2001. In that incident he recalled a camper's vehicle and possessions had been washed downstream near the APRA. He remembered the incident because he and the Forest Supervisor received several complaints from the visitor. District Ranger Watson stated that he remembered an average of two (2) flooding incidents a year at the APRA during his tenure as the District Ranger. (Ex. 36).

A review of the U.S. Forest Service Law Enforcement Incident Reports also reveals numerous previous incidents of flooding in the APRA and on surrounding Forest Service roads. These incidents include Forest Service Law Enforcement responses to nine (9) separate flooding incidents documented over a period from 2000-2008.[3] Four of the law enforcement incident reports predated November 2000, when District Ranger Watson met with district staff members to discuss the proposal to build additional campsites at the APRA .

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[3] No computerized records for incident reports are retrievable prior to 2000. (Ex. 2A).

Further review of the Forest Service Law Enforcement incident reports reveal continued flooding after the completion of the Loop D construction project at the Albert Pike Campground. One such flooding event occurred on July 3, 2004, when a Forest Service LEO and other Forest Service employees were called out to assist campers due to flooding in the APRA. This date is somewhat ominous because Albert Pike Campground Loop D had opened only three (3) days earlier. (Exs. 2A, 23). These reports also show the Forest Service to have been pro-active in notifying campers of flood dangers based on rain and flood forecasts, if the events were forecasted with sufficient leadtime and during normal business work hours. This Review Team found three (3) documented incidents where Forest Service LEOs notified campers of bad weather forecasts. These warnings were issued to campers in the area in or around the APRA. (Ex. 2A).

Additional documentation of prior flooding incidents at the APRA is contained in the Albert Pike Recreation folder at the Forest Supervisor's Office in Hot Springs, Arkansas. These documents relate to flood damages to Forest Service facilities at Albert Pike, damages to private property below the Albert Pike Recreation Area, as well as general references to flooding events. These documents refer to flooding in the area of Albert Pike that occurred in 1961, 1975, 1982, and 1987. One document stated: *"A total of 9.35 inches of rainfall during the night of May 5, 1961 and early morning of May 6, 1961, caused considerable damage to Albert Pike Recreation Area."* (Ex. 27G).

There are numerous other Forest Service records and statements that document prior flooding events at the Albert Pike Recreation Area. See, Exs. 3, 5, 7, 27, 27A , 27B, 27C, 27D, 27E, 27F, 27G, 27H, 27I, and 36.

Members of the Review Team continually encountered responses from Forest Service employees on the Ouachita National Forest who were aware of frequent flooding events in or around the Albert Pike Recreation Area. A majority of these incidents occurred after the proposal of the Loop D construction project. A majority of current and former employees interviewed by the Review Team recalled flooding events on the Ouachita National Forest in or around the APRA prior to the flooding on June 11, 2010; however, no one recalled flooding events of the same magnitude. Both current employees and retired employees recalled incidents of personal property damage or damage to Forest Service property as a result of flooding. No employees remembered any incidents of flooding that resulted in personal injury or death. (Exs. 2,5,6,7,13,14,18,21,22,24,26, 34, 36, 40).

3. Policy on Posting Flood Hazard Signs

The Review Team found one recommendation and several references calling for the posting of flood warning signs. For example, during the planning phase of the

construction project, Soils Scientist Ken Luckow suggested two mitigating measures for the construction and/or refurbishing work in Loop C:

1. Keep as much refurbishing work as possible concentrated in the highest elevation away from the river; and,

2. If not already done, signs should be posted warning campers of possible flash floods.

During his interview of June 29, 2010, Mr. Luckow stated that he based this advice on Forest Service directives on the posting of signs in areas prone to flooding, including the following:

- FSM 2527.3, which provides in pertinent part that:

  "... if the proposal involves action in or affecting a flood plain or wetland special emphasis should be given to relocating the proposed action outside the area, as opposed to just minimizing the impact."[4]

- FSM 2527.31, which directs the Forest Service to:

  "...develop evaluations and decisions in the total land management planning context, considering the public interest in, among other things, human health, safety, and welfare..."

- FSM 2527.5, which states

  "Enhance public awareness and knowledge of flood hazards by placing appropriate signs or other means of conspicuous delineation showing the highest past flood level and probable 100-year flood heights in identified flood hazard areas and in public use areas which have suffered flood damage. Place priority on those areas within the National Forest System where the probability of rapid rises of water level (flash flood) is greatest, where flood warning time is minimal, or where critical structures and facilities are involved." (Ex. 66, p. 41 of 44).

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[4] EO-11988 contains a similar provision.

- FSM Region 8 Supplement dated 6/7/1992 FSM 2527.02, which includes an objective:

  "To increase public awareness of flood hazards and Forest Service permitting requirements, for activities occurring in the flood plain" (Ex. 64, p. 7);

- FSM Region 8 Supplement dated 6/7/1992 — FSM 2527.5, which provides:

  "Posting of Past and Probable Flood Heights- 1. The method of determining priority for signing, based on probability of rapid rises of water level are;"

  a. All camp grounds and administrative sites known to be flooded one or more times per year; (Ex. 64, p. 8);

- Forest Service EM 7100-15, which states

  "The purpose of flood plain signing is to warn Forest users, workers, and persons occupying public use and administrative sites that they are in an area where floods may occur. These signs should be used to identify areas where the flood hazard is not readily apparent to the users. Flood hazard warning signs shall receive the same priority as other safety-related signing."

Most Ouachita employees interviewed were unaware of the flood hazard sign requirements contained in EM-7100-15. When shown examples from EM-7100-15, some employees questioned whether the EM directive was in effect at the time Albert Pike Loop D was constructed. The Review Team obtained a 1998 copy of the Forest Service Manual that was in effect in 2003. Chapter 10.2 of this manual contains the same flood hazard signs and notices as those contained in the December 2005 edition, Chapter 13.2. During its inquiry, the Review Team noted that the flood hazard warning notices shown as examples in the EM-7100-15 showed the name of the Monongahela National Forest at the bottom. The Team sought to ascertain through Forest Service personnel whether these notices referencing the Monongahela National Forest were *"just examples"* or if those signs were actually in use on the Monongahela National Forest. None of the individuals interviewed could answer that question. In fact, one member of the Ouachita National Forest Engineering staff initially claimed that no such signs existed. (Fleming, Ex. 31). The Review Team then contacted a LEO working on the Monongahela National Forest,

who went out to the site and confirmed with photographs that the flood hazard notices not only existed, but were posted on the Tea Creek Campground, another recreation area similarly subject to flash flooding. (Kalna, Ex. 32, 32A). The Review Team believes this to be significant because it shows the variance in the application of Forest Service signing and policy guidelines with regard to two similarly situated recreation sites, both subject to flash flooding. The Review Team believes it exemplifies the case of local units being ultimately responsible for implementation and posting versus a national or regional mandate and guidelines other than what is already contained in the Forest Service Manual and EM already. One unit made the decision to implement use of the available signs and warn the public and the other unit did not, even though both situations warranted it.[5]

This national inconsistency in implementation was further exemplified when the Review Team interviewed the Forest Service Region 8 Sign Coordinator. He confirmed that he was aware of the Forest Service's internal directives related to flood signing. He advised that he has attended and even instructed at annual sign training workshops, but that he does not remember any specific training related to posting flood signs in recreation areas; instead, the training has been focused on the general provisions of Forest Service guidance and mostly vehicle traffic signage. He was unaware of any additional guidance specific to posting signs in recreations areas ever having been issued by the Washington Office (WO), or the Region. (Kuzik, Ex. 37 and 58).

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[5] The Review Team notes that the hazard notices shown as examples in EM-7100-15 come from the Tea Camp Campground on the Monongahela National Forest, which is in Region 9 of the Forest Service.

The Sign Coordinator stated that his job was to know who to contact and coordinate with on each Forest to share the latest information from the WO or other Regional Sign Coordinators, but the Review Team found no evidence of coordination with regard to flood hazard warning signs and posters. The Region 8 Sign Coordinator advised he did not recall any exchanges regarding flood hazard warning signs or posters, even though he acknowledged that most recreation areas in Region 8 are located in flood plains and near water hazards. Further, he had no contact with the Ouachita National Forest Sign Coordinator until after the flooding event of June 11, 2010. (Ex. 37).

The Region 8 Sign Coordinator could not provide any explanation of why the Ouachita National Forest, Region 8, had not followed the same policy as the Monongahela National Forest, Region 9, in posting flood hazard signs. He advised the posting of signs or notices would strictly be left to the District Ranger or Recreation Technician. He confirmed that Recreation Technicians attend the annual sign workshops, but there has been no training on the posting of flood hazard warning signs in recreation areas subject to flash flooding. (Exs. 37, 67, 68, 44A). The Review Team believes this policy on signage leaves a huge gap between Forest Service directives meant to apprise the public of flood hazards at the various recreation areas prone to flooding and actual implementation which is strictly left to the discretion of the District Rangers, with varied and inconsistent results.

C. Environmental Assessment

A key Forest Service guidance document explains that the purpose of an Environmental Assessment (EA), *"...assesses the nature and importance of the physical, biological, social, and economic effect of a proposed action and its reasonable alternatives."* (Ex. 76)

Environmental analysis includes in part: scoping, identification of issues, and determination of whether a proposal can be categorically excluded from documentation. A proposed action may be categorically excluded from documentation in an Environmental Impact Statement (EIS) or an Environmental Assessment (EA) if it meets the requirements in FSH 1909.15 Chapter 30 (FSH 1909.15 Chapter 30) (Ex. 77). The Albert Pike proposal for construction in Loop D did not meet exclusion requirements; therefore, an EA was prepared.

An EA is a form of documentation used by the Forest Service to comply with the National Environmental Policy Act (NEPA). The Forest Service Handbook (FSH) 1909.15 defines an EA as:

> *(a)...a concise public document for which a Federal agency is responsible that serves to:*

(1) Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.
(2) Aid an agency's compliance with the Act when no environmental impact statement is Necessary ....
(3) Facilitate preparation of a statement when one is necessary.
(b) Shall include brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted (40 C.F.R. 1508.9)

An interview of former District Ranger Watson revealed that he was the principal author of the EA for the Albert Pike construction project, as well as the deciding official. He acknowledged that it would have been unusual for a deciding official to author an EA and that ordinarily the duty of writing the EA would have been performed by the District NEPA Coordinator, Kathryn Duncan in this case. However, Ms. Duncan apparently was occupied with more complex projects at the time of the Albert Pike EA. Moreover, District Ranger Watson regarded the Albert Pike construction project as relatively simple and within his range of NEPA competency. (Watson Ex. 36, Duncan Ex 24) .

Although internal Forest Service guidance does not explicitly prohibit the deciding official from serving as the Team Leader or from authoring the EA, it seems to imply that these duties should be separated.[6]

The Review Team discovered that the EA for the Albert Pike project contained a major discrepancy regarding whether the location of Loop D was in a flood plain. This discrepancy can be found on pages 14 and 15 of the EA. (Ex. 47). For example, page 14 of the Soils section of the EA states:

Most of the area where the new campsites are proposed just south of road 914 should be considered as being within the 100-year flood plain. My

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[6] Forest Service directives under FSH 1909.15 Chapter 10 (10.4) (Ex 76) provide:

10.4-Responsibility. The official who is responsible for a decision on a proposed action(FSM 1909.4) also has the responsibility to:

2. Determine whether an interdisciplinary (ID) team of specialists and a formal plan of work are needed.
3. Select the ID team and leader, where needed, and keep abreast of their work (Sec. 12.1)

observations indicated that the May 2001 flood event did not impact this area-but it came close. It's probably subject, therefore, to only rare flooding events (i.e. 1-2 times per 100 years), but that still places it in the 100-year flood plain. As such it would be advisable to plan these proposed campsites only as primitive camping areas and minimize any soil and flood plain disturbance.

On the other hand, page 15 of the Water section of the EA states:

However, none of the new campsites (Loop "D") or the two new bathhouses are within the 100-year flood plain. (emphasis added).

These two statements conflict in that the first places the Loop D campsites within the 100-year flood plain while the second claims they are not. When asked to reconcile these statements, former District Ranger Watson, who wrote the EA, explained that he "cut and pasted" portions of Ken Luckow's 2001 letter into the EA. In the soils section of the EA, the District Ranger concluded that the new campsites (Loop D) were in the flood plain, as previously established by Luckow and the soils maps; however, in the water section of the EA, he concluded that the new campsites were not in the flood plain and omitted the portion of the Luckow letter where the soil scientist had recommended, *"As such, it would be advisable to plan these proposed campsites only as primitive camping areas and minimize any soil and flood plain disturbance. Things such as electricity, water and sewer hookups should not be planned."* (Exs. 34, 34A, and 47).

As noted above, Luckow's conclusion that Loop D was in the flood plain is supported by his field analysis and comparison of the field findings with soil maps which place the proposed construction of Loop D within the 100-year flood plain. The section on page 15 of the EA was written by former District Ranger Watson. The portion Watson contributed on page 15 that asserted *"none of the new camp sites proposed for Loop D are in the flood plain"* is simply not supported by any credible evidence contained in the project file. When interviewed, Ranger Watson admitted that he performed a cut and paste type operation when writing the EA on the APRA project. He advised he took some written portions of Forest Service staff's documents and pasted them into the EA. This Review Team believes this may explain the partial inclusion of Luckow's letter that concluded the section was within the flood plain as stated on page 14 of the EA, while contradicting that finding on page 15 of the EA. Consequently, no supporting documentation could be found to support Ranger Watson's conclusion that none of the area of the new camp sites are within the 100-year flood plain. Ranger Watson explained that he had the Hydrologist (Clingenpeel) conduct measurements to evaluate the flood plain level, but admitted that he made a visual determination on-site that the projected Loop D developments would be above this flood plain level based on just looking at the

measurements. The Ranger stated that in hindsight, it probably would have been a good idea to stake out the proposed sites and developments. Hydrologist Clingenpeel advised that he never installed any markers or reference points that could be used by the Ranger or others in the construction project. The Hydrologist stated that the Ranger formed the opinion that his proposed construction would be built above the 100-year flood plain on his own visual assessment. (Watson Ex. 36, Clingenpeel Ex. 9).

The Review Team believes that former District Ranger Watson intentionally left out the portion of Luckow's letter that recommended not installing electricity, water and sewage hookups because he wanted the sites to be developed rather than primitive in nature, so as to meet perceived public expectations and fully utilize the money appropriated for the project. (Ex. 36 and 47). He circumvented Luckow's advice with regard to the new campsites by requesting and making use of a single site elevation reading by Hydrologist Clingenpeel, which he used to unilaterally decide that the proposed campsite construction would be above, and thus, outside the 100-year flood plain. Watson had the independent and autonomous authority as a District Ranger to do this. He is of the opinion that he was acting pursuant to Forest Service policy and procedures in effect at the time and within his delegated authority when he made the decisions. Although prominent in the decision making process, he did not make the decisions in a vacuum or apart from other Forest Service staff and personnel, all of which impacted project development. Thus, in the former District Ranger's mind, once he determined the construction would be above the 100-year flood plain elevation, no mitigating factors were required. (Watson, Ex. 36). This was a misconception on Ranger Watson's part, however, because even if he presumed to build above the 100-year flood plain elevation, Loop D was still within the flood plain and, thus, the Forest Service directives on building in a flood plain and signage would still apply.

Today, there is no doubt that the area of the existing Loop D of Albert Pike Campground is within the 100-year flood plain area as defined by soil map No. 55 and a post-flood survey. (Ex. 50)[7]

The Review Team conducted an interview with the Federal Emergency Management Agency (FEMA) concerning the development of FEMA flood plain maps. That interview revealed that FEMA flood plain maps are driven by the National Flood Insurance Program (NFIP). FEMA works with participating communities and gathers information from participating communities to develop FEMA flood plain maps. These maps indicate flood plain hazards and insurance requirements for residential and

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[7] (This has since been confirmed in a survey by a Hydrologist Dan Marion of the U. S. Forest Service, Southern Research Station.)

commercial development. Team members were unable to locate any FEMA flood plain map for the area that includes the Albert Pike Campground. (Garcia, Ex. 38).

During an interview with Jeff Olson, a Forest Service soil scientist, Mr. Olson stated that he was unable to locate a FEMA flood plain map for the APRA. He worked for the National Resource Conservation Service (NRCS) prior to his employment with the Forest Service, however, and said that he was instrumental in developing soil maps for the Forest Service in the 1990s, while employed with the NRCS. Olson stated that FEMA flood plain maps are not a primary source of information used to determine whether land is in a flood plain with respect to work performed by the Forest Service, but noted that the NRCS map shows the entire Albert Pike Recreation Area river corridor to be in a flood plain based on frequency of flooding. (Olson, Ex. 39, 39A).

D. Decision Notice

On January 17, 2003, District Ranger James Watson issued a Decision Notice to implement the proposed construction project at the Albert Pike Campground. Prior to issuing the decision, the District Ranger had made a Finding of No Significant Impact declaring that the project was not a major Federal action and would not significantly affect the quality of the human environment and therefore that an Environmental Impact Statement was not necessary. His decision was based on several determinations from the Environmental Assessment, including findings that the project would not affect health or safety and would be consistent with the standards and guidelines, management requirements and mitigation measures established in the Ouachita National Forest Plan. (Ex. 46).[8]

The Review Team believes that the Decision Notice was flawed because some of the input provided by the interdisciplinary team members assembled to evaluate the Albert Pike construction project was not fully considered by the District Ranger when he authored both the Environmental Assessment and the Decision Notice.

The recommended actions proposed in the Environmental Assessment were intended, not only to improve the facilities at the Albert Pike Recreation Campground through the reconstruction of existing facilities in Loop C and the construction of new campsites in Loop D, but also to provide for a safe and enjoyable recreation experience for users at the Albert Pike Recreation Area (Ex. 46, p. 1). The Review Team believes the

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[8] If an Environmental Assessment and Finding of No Significant Impact (FONSI) has been prepared, a decision notice is required by Forest Service directives contained in FSH 1909.15, Chapter 40 (Documentation of Decisions). FSM 1950.4 allows the decision maker to combine the Decision Notice and FONSI. (Exs.75 and 78).

later objective was to a degree lost because the decision failed to implement flood hazard warning signage at the campground.

1. Construction

In January of 2003, Ouachita National Forest Service Landscape Architect Ron Krupa and the Forest Engineering staff were notified of the decision by District Ranger Watson to implement the project. They began the process of developing plans, drawings, and specifications to be used to contract the project. They were guided in their preparation by FSM 2300, Chapter 2330 (Publicly Managed Recreation Opportunities). (Ex. 65).

While designing facilities and infrastructure for the construction project at Loop D, both the Landscape Architect and the Engineering Staff advised that they were not informed of any flooding issues by the District Ranger with respect to the Loop D portion of the Albert Pike Campground. Mike White, a staff officer with Engineering, stated that he had been denied a request to participate in the NEPA process and that members of the Engineering staff were not provided with copies of the EA; instead, they were only provided a copy of the Decision Notice. (Ex. 17). Although both the Architects and Engineers are supposed to play a vital role in creating the design and specifications to be used for the project, they are not necessarily supposed to have input into the environmental assessment process and are only notified to move forward once the final project decision has been made. They gave the impression during the review that they either are not free to discuss possible issues in a project or could not question or contradict the District Ranger or Forest Supervisor once a project decision has been made. The following comments were made by Forest Service personnel who were involved in the design phase of this project:

- *If the Ranger says build it, then it gets built no matter the recommendations...*(Krupa, Ex. 21);
- *...it is rare to see NEPA documents and the NEPA process would have already been completed before engineering was involved....*(White, Ex. 17);
- *...the contract would have been a perfect avenue to include the issue from the NEPA process about signing the area with warning signs about flooding. Fleming did not know why that (signing issue) didn't get entered into the contract.* (Fleming, Ex. 15);
- *...the customer (Ranger) would submit a prospectus to engineering for the project that they wanted to complete...(White Ex. 17).*

The Landscape Architect stated that he was aware of the flooding concerns with Loop C and had personal knowledge of flooding events at the site. (Krupa, Ex. 21, p. 3).

His design plans included raising or moving some of the proposed sites in Loop C due to flooding concerns that were relayed to him during the planning phase. Most of the information the Architect received on this project was verbal and very little, if any, was provided in the form of written directives. This information came from the District Ranger and possibly some information was relayed from the Engineering staff. A review of the design plans for the Loop D portion of the expansion project reveals no requirement for the raising of elevations of the finish grade of sites during the construction process to mitigate construction in the flood plain. (Krupa Ex. 21, Fleming Ex. 15, 15A).

On June 17, 2003, specifications provided by the Forest Service Engineering staff were used in contracting the project and as a guide for construction. The specifications contained no direction to post flood hazard signs in Loop D or to elevate the sites due to flood plain or flooding concerns. These specifications were used when a contract was offered on August 15, 2003, to Jim Wood Company, Inc. of Little Rock, Arkansas. Other dates and activity related to the construction of Loop D include:

- 08/19/2003 Contract No. 50-447U-3-178GB awarded to Jim Wood Company;
- 09/26/2003 Pre-work meeting with Ranger Watson and other staff members specific to the Loop D portion of the Albert Pike Construction project;
- 10/02/2003 Notice to proceed issued to engineers to begin construction of Loop D;
- 11/14/2003 Construction begins with clearing of brush, trees, etc.;
- 06/28/2004 Forest Service engineers complete the final inspection of the Loop D construction project. The project work is approved and work is accepted.

Loop D of the Albert Pike Campground was officially opened to the public on June 30, 2004. (Ex. 23). According to Forest Service records, it flooded on July 3, 2004. (Incident Report No. 7604383, Ex. 2A, p.2) This flooding incident in conjunction with subsequent flooding incidents in 2005 (Incident No. 8002688, 11/13/05), 2006 (Watson, Ex. 36, p. 4), and 2008 (Incident No. 8003050, 02/17/08 and Incident No. 7803039, 09/02/08) should have alerted the Forest Service to the existence of potential flood hazards at Albert Pike Loop D and should have prompted the Forest Service to undertake mitigation measures, such as the posting of warning signs. Furthermore, the required annual inspection should have served as an opportunity to take these flooding incidents into consideration and inspect the campgrounds for appropriate signage, so as to put the public on notice of these weather hazards. Unfortunately, the Forest Service focus in management of recreation sites is oriented more on the physical facilities and typical

forest hazards, such as hazard trees, and not on flood plain or weather hazards and notice to the public.

E. Forest Service Programs and Infrastructure Affecting Campground

1. Volunteer Host Program

The Forest Service utilized the volunteer host program to manage Loop D of the Albert Pike Campground after construction was completed in June of 2004. This volunteer program is authorized by the National Forest Act of 1972, 16 U.S. C. 558, et seq. The objectives and management of the volunteer program are outlined in Forest Service directives under FSM 1830-Volunteer Program and FSM 2331.3-Volunteer Hosts. (Exs. 53, 60 and 65).

Reuben and Cathy Cleveland were selected to perform Campground Host duties at the Albert Pike Campground from May 24, 2010, until July 4, 2010. On May 24, 2010, Caddo-Womble Recreation Technician Thomas Ledbetter met Reuben and Cathy Cleveland to provide the Clevelands with an orientation, to discuss their duties and responsibilities, review a volunteer agreement, and issue equipment and supplies. Mr. Ledbetter stated that he discussed the information contained in a voluntary services agreement with the Clevelands who agreed to the contents of the agreement and signed it. (Exs. 35, 35A, 18). The voluntary services agreement did not apprise the hosts of the fact that the site is in a flood plain, subject to flash floods, or provide guidance on emergency procedures. (Ex. 35A).

Recreation Technician Ledbetter provided the Clevelands with supplies, including maps, an emergency phone list, pay envelopes, a first aid kit, and a telephone that connected to a hard line supplied by the Forest Service. He confirmed that the telephone issued to the Clevelands was functional and worked properly by plugging the phone in and checking service. He further gave instructions to the Clevelands for dealing with situations they may encounter related to law enforcement and compliance issues involving visitors to the campground. He did not provide the hosts with a two-way Forest Service radio due to the inability of repeaters to broadcast transmissions from the Albert Pike Recreation Area. These radio problems had been reported for repair on an earlier date, but had not as yet been corrected. The fact that the Clevelands did not have a two-way Forest Service radio likely would have made no difference in the early morning hours of June 11, 2010, however, due to a lack of 24-hour FS dispatch services. (Ex. 18). During their orientation, the Clevelands were not provided with notice of the fact that the campground was located in a flood plain or prone to flooding.

Recreation Technician Ledbetter maintained contact with the Clevelands after May 24, 2010, and up to June 10, 2010. On the morning of June 10, 2010, Ledbetter remembered that only a 30% chance of rain was forecasted with the possibility of severe thunderstorms in the evening. He traveled to the Albert Pike Campground to supervise repairs to the septic system. Upon arrival at the campground, Ledbetter was contacted by the Clevelands who informed him of a complaint by one of the campers in Loop D. Ledbetter dealt with the complaint and continued his work in the campground throughout the day. He left the campground at about 3:30 p. m., after completing his duties. (Ex. 18).

A member of the Review Team conducted a telephonic interview of campground host Cathy Cleveland. Mrs. Cleveland advised that her husband, Reuben, had difficulty hearing, and therefore, the interviewer was unable to speak to him concerning the events on June 11, 2010. Mrs. Cleveland stated that on the night of the flooding event on June 11, 2010, she and her husband were asleep in their camper. They were awakened by someone knocking on their door. She answered the door and found five people who told her to contact someone "quick we are all going to drown." Mrs. Cleveland called 911 and reported the incident. This call is confirmed to have occurred at 2:38 a.m. on June 11, 2010, according to Montgomery County 911 log. (Ex. 2G). After terminating the 911 call, the Cleveland's camper began to float downstream. The camper became lodged against a gate and was restrained by their water hose connection to the spigot. Their escape was prevented due to water pressure against the door. Sometime after daybreak, the Clevelands were able to escape from their camper. (Ex. 35).

After the Clevelands were able to exit from their camper on the morning of June 11, 2010, they began to assist people who were found alive. Their desire and determination to help others even after experiencing a life-threatening event is commendable.

Another incident of flooding involving a Campground Host at Albert Pike occurred sometime in 2006 or 2007. During this incident, retired District Ranger James Watson was serving as a volunteer campground host at the Albert Pike Campground in the Loop D. He remembered an incident where the campground host in Loop C came to him because the river had risen due to flooding. The host in Loop C advised Watson that she had to evacuate campers in Loop C because the water was flooding portions of the campsites. Watson advised that this particular flood event did not compromise Loop D, but did come close. (Ex. 36).

Review Team members interviewed the Recreation Technician and current District Ranger on the Caddo-Womble Ranger District, and other Forest Service employees concerning how they provided training to the Campground Hosts at Albert Pike Recreation Area. These employees advised they were unaware that any training was

required for the volunteers. (Exs. 3, 18, 27, 60, and 57). The current District Ranger advised that it was the line officer's responsibility to provide for the health, safety, and training of employees. Both Ledbetter and District Ranger Chrismer stated they were unaware of any specific training given to the Clevelands upon their arrival at the Albert Pike Campground. (Ex. 3, 18, 22). Both stated that there is no severe weather policy for the campground or visitors at the campground, nor an evacuation plan in case of flooding.

Review Team members encountered numerous incidents of employees and/or managers having a lack of knowledge of agency directives. Some of this may be explained by the shear volume of manuals containing directives that are required of the Forest Service employees. Managers relayed information to review team members that the manual directives are the responsibility of the line officers and employees. However, most directives of the U.S. Forest Service are specific to certain functional areas, such as Engineering or Recreation. Most employees only focus on those sections of the manual or handbook that apply to their specific functional area (i.e., Fire, Law Enforcement, or Recreation), and fail to coordinate or exchange information with other staff specialists on critical issues, such as signage and public safety.

Three sections of Forest Service Manual relate to training of the U.S. Forest Service volunteers:

- *FSM 2331.3 Volunteer Hosts - Use of volunteer hosts in campgrounds are directed in FSM 1830. .... Special training and orientation for volunteer hosts is encouraged. ...* (Ex. 54);
- *FSM 1834.2 Orientation, Training and Safety- ...Provide each volunteer orientation on Forest Service history, programs, objectives, environmental quality, and public safety, as appropriate...* (Ex. 53);
- *FSM 1834.2 Orientation, Training and Safety- ...Ensure volunteers receive the necessary training to enhance their service. Each volunteer shall receive training in safe practices before and during assigned tasks (FSH 6709.11)...* (Ex. 53).

Recreation Technician Ledbetter was asked to find specific references in the Forest Service Health and Safety Code Handbook (FSM 6709.11) related to flooding. After some time, Ledbetter referenced the interviewer to section 54.25 of the FSM 6709.11 handbook. This particular section provides information specific to Safety and Flash Floods. (Ex. 57).

Section 21.04 of the Health and Safety Code states, *"it is the responsibility of the officers and supervisors" . . . "to ensure the safety of both employees and the public."* Section 11.22 provides that campsites should be chosen carefully and be free of dangers of

flash flooding. Under the flash flooding section 54.25, employees are cautioned with regard to rain and flash flood events and advised to avoid areas subject to flooding and to be especially cautious at night when it is harder to recognize flood dangers. The Forest Service, however, has failed to apply these same safety principles to the public by providing them with notice of the flood hazard at the APRA.

However, in spite of the District's noted failures to advise the Hosts that the APRA was in a flood plain and to train them for a flood contingency at APRA Loop D, it is questionable how effectual this nominal Forest Service training would have been in this particular situation. The primary measures which would have been the most effective are prior notice, early recognition and warning, and the ability of campers to react in a timely manner. The placement of Loop D in the flood plain, the storm system and extraordinarily heavy precipitation at night in a mountainous area, resulting in a 500-year flood event would have resulted in damage and losses, contingency training notwithstanding. (See, E-mail from Dr. Robert R. Holmes, Jr., USGS, Ex. 79 - 500-year flood event).

2. Cooperative Law Enforcement Agreements

The Forest Service promotes cooperative law enforcement agreements between the U.S. Department of Agriculture, the Forest Service, and County Sheriff's Departments and other related law enforcement entities. (See, Hicks MOI, 2B - 2F). The Forest Service budgets funding for these agreements annually and allocates these funds on a regional basis. The Ouachita National Forest has entered into cooperative law enforcement agreements with Sheriffs' Offices of the various counties encompassed within its boundaries.[9] Pursuant to these cooperative law enforcement agreements, state and county law enforcement agencies retain their respective state authority where their jurisdiction coexists or overlaps with National Forest System lands, and their authority is not infringed by virtue of land being designated as National Forest. (FSM 5360.1). State and local law enforcement agencies generally have the same authorities and responsibilities on National Forest System lands as they do elsewhere in their respective jurisdictions. 16 U.S.C. §480. The Secretary of Agriculture is authorized to cooperate with any State or political subdivision in the enforcement and supervision of their laws within the boundaries of any unit of the National Forest System. Forest Service Law Enforcement and Investigations Patrol Captain Jimmy Hicks is the designated Program Contact for these cooperative agreements on the Ouachita National Forest.

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[9] These agreements are based upon FSM 5300 — Law Enforcement, WO Amendment 5300-2000-10 (Effective 07/27/2000). The authorities governing cooperative law enforcement are set forth at 16 U.S.C. §§480, 551a and 553, and OMB Circular A-102.

The Forest Service recognizes state and county authorities have primary responsibility to enforce laws related to the protection of persons and their personal property. Further, the Forest Service acknowledges the subsequent need for exercising this responsibility on National Forest System lands, particularly where forest visitor use is concentrated in developed recreation areas such as the APRA (FSM 5360.12). The Forest Service has no contingency plans for emergency service, evacuation or search and rescue of visitors camping on National Forest System land and the cooperative and mutual aid agreements between the Forest Service and various law enforcement agencies do not provide for such plans. Arkansas law instead provides for emergency services pursuant to the Arkansas Emergency Services Act of 1973, Ark. Code Ann. §12-75-101, et seq. Pursuant to the Act the Arkansas Department of Emergency Management (ADEM) is the lead state agency for natural disasters (Ark. Code Ann. §§12-75-109 and 110) and is responsible for communication in delivery of emergency services in conjunction with the Federal Emergency Management Agency, other federal agencies and other state and local agencies as needed. Ark. Code Ann. §12-75-112. ADEM is responsible under state law for preparation and maintenance of a state disaster plan. Emergency Support Function No. 9 — Search and Rescue designates the Arkansas Game and Fish Commission as the lead agency for search and rescue operations within the state. (See, Emergency Support Function No. 9 — Search and Rescue, Hicks MOI, Ex. 2F).

The Review Team believes that the cooperative law enforcement agreements in effect between the Forest Service and local law enforcement entities worked relatively well to facilitate the coordination of emergency search, rescue and evacuation services to the campers at the Albert Pike campground after the flash flood incident on June 11, 2010, despite notice, communications equipment and protocol problems. Had these agreements and prior working relationship not been previously established at the time of the flood, the ability of the first responders to communicate would have been a significant problem, if not impossible. While the intent of the Cooperative Law Enforcement Agreement is to facilitate and promote mutual law enforcement interests, it provided a means for cooperative efforts of the separate entities to address a catastrophic event that exceeded the parameters of the agreement.

3. Communications

Communications equipment and procedures were a problem for the Forest Service in responding to the Albert Pike flash flood incident. The topography and remoteness of the Albert Pike Recreation Area, precludes many well-established forms of communication. The developed campsites are situated along the bottom of the Little Missouri River channel and surrounded by steep wooded hills. The recreation area is located outside of rural township limits with sparse population and lacks typical utility services of more populated rural areas and townships.

Mobile or cellular phone coverage is inconsistent in the area and virtually nonexistent in the Albert Pike Recreation Area Campground itself. Forest Service Law Enforcement Officer Tim Fincham, who frequently patrols the Albert Pike area, stated he cannot acquire cellular phone service in the campground, and has to move to other locations in the vicinity to acquire coverage. (Fincham MOI, Ex. 6; See, also, Hicks MOI, Ex. 2). This is further evidenced by the necessity of having to temporarily establish a mobile cellular phone repeater at Albert Pike Recreation Area during the search and rescue phase of the operation to facilitate cellular phone communications.

A telephone landline had been previously installed at the host campsite when Loop D construction was completed. The volunteer hosts at the campground were provided with a telephone and emergency contact phone numbers when they were given an orientation at the campground by Recreation Technician Tom Ledbetter on May 24, 2010. (Ledbetter MOI, Ex. 18). The campground host utilized this landline to place a 911 call to the Montgomery County Sheriff's Office on June 11, 2010, at 2:38 a.m. (Alford ROI, Ex. 1C, pg. 2; Hicks MOI, Ex 2 and Montgomery County 911 Log, Ex. 2G, p. 7 - ID 257979).

Similarly, the ability to communicate via two-way radios is restricted by the topography and requires an established repeater tower at a high elevation in the vicinity of Albert Pike to relay transmissions. (Hicks, Ex 2, pg. 3; Johnson MOI, Ex. 5; Fincham MOI, Ex. 6). The Forest Service has an established radio network with two repeater towers serving the Caddo-Womble Ranger District — Tall Peak and High Peak. At least five (5) Forest Service employees interviewed by the Review Team reported a malfunction with the High Peak repeater and stated that the repeater tower had been malfunctioning for approximately six (6) months prior to the June 11th flood incident. (Hicks MOI, Ex. 2, Johnson MOI, Ex. 5, Fincham MOI, Ex. 6; Ledbetter MOI, Ex. 18, Chrismer MOI, Ex. 22 and Gross MOI, Ex. 26). The High Peak repeater is the primary tower for transmitting and relaying radio communications to and from Albert Pike. Both District employees and Forest Service Law Enforcement employees are dependent upon this same repeater to transmit and receive communications on the Forest Service radio network. Employees stated that the High Peak malfunction had been reported months prior to the event and were advised to utilize the Tall Peak repeater tower. Forest Service employee Thomas Ledbetter reported the malfunction to Yasmir Diaz, an electronics technician, in late April and again around May 1, 2010. (Ledbetter MOI, Ex. 18). Diaz advised that the Caddo-Womble District needed a new radio. A new radio was acquired, but did not solve the communications problem. Ledbetter again reported the malfunction and Diaz worked on the High Peak repeater. The remedial steps taken remained ineffectual at Albert Pike, however, because transmissions to and from a hand-held radio at Albert Pike Campground still could not be relayed via the High Peak repeater. Therefore, Ledbetter did not issue the campground host a hand-held radio. While the Tall

Peak repeater adequately serviced much of the District, it could not sufficiently function as an alternative repeater for the Albert Pike area.

The Ouachita National Forest and Forest Service Law Enforcement Officers work with the Montgomery County Sheriff's Office joint dispatch, which provides communications and shared resources with Federal, State and local agencies in the Montgomery County area. This is an important method of communication in the county, due to the lack of cell phone signal availability in this area. In some areas, including the Albert Pike Campground, local terrain does not always allow for effective radio coverage as well. Forest Service Law Enforcement Officers have the ability to communicate with the Montgomery County Sheriff's Dispatch on county law enforcement and emergency radio frequencies per a memorandum of understanding contained in the previously referenced Cooperative Law Enforcement Agreement. (Hicks MOI, Ex. 2 and 2C). This communication capability is restricted to law enforcement; however, utilizing both dedicated county frequencies and a channel on the State AWIN (Arkansas Wireless Information Network) radio network. (Duren MOI, Ex. 33). These radio communications can be transmitted and received from the Albert Pike Recreation Area most of time, since they are relayed through a repeater system other than the Forest Service High and Tall Peak tower repeaters utilized by the Forest Service. There were no Forest Service Law Enforcement personnel on duty or at Albert Pike Campground in the hours preceding and during the flood event on June 11, 2010, however, and neither the campground host, nor the public, had access to radio communications with emergency services during the flood event.

Although some news reports questioned why a NOAA National Weather Service (NWS) weather radio was not issued to the volunteer host and used to alert the campers, topography at the Albert Pike Recreation Area would have likely precluded weather radio reception. Furthermore, John Robinson of the National Weather Service stated that the NOAA tower covering the Albert Pike fell in October 2008 and had to be replaced with a temporary tower. The temporary tower has reduced signal strength and coverage and the broadcast cannot reach the Albert Pike Recreation Area. (See, June 22, 2010 e-mail, Subject: NOAA Weather Sites, Ex. 14, p. 5).

Even with the Cooperative Law Enforcement Agreement in place, however, notification or alert of the Forest Service Law Enforcement officers was a problem. The Forest Service law enforcement officers could only be contacted by telephone. The Forest Service does not have a 24-hour dispatch center or 24-hour dispatch services outside of the fire season. Additionally, Forest Service Law Enforcement is neither structured for, nor has the resources to commit personnel to a 24-hour dispatch or ready-response availability. (Hicks MOI, Ex. 2, p. 3, Chrismer MOI, Ex. 3, Johnson MOI, Ex. 5). Forest-wide dispatch needs are not satisfied throughout the year because the temporary

availability of dispatch services is solely dictated by the Forest Service's focus on fire season. The Montgomery County 911 log shows that Dispatch received the emergency call from Campground Volunteer Host Cleveland at 2:38 a.m., Friday, June 11, 2010 (Hicks MOI, Ex. 2G, p. 7). Captain Hicks could only be contacted *via* telephone by the Montgomery County Sheriff's Dispatch once the emergency calls for assistance came in. (Hicks MOI, Ex. 2, p. 2). Captain Hicks did not receive the emergency call with regard to that message from the dispatch until 3:04 a.m. (per Montgomery County Sheriff's Dispatch Log), almost 26 minutes later. (Hicks MOI, Ex. 2G, p. 7, line 4 ID 257982). (When interviewed Hicks said, he thought he received the call at about 3:15 a.m. Hicks MOI, Ex. 2). The other Forest Service Law Enforcement Officers were contacted in the same manner, but not until 9:44 a.m. (Johnson MOI, Ex. 5) and 6:10 a.m. (Fincham MOI, Ex. 6) that morning. Furthermore, none of the Law Enforcement Officers could contact each other directly utilizing the Forest Service radio network, which is dependent upon the High Peak repeater, but rather only through the Montgomery County Dispatch. Communications between Forest Service Law Enforcement and District responders were further hampered once Captain Hicks reached the site and began search and rescue operations because of the site's location and the malfunctioning radio tower repeaters. It wasn't until state and local police and other emergency responders arrived that communications were adequately established.

Communication was and is clearly a problem on the Forest that must be addressed to enhance emergency response capability and improve response time, not only in fire, but also in weather related or law enforcement emergencies.

F. Weather and Early Warning System

According to the National Weather Service (NWS), a flash-flood watch was issued at 11:58 a.m., Thursday, June 10, 2010. This watch was set to remain in effect until 7:00 p.m., Friday, June 11, 2010. A watch is defined by the NWS as a "hazard having a probability of occurrence that is greater than 60% for the area." Watches generally cover a larger area than warnings. In the case of thunder storms, less than 30% of the watch area may experience the hazard. Watches are usually given 1 to 2 hours before the event begins. With flash floods, it can be 3 to 12 hours. A flash flood warning means "the hazard is imminent and the probability of occurrence is extremely high." Lead time for thunderstorm events is generally 30 minutes or less. National Weather Service *"A Guide To Developing a Severe Weather Emergency Plan."*

Although the United States Geological Survey (USGS) has a water gauge located on the Little Missouri River at the Highway 84 bridge near Langley, Arkansas, it is only a data gauge according to USGS Hydrologist, Robert R. Holmes, Jr., Ph.D., and does not have an alarm or automatic messaging system for purposes of notifying law enforcement

or emergency services of fast rising water. (Holmes MOI, Ex. 4). Holmes stated that water gauges operated and managed by USGS can be used as early warning mechanisms for flooding events and set up to send text messages, radio alarms, or audio alarms to alert the public or emergency responders to potential flood events. The one at Langley, Arkansas, is not this type, however. It only collects data. The data from the gauge can be accessed at the USGS website, but Holmes stated that the data is not "real time data." The gauge only records water level and discharge rates every fifteen (15) minutes and the data is downloaded once an hour. He confirmed that the website data could be as much as fifty-nine (59) minutes delayed. He stated that at the peak of the flooding event on June 11, 2010, the water level on the Little Missouri rose as much as eight (8) feet in one hour. (Holmes MOI, Ex. 4, p.2). Even if the Langley gauge were designed with an alarm for high water levels, however, it would not have saved any of the campers at the Albert Pike Campground because it is located 8.9 miles down river from the campground and would have only sounded after the Albert Pike flash flood event. (Frank Chrismer MOI, Ex. 2 - 9, Ex. 45, 45A and 45B). Thus, in order for an alarm system to be effective, the gauge or triggering mechanism would have to be located upstream of the APRA.

Neither the Ouachita National Forest nor the Caddo-Womble Ranger District, has an actual "Early Warning System," as is contemplated in the use of a water level gauge with alarm or an "Emergency Warning Plan" as it pertains to severe weather. (Hicks MOI, Ex. 2, pg. 2, Chrismer MOI, Ex. 3, p. 1, Deimel MOI, Ex. 11, and Wagoner MOI, Ex. 40, p.2). The Forest also does not have a weather policy or weather warning procedure or requirements in place for notifying visitors of severe weather conditions, other than the one used by the Forest Service during the "dry season" with regard to forest fires. (Chrismer MOI, Ex. 3 and 22, p. 2, Deimel MOI, Ex. 11, Wagoner MOI, Ex. 40, p. 2). The District Ranger and other Forest Service employees have noted that they monitor the weather 24 hours a day during the dry season and will go out and warn campers, if the chance of fire is high, but there is no similar policy for monitoring severe weather 24 hours a day during the remainder of the year. The District Ranger stated that she is certain that Forest Service employees under her supervision would warn campers anywhere in the District if weather conditions warranted it, and they have in the past, but their procedures do not require monitoring the weather 24 hours a day during other times of the year and they have no set policy on notifying campers with regard to the weather at those times. (Hicks MOI, Ex. 2, p. 2 and Chrismer, Ex. 3, p. 2). Recreation Technician Ledbetter states that he remembers notifying campers on previous dates of pending bad weather due to hurricanes. (Ledbetter, Ex. 18, p. 3). There is a severe weather policy on the Forest and the District, but it applies to Forest Service employees and not the public. (Chrismer, Ex. 22, p. 2, Deimel, Ex. 11). In this case, the District Ranger stated that she knew of the flash flood watch when she went to bed on June 10, 2010, but was not required to notify the campground host or law enforcement personnel that a watch was in effect. She said weather watches are issued frequently and typically are of little consequence. Even the

National Weather Service states that watches only affect 30% of the area covered by the watch.

The Forest Supervisor acknowledged that no emergency procedure or plan was in place for warning campers of hazardous weather or flash flood events at the time of the incident on June 11, 2010. (Wagoner, Ex. 40, p. 2). On the other hand, the Ouachita National Forest: (1) provided callers who contacted the Caddo-Womble Ranger District office, expressing an interest in camping, with weather information for the area on June 10th with notice of the flash flood watch potential for the area; (2) provided current weather conditions for each Ranger District via the Ouachita National Forest website; and, (3) provides bulletin board notices within the Albert Pike Recreation Area advising visitors to watch the weather conditions and exercise caution.

When the Review Team inquired into what information is provided to callers who contact the Caddo-Womble Ranger District, it was advised by two employees who answer those calls that in general hikers call the district to inquire about weather more often than campers. (Hill MOI, Ex. 19, Price MOI, Ex. 20). Hill says that one person called the week of the flooding incident and inquired about hiking at the Eagle Rock Loop Trail. She told him there was a chance of rain on Wednesday and Thursday that week and that if it rains the water in the streams comes up fast and to be careful. (Hill, Ex. 19). Price did not indicate that anyone had called her during the week of June 11th. (Price, Ex. 20). Both indicated that they receive more calls from hikers than campers regarding weather. They said that campers generally only ask about availability of camp sites in Loop D and whether or not the camp sites have electricity. They refer the callers to the campground host to answer those questions. The information provided by the Forest, of course, would not have been of much assistance to those already camping at the Albert Pike Campground.

The weather event in question arose between the hours of 11:00 p.m. on June 10, 2010, and 5:45 a.m. the morning of June 11, 2010. (Alford ROI, Ex. 1C, p. 1, 6-7 of 20). Although campers might have accessed the Ouachita National Forest website if they had a computer or cell phone and could get a signal to access the website, which they could not, it is unlikely that they would have done so in the middle of the night. Finally, the bulletin board or kiosk at Loop D of the Albert Pike Campground had one notice: *"Tips for Responsible Hikers,"* which advised them to *"check weather conditions prior to hiking."* This kind of warning has obvious limitations in terms of advising campers of the possibility of a flash flood event. (Ex. 45, p. 9, P17). Furthermore, relying solely on a standard warning posted on a kiosk is reactive in nature and requires the Forest visitor to contact the District Office to obtain severe weather information or warnings.

One of the stated objectives of the Forest Service policy regarding signs and posters is to provide information for the safety of Forest visitors. (Ex. 52). FSM 2527.5 (Posting of Past and Probable Flood Heights) calls for the posting of flood hazard signs to enhance public awareness of flood hazards by placing appropriate signs and notices showing the highest flood level and probable 100-year flood height. (Ex. 55, p. 41 of 44). Neither the flood hazard warning signs nor notices were posted at the Albert Pike Campground as provided for in Forest Service EM-7100-15, section 13.2. (Ex. 68). That same section of the Forest Service Manual provides that the Forest Service will post supplementary information posters or bulletins as needed for visitor information; however, such signs or warning posters were not posted at the Albert Pike prior to the June 11, 2010, flood event.

The Review Team is of the opinion that proper signs and posters would have given prior notice to campers at the Albert Pike Campground of the fact that the campground is located in a flood plain and has a history of flooding. While such signs and/or posters are necessary and should constitute a part of an early warning system they should not form the entire basis of a warning system at the Albert Pike Campground. Warning signs may or may not have given campers at the Albert Pike Campground a reason to pause in making a decision to stay, or camp overnight at the campground; however, at a minimum, warning signs and/or notices can provide visitors with the necessary information to make an informed decision for themselves.

G. Flooding Incident of June 11, 2010

On June 10, 2010, high pressure began building over the Southeast United States and a storm system aloft moved slowly around a high from northeast Texas into southwest Arkansas. (NOAA NWS Report, ROI Ex. 1 C, p. 6-7 of 20). According to the National Weather Service, a "flash flood watch" was issued at 11:58 a.m., Thursday, June 10th. This watch was set to remain in effect until 7:00 p.m., Friday, June 11, 2010. A watch means a flash-flood is possible in the area. The system brought heavy rain to the area. The National Weather Service issued a "flash flood warning" at 1:57 a.m., Friday, June 11th. A warning is issued when a flash flood is imminent or occurring in the area. Rainfall totals through 7:00 a.m. CST, June 11, 2010, included 6.83 inches at Mount Ida (Montgomery County), Arkansas, 6.78 inches at Hopper (Montgomery County), Arkansas; and, 6.55 inches at Glenwood (Pike County), Arkansas. (Ex. 1C, p. 6). The NWS estimated 6-8 inches of rain fell on the Albert Pike in the 24-hour period ending at 7:00 a.m. on June 11, 2010. (Ex. 1C, p. 6).

The USGS data shows that between 11:30 p. m. on June 10, 2010, and 3:10 a.m. on June 11, 2010, the Little Missouri River rose 20 feet cresting at more than twenty-three feet (23.46) 8.9 miles downstream from the Albert Pike Recreation Area. (Exs. 1C, p. 6-11 of 20, 29, 45, 45A and 45B). The discharge rate went from 78 ft/second to an

undetermined value exceeding 20,000 ft/second at the Langley water gauge. USGS employees estimated preliminary measurements for the discharge rate at Loops C and D of the Albert Pike at 60,000 ft/second. (Ex. 1C, p. 6-7). This was the highest recorded flood level on the Little Missouri River since the U. S. Geological Survey began recording data in 1988. It created a flash-flood at the Albert Pike Recreation Campground, resulting in the deaths of twenty (20) campers on the Forest (seventeen from Loop D and three from a dispersed camp site above Loop D), and extensive damage to the campground and personal property. (Alford ROI Ex. 1, 1A, 1B, p. 2, 1C, 1C, p. 4-5 of 20).

H. Emergency Response

At 2:38 a.m., Friday, June 11, 2010, the Campground Volunteer Host at Loop D called 911 *via* hardline telephone and reported that the campground was flooding. (Hicks MOI, Ex. 2G, p. 7, line 1, ID 257979). Montgomery County Sheriff's Office Dispatch contacted/notified County Fire and Rescue Units at 2:44 a.m., July 11, 2010, and then U.S. Forest Service Patrol Captain Jimmy D. Hicks at 3:04 a.m. on June 11, 2010. (Montgomery County Sheriff's Dispatch Log). (Hicks MOI, Ex. 2C, p. 7, line 4 ID 257982).[10] The message that Hicks received was that campers were floating down the river. Captain Hicks related in a later interview that the dispatcher told him that they had received a call from off-duty Arkansas State Trooper Brady Gore. (Hicks MOI, Ex. 2). Gore reportedly owns a cabin on private property downstream from the Forest Service Albert Pike Campground and had made the call. At 3:13 a.m. the Pike County Sheriff's Dispatch received a call reporting campers floating down the river from Albert Pike Campground. (Ex. 2H, line 9). At 3:33 a.m. the Montgomery County Sheriff's dispatcher received a call reporting that campers were still floating down the creek and some cabins were getting ready to dislodge into the water, too. (Ex. 2G, p. 9, line 2). Both calls are believed to have been made by off-duty Arkansas State Trooper Gore.

Patrol Captain Hicks was en route to the Albert Pike Campground at 3:37 a.m. proceeding west on Arkansas Highway 84. Hicks traveled toward Langley, Arkansas in heavy rain, but was stopped at Little Blocker Creek by high water across the creek's bridge. He placed a stick in the water to see when the water started to recede. It was almost 45 minutes before he was able to pass. (Ex. 2 and 2G, p. 9, lines 3 and 5). He turned north at Langley and proceeded toward the Albert Pike Campground on Highway 369, but encountered three (3) mudslides across the road. He was able to finally get around two by scraping the guard rail on the left side of the road, but the last slide contained a tree that jammed under his vehicle's door. With a chopping axe from his law

[10] When interviewed, Hicks said he thought he received the call at about 3:15 a.m. (Hicks MOI, Ex. 2).

enforcement vehicle he was able to remove enough of the tree to pass in four-wheel drive. (Hicks MOI, Ex. 2). He arrived at Loop D of the Albert Pike Campground at 5:34 a.m. Captain Hicks was the first rescuer to arrive at the site. As he neared Loop D, he saw a pickup truck in place horizontally across the road. Occupants of the vehicle included a man, two women, and a very young child. The man had a serious leg injury and was going into shock. Hicks retrieved a blanket from his vehicle, covered the man and proceeded on into the campground. He saw that fatalities had been sustained and discovered survivors wandering around dazed and others in trees. He immediately began communications through the Montgomery County Sheriff's dispatch to request they contact Forest Service Law Enforcement Officers and Forest Service crews to assist.[11]

[11] Although the Ouachita National Forest has a Serious Incident/Fatality Contact Protocol and Contacts List (Ex. 1 OB-4), communications were poor when Captain Hicks first arrived at the Albert Pike and protocol was only followed through the first few contacts (i.e., Volunteer Host, 911, Forest Service Patrol Captain). Exigent circumstances and poor communications caused the protocol to be abandoned after that. (Hicks, Ex. 2 and Nichols, Ex. 10). District Ranger Chrismer was contacted on June 11, 2010, at 6:30 a.m. and the Forest Supervisor later that morning.

Hicks stated that Campground Host Reuben Cleveland approached him right after he got to the site and they began to move survivors to the bath house at Loop D. By this time other emergency responders had arrived to include the Langley Fire Department, Arkansas Game and Fish Wardens, and Mike Graves with a local wrecker service. He had Mr. Graves contact Forest Service employee James Fryar. (Hicks MOI, p. 2). At 7:28 a.m. a Forest Service Incident Command (IC) was established with James Fryar assuming command as a Type III (ICT3) Incident Commander pursuant to FSM 5100, Chapter 5130 and the National Interagency Fire Center Guide, Chapter 11 (Incident Management & Response) (Ex. 10I). Fryar immediately began requesting and assigning Forest Service tactical resources to assist in the overall operation. (Nichols MOI, Ex. 10). A unified command was subsequently established between Forest Service Law Enforcement personnel, Pike and Montgomery County Sheriff's Offices and the Arkansas State Police to secure the site, aid those injured, remove bodies of the victims, and start search and rescue operations. (Ex. 10, 10-Al, 10C-6).

A total of twenty (20) people died in the flooding incident (ROI Ex. 1C, p. 1-5 of 20) and at least five (5) were transported to local hospitals via ambulance services with non life-threatening injuries. (Ex. 42 and 43).

On Saturday, June 12, 2010, the ICT3 transitioned to a Type 1 Command taken over by the Southern Region Blue Team with Mike Quesinberry appointed as the IC Commander. (Nichols 10, P. 2). See, also, Delegation of Authority Letter dated June 12, 2010. (Ex. l0B-I). The Blue Team then took over responsibility for coordinating Forest Service personnel and equipment support to state and local authorities, so as to enhance the search and rescue operation, while managing delivery with as little environmental damage to the Forest as possible. (Ex. l0B-I). ICT1 issued an incident action plan and summary on June 14, 2010. (Ex. 10D-4 and 5). It also coordinated transportation and air support for the operation and for visiting dignitaries Senator Blanche Lincoln, Senator Mark Pryor, Congressman Mike Ross, Secretary of Agriculture Tom Vilsack and Forest Service Chief Tom Tidwell, who were joined by USDA Forest Service Southern Regional Forester Liz Agpaoa and Ouachita National Forest Supervisor Norman Wagoner for a tour of the site.

Some of the ICT1 goals and objectives are included in a document entitled *"Albert Pike Restoration Guidelines."* (Ex. 10D-2). They include determining the integrity and long term usability of the associated infrastructure at the Albert Pike Recreation Area, including: roads, bridges, culverts, structures, and capital improvements. Damage to the Albert Pike Recreation Area is described in a damage assessment issued by the Incident Command. (Ex. 10B-5). All four loops were extensively damaged, but Loop D is described as receiving the greatest amount of damage with all eight full service camp sites completely destroyed and the bathhouse inundated with water to a level of approximately fifty-two (52) inches. (Ex. 10B-5, p.2, 10C-3). Blue Team Information Officers

coordinated support to flood victims, family, and community members hosted at the local community center, as well as media support and information disseminated at the Incident Command Post in Langley, Arkansas. (Exs. 10B-3, 45, 45A and 45B).

On June 16, 2010, the Blue Team Incident Commander returned authority and responsibility for managing incident activities back to the Ouachita National Forest. (Ex. 10E-1 and 2). Management of the incident was then delegated to Ben Rowland, who became the Incident Commander and the command reverted to a Type 3 command. (Ex. 10F). By letter dated June 17, 2010, Ben Rowland was delegated authority for completion of the preliminary hazard review and to commence cleanup and rehabilitation of the Albert Pike Recreation Area. (Ex. 10F).

Beyond initial problems in notifying personnel who were off-duty and with communications after the fact, Forest Service Law Enforcement performed admirably in responding to the Albert Pike Flash Flood Incident. This is particularly true of Patrol Captain Jimmy Hicks, who not only responded immediately to the Montgomery County Sheriff's Dispatch call, but went to extraordinary lengths in reaching the flood site and providing assistance to survivors before any other emergency responders. He took control at the site, assessed the situation, and initiated coordination between Forest Service and emergency responders as they arrived and began to join in the search and rescue effort. Other Forest Service Law Enforcement Officers also performed admirably once they received notification of the emergency. The fact that the Forest and District did not have an emergency or evacuation plan, which might have been of assistance for coordination purposes, did not detract from the emergency response provided.

Volunteer campground hosts Reuben and Cathy Cleveland also performed exceedingly well under the circumstances and considering the modest orientation and minimal training they were provided. Cathy Cleveland had the wherewithal during the flood to call 911 and apprise the Montgomery County Dispatcher of exactly what was happening. It is her call that started the emergency response. And having just survived the flood, Reuben Cleveland was still able to establish contact with Patrol Captain Hicks and begin assisting him in relocating survivors to a safer location, first at the Loop D bathhouse and then to the private store on the higher ground.

Although the Cooperative Law Enforcement Agreement (Ex. 2C) with the Montgomery County Sheriff's Department did not specifically provide for an emergency situation of this type or scope, nor did it contain an evacuation plan, there can be no doubt that the agreement and the Memoranda of Understanding regarding law enforcement jurisdiction and radio frequency use contributed to the overall level of cooperation and coordination between the law enforcement personnel in their timely response to the emergency. The incident command system also added personnel and overall organization

and coordination to the operation for Forest Service purposes, even though it is more specifically designed for interagency response to fire operations when the Forest Service is the lead agency rather than search and rescue or emergency situations.

III. FINDINGS

Based on an extensive review of the record, the Review Team makes the following findings about the tragic flood at the Albert Pike Recreation Area and the manner in which the Forest Service responded to the event.

A. Anomalies in the NEPA process and procedures used to arrive at the Decision Notice may have prevented a full consideration of the facts and opinions of the inter-disciplinary team assembled to support the campground project.

The District Ranger erred in authoring both the Environmental Assessment and the Decision Notice for the Albert Pike Recreation Area project. In doing so, he disregarded some of the input provided by the inter-disciplinary team and ignored previous flooding history for the area.

B. Anomalous methods were used to determine the 100-year flood elevation for Loop D.

The Ouachita Forest Hydrologist utilized an unauthorized method for determining the 100-year flood plain elevation at the proposed location for Loop D and failed to mark the elevation as established, thus allowing the District Ranger to erroneously conclude that the proposed construction would be above the 100-year flood elevation line. This allowed construction to continue without consideration and implementation of recommended mitigation measures as required by the National Environmental Policy Act, Executive Orders and Forest Service directives.

C. The Ouachita National Forest failed to post flood hazard warning signs and notices at the Albert Pike Campground even though there was an established record of flooding at the Albert Pike Recreation Area and Forest Service guidelines called for the posting of such signs.

The Ouachita National Forest failed to post flood level and hazard warning signs and posters, as required by Forest Service safety and sign directives, and thus failed to provide the public adequate notice of the possibility of flash flooding at the Albert Pike Recreation Area. Furthermore, the Review Team believes the facts establish that the Forest Service is inconsistent in its coordination and implementation of its signage policy as it pertains to recreation areas.

D. The Ouachita National Forest failed to correct known communications problems at the Albert Pike Recreation Area.

The Ouachita National Forest failed to remedy High Peak repeater deficiencies satisfactorily and in a timely manner, so as to provide for effective radio communications at the Albert Pike Recreation Area during the emergency. Additionally, the absence of 24-hour dispatch services or monitoring did not permit the receipt of weather notices in a timely manner or notice to the volunteer host or other Forest Service employees. Finally, even though the Forest Service does not issue weather radios, no notice would have been available to the hosts or campers at the campground due to the loss of the NOAA primary tower and inability of the secondary tower signal to reach the Albert Pike Recreation Area.

E. The Volunteer Hosts at the Albert Pike Campground were not adequately trained or prepared for an emergency situation, including a flash flood.

Forest Service directives for training volunteer hosts were not fully followed or documented. Specifically, the hosts at Loop D of the Albert Pike Campground were not advised of the fact that the recreation campground is located in a flood plain or subject to flash flood hazards or trained to contend with a flash flood or emergency incidents.

F. Forest Service Employees in Region 8 and on the Ouachita National Forest do not have adequate knowledge of Forest Service directives and policies related to flood hazards and mitigation requirements.

Forest Service Employees were not readily aware of directives regarding public safety and flash flood hazards and failed to take into consideration or implement directives from the proposal and planning stage of Loop C and D through current daily operations.

G. The Forest Service failed to develop a contingency plan or other mitigation steps to deal with a major flooding event at the Albert Pike Campground.

The Ouachita National Forest had documented incidents of prior flooding resulting in damage in or around the APRA prior to the June 11, 2010 flood. It failed to act upon these incidents by taking precautionary measures. Several employees from the field level to upper management failed to mitigate potential life threatening dangers associated with flooding. The Ouachita Forest Supervisor's Office and Caddo- Womble Ranger District personnel continue to ignore recurring flooding events and have failed to properly mitigate flood related hazards. The Ouachita Forest Supervisor's Office and Caddo-Womble District failed to develop an action plan for public safety in severe weather and historically recognized flood events at the APRA. In large part the Review Team attributes this failure to a localized mentality and work-culture attitude by Ouachita employees who are personally familiar with weather patterns and ensuing conditions with a view of personal safety, but do not translate and apply that knowledge to public safety mitigation as a program.

H. Given the unprecedented magnitude of the flash flood on June, 11, 2010, it is unclear whether any effort by the Forest Service to

mitigate the disaster would have made a significant difference in preventing the tragic loss of life that occurred as a result of the flood.

Despite the Review Team's many findings that the Ouachita National Forest failed to implement adequate safety measures, including the posting of warning signs and the provision of training for the campground hosts, it is not clear that any measure would have prevented the loss of life on June 11, 2010. The Review Team is mindful of the historic and unprecedented nature of the flash flood, which exceeded by several magnitudes any previously recorded event at the APRA. Moreover, the rapidity of the rise in the water level in the Little Missouri River, combined with the difficult topography and other challenging conditions, makes it difficult to see how anyone could have responded in a timely and effective manner even if communication conditions had been improved. Of course, the most preventive measure the Forest Service could have taken would have been to never develop Loop D in the first place. However, based on historical usage, the desire of the public to camp in this pristine setting may have drawn campers to the area designated as "Loop D,"whether it was developed or not and whether or not the Forest Service had posted flood plain and hazard warning signs.

I. The emergency response effort by Forest Service and Forest Service Law Enforcement personnel was at times valiant and effective, particularly in view of the treacherous conditions these first responders encountered.

The emergency response, initially by U. S. Forest Service Law Enforcement Officers and then by District and Forest employees, was commendable. They took charge within the parameters permitted or required under the cooperative agreements with state and local agencies and went to extraordinary lengths to assist in both the search and rescue phase of the operation and then in stabilization and recovery.

IV. CONCLUSION

"Nationally, flooding is the number one weather related killer, averaging 150 deaths per year. Half of these deaths occur in automobiles. Never enter flooded waters! If caught in rising water, abandon your vehicle immediately and move to higher ground."

"While new technology has enhanced the meteorologists' ability to issue a timely warning, it will be of little use if the people do not receive the

warning or receive the warning, but do not know what safety actions to take."

— Barbara McNaught Watson, Warning Coordination Meteorologist with the National Weather Service, Baltimore-Washington Forecast Office[12]

12 *A Guide to Developing a Severe Weather Emergency Plan for Schools* (undated)

While the circumstances on June 11, 2010, at the Albert Pike Recreation Area do not represent the typical motorist encounter of flood waters as described by Barbara McNaught Watson, many of the same principles apply. It is understandable that campers in both dispersed and developed sites initially sought refuge from the rain and weather in their automobiles and camp trailers on June 11, 2010. These are customary means of security and protection under most circumstances, particularly during inclement weather conditions while camping. It is a reasonable expectation in most people's experiences to seek shelter in their vehicles. However, the rapid rise and extraordinary volume of ensuing water exceeded everyone's expectations. Moreover, any chance of escape or rescue was complicated by the timing of the flood and the fact that it occurred in the middle of the night, during sleep hours, and at a time of darkness, preventing visual recognition of the rapidly evolving situation. This unprecedented water level exceeded all historical data, and thus the flood overwhelmed any ability to anticipate or immediately respond, as reflected in numerous statements by Forest Service and USGS employees.

The unprecedented nature of the event is underscored by the fact that the USGS gauge downstream from Albert Pike was only intended by USGS to measure an anticipated maximum river flow rate of 20,000 cubic feet per second, while USGS estimates place the flood event of June 11, 2010, at approximately 60,000 cubic feet per second, which was a 300% greater capacity than maximum ability of the gauge to measure. Finally, the magnitude of the event was confirmed by USGS Hydrologist Robert Holmes, PhD., who determined that the event of June 11, 2010, was "greater than a 500-year flood event." (Ex. 79).

These facts support the conclusion that flash floods are highly unpredictable, and are best mitigated by early recognition and warning of general weather conditions that may contribute to flooding events. There is no substitute for avoiding low-lying areas and alluvial plains and channels prone to water flow and flooding during severe weather conditions. Thus, any practicable suggestions and recommendations to mitigate future flooding impacts at the Albert Pike Recreation Area must recognize this. Therefore, if use and occupancy (i.e., camping) is to continue at Albert Pike, it should be acknowledged that future flooding events in the Little Missouri River channel are inevitable. Prior notice and an effective evacuation plan or contingencies for a 100-year flood event may be reasonable and realistic only if precipitating conditions are identified in a timely manner, an action plan is promptly activated, and the plan is adhered to by forest visitors. A contingency plan for a 500-year flood event similar to that of June 11, 2010, will demand even greater prior notice, and immediate action on the part of forest visitors, exceeding the urgency of a 100-year flood event, with no expectation of outside assistance delivered in a timely manner (i.e. designate escape route and safety zone on the hill side).

The flood event of June 11, 2010, resulted in the entire river channel of the Little Missouri River being inundated with water from hillside to hillside throughout the portion of the channel in which Loop D was located. The Forest Service road accessing the campground was consequently covered in several feet of water, thus, precluding any possibility of evacuating the area in a wheeled motor vehicle. The only viable alternative under the circumstances was to escape to higher ground on foot. The magnitude of the flood exceeded all expectations. There would have been no mitigation measures that could have been constructed, nor effectually

implemented in this particular case to have affected a different result, other than early recognition of precipitating conditions and immediate movement to higher ground. In spite of the original decision to construct Loop D and the noted anomalies in Forest Service procedure, the Review Team finds it reasonable to say that if the Forest Service could have conceived that a flood event of this magnitude would completely inundate Loop D, then it would not have constructed Loop D. While mitigation measures may be devised and implemented for flood events of a lesser magnitude, it is unanimously agreed upon by the Review Team that the event of June 11th was an insurmountable act of nature. Furthermore, the Review Team, as well as Forest Service employees, surmise that casualties were minimized by the fact that Loop C was still being refurbished and was unoccupied on June 11, 2010 due to construction activities. Had Loop C been occupied by forest visitors on June 11th it is reasonably concluded casualties and property losses would have been significantly higher. Therefore, while the focus of this review and inquiry has primarily been upon Loop D, it is imperative that future considerations include Loop C, and that Forest Service management envision a flood event scenario at which time both Loops C and D will be occupied.

The Review Team therefore concludes that while the event of June 11, 2010, at the Albert Pike Recreation Area Campground was tragic in its final result, it would have been difficult to anticipate or plan for, since construction planning only considers 100-year flood events and does not take into consideration 500-year flood events.

V. RECOMMENDATIONS

A. Signing

1. Conduct an assessment of all Forest Service recreation areas that have a potential for flash flooding and determine the need for hazard signage.

2. Post those sites identified as having flash flood potential consistent with current Forest Service guidance.

3. Post flash flood guidance and guidelines as enumerated in Forest Service Handbook 6709.11 Health and Safety Code Handbook at kiosks and signs in riparian recreation areas.

4. Post flood hazard signs at ingress and egress points to dispersed campsites, accessed by motor vehicle traffic, prone to flooding.

5. Post instructions directing forest visitors to a pre-established safety zone with a clearly marked route leading to the safety zone on the hill side across from the parking lot of Loop D. Draw forest visitors' attention to the purpose and availability of a safety zone, specifically tailored to Albert Pike Loop D situation.

6. Establish a monument/memorial commemorating the loss of twenty campers on June 11, 2010, while using the monument to educate forest visitors to the flooding hazard in the Albert Pike Recreation Area, and appropriate responses. The monument could additionally be located at the high water mark from June 11, 2010, to serve as a 500-year flood level marker.

7. Test the reception of available local radio stations, and post those available AM/FM radio station frequencies on kiosks at Albert Pike Campground and all similarly situated developed campgrounds.

B. Safety Zone

1. Establish a bench or shelf on the hill side opposite the parking lot at Loop D as a designated safety zone with a path leading to it with signs advising campers to utilize this route to the safety zone in sudden high water or flash flood conditions rather than attempting to seek shelter in a vehicle or camp trailer. This measure is specific to Albert Pike Loop D, and may not apply to other developed campgrounds. (An evacuation plan to egress the area completely under similar conditions will not be a viable or realistic option. Immediate action will require immediate measures. The water level on the June 11th event spanned the river channel from hillside to hillside, and inundated the Forest Service road with several feet of water. Such conditions preclude the time or means to access or egress the area via a motor vehicle).

C. Communications

1. Fund/grant National Oceanic and Atmospheric Administration (NOAA) to install a repeater at High Peak that will adequately transmit broadcasts to the Albert Pike Recreation Area.

2. Address U.S. Forest Service repeater issues at High Peak as a priority and issue campground host(s) a handheld radio.

3. Issue host(s) a NOAA weather radio with weather warning alarm capability, (contingent upon availability of NOAA broadcasts at Albert Pike).

4. Program host-issued Forest Service radio with NOAA frequencies (contingent upon availability of NOAA broadcasts at Albert Pike).

5. Re-establish a telephone landline at the Forest Service host site.

6. Test the functionality of, and accordingly issue host(s) a satellite phone.

7. Forest Service Management should re-evaluate Forest Service fire dispatch services and redirect the dispatch services to include weather early warning and other services, and expand availability to U.S. Forest Service employees beyond the narrower scope of fire detection, suppression and support.

8. Post local emergency telephone numbers other than 911.

D. Early Warning Systems

1. Establish an early warning high water monitoring station up stream from the Albert Pike Recreation Area in cooperation with U.S. Geological Survey (USGS), equipped with an audible warning signal/siren and messaging system. Provide signing at developed sites that notify forest visitors of the significance and purpose of the audible alarm, and appropriate action to take (i.e. retreat to pre-designated safety zone on hill side, etc.).

2. Designate a U.S. Forest Service employee as on-call to be responsible for monitoring weather alerts (watches and warnings) and be responsible to ensure proper personnel and hosts in developed recreation sites are notified.

E. Training

1. Advise volunteers of work/living conditions in flood plains. Orient Forest Service host(s)/all volunteers to flash flood and high water hazards, conditions, early recognition, and response. Document all training efforts.

2. Develop a flood hazard/flash flood alert and action plan and train host(s) and employees to activate plan/measures as necessary in developed site(s).

3. Recognize various levels of experience of forest visitors, and tailor signage and education efforts in flood prone developed recreation areas to members of the public who may not be outdoor-oriented or familiar with recognizing potential flooding hazards and proactively responding to them.

4. Train/orient Forest Service employees to make forest visitor safety measures more commensurate with employee safety measures.

5. Expand duties of the existing District Safety Officer to encompass public safety issues in developed recreation sites. Allot more collateral duty time for Safety Officer to perform safety related duties.

6. Provide additional death investigation techniques and protocol training for U.S. Forest Service Law Enforcement and Investigations personnel.

7. Provide mass casualty/first responder training for U.S. Forest Service Law Enforcement and Investigations personnel.

F. Policy/Procedure

1. Establish a required post-development safety review of recreation sites for compliance with mitigation requirements contained in National Environmental Protection Act (NEPA) documents, including Environmental Assessments (EAs), Environmental Impact Statements (EISs), and Decision Notices or Records of Decision. Identify additional features or measures needed to benefit public safety.

2. Require consultation with LEI personnel during the NEPA process for developed recreation sites to provide suggestions for public safety consideration in the form of a written document generated by LEI and included in the NEPA package. LEI input should include Law Enforcement and Investigations Management and Attainment Reporting System (LEIMARS) data or known public safety hazards, if available, for a given site or recreation area.

3. Ensure Engineer staff member(s) are integral to the NEPA process when developing or constructing facilities or features for developed sites.

4. Emphasize and ensure existing NEPA requirements for public and employee safety take historical events into consideration during the environmental analysis process.

5. Expand the focus upon annually required facilities safety inspections to include forest visitor safety considerations and measures, including compliance with signing requirements.

6. There appears to be a lack of focus on flood and weather dangers inconsistent with the Forest Service's stated policy of providing for the public safety of visitors at developed recreation sites which are prone to flooding.

7. Emphasize and ensure that program managers meet their currently existing individual monitoring responsibilities related to implementation of NEPA decisions. Ultimately oversight of this compliance is the responsibility of the Line Officer.

8. Designate the NEPA coordinator as the individual responsible for compiling all necessary requirements to be implemented on the ground as drawn from the EA. The NEPA coordinator then should disseminate a directives document to all interdisciplinary personnel involved with the development of the project (this process should resemble the silviculturist's prescription document customarily utilized in timber projects). This measure will provide personnel on the ground with the essential guidance and information necessary to properly complete the project without personally having to review a typically voluminous EA document.

9. Develop a District/Forest Safety Review Team dedicated to anticipating the impact of natural or other potential disasters, particularly in developed areas. This team would then determine practicable mitigation measures or preparations to be implemented. Incorporate this team into annual safety inspections of developed sites.

10. Cooperatively utilize civic groups such as boy scouts or high school/college geology, hydrology, or surveying students to assist Forest Service specialist(s) in surveying and posting 100-year flood plain levels in proximity to developed and frequented dispersed recreations sites.

11. Ensure Forest Service coordination and consistency in signing policy and posting practice nationally for uniformity among all regions, forests, and districts.

12. Reconcile the contradiction between Forest Service Manual 2331.3 - "Special training and orientation for volunteer hosts is encouraged," in which training is encouraged, and Forest Service Manual 1834.2 - "Ensure volunteers receive the necessary training to enhance their service. Each volunteer shall receive training in safe practices before and during assigned tasks" (FSH 6709.11), in which training is mandatory.

13. Implement manual changes for NEPA process to require that the signing official (i.e. District Ranger) and the author of the Environmental Assessment (EA) are not the same individual. Objectivity is compromised when the responsible/reviewing official is also the author of the EA. Separating these roles and responsibilities will help ensure a checks and balances of the process.

14. Proposed construction projects of developed sites should begin with stakes or pin flags delineating the proposed developments, structures and grade elevations relative to other considerations such as established 100-year flood plain levels prior to any interdisciplinary team members performing field work. This would assist all team members in performing actual work and give more focused and accurate information specific to each proposed structure or project in relation to natural features and environmental conditions.

15. Publish Forest Service maps with the enumerated guidelines for flash flood safety as provided in Forest Service Handbook 6709.11 Health and Safety Code Handbook. List these same guidelines on the Ouachita National Forest website.

16. If a developed recreation site is located in a flood plain or flood hazard area, guidelines from 6709.11 Health and Safety Code handbook should be posted on kiosks, and brochures of the developed site to be distributed to campers at time of contact with the campground host to pay user fees.

APPENDIX A — REVIEW TEAM CHRONOLOGY OF EVENTS — ALBERT PIKE FLOODING INCIDENT

Tuesday, June 8, 2010

- 5:00 a.m. — NOAA's National Weather Service (NWS) issued a Hazardous Weather Outlook for 45 counties with possible locally heavy rainfall. The area included the Ouachita National Forest and Albert Pike Campground.

Thursday, June 10, 2010

- 11:58 a.m. — Flash Flood Watch indicating 4 inches of rain over 24 hours in isolated areas. Campers who contact the Caddo - Womble Ranger District office are notified of the watch and are cautioned to heed the weather.

- 3:30 p.m. — US Forest Service employee Randy Nichols checked weather forecast. Rain had begun, but didn't see any other weather systems nearby. (Hot Springs, Arkansas)

- 3:31 p.m. — Approximate time that US Forest Service employee Ledbetter left the Albert Pike Campground after spending the entire day making repairs and dealing with complaints from a camper.

- 10:06 p.m. — Flood Watch reiterated, with continued general statements about the location where heavy localized rain may exist.

Friday, June 11, 2010

- 1:00 a.m. — Water level at USGS Langley, Arkansas gauge for Little Missouri indicated level at about normal (3.36 feet)

- 1:15 a.m. — Water level at USGS Langley, Arkansas gauge for Little Missouri indicated level at 3.42 feet (level starting to rise)

- 1:30 a.m. — Water level at USGS Langley, Arkansas gauge for Little Missouri indicated level at 3.57 feet

- 1:57 a.m. — NWS issues Flash Flood Warning for western Garland, Pike and Montgomery Counties including Albert Pike Recreation Area. Includes dissemination via the Arkansas Wireless Information Network (AWIN). Bulletin from NWS issued includes request for Emergency Alert System

Activation (weather radios) in four (4) Arkansas counties. This was the first alert which identified specific locations for flooding concerns (identifying the communities of Langley, Glenwood, Caddo Gap, and Buckville).

- 2.15 a.m. — Water level at USGS Langley, Arkansas gauge for Little Missouri indicated level at 4.65 feet.

- 2:30 a.m. — Water level at USGS Langley, Arkansas gauge for Little Missouri indicated level at 5.83 feet.

- 2:38 a.m. — Campground host calls Montgomery County 911 reporting flooding at Albert Pike Campground.

- 2:44 a.m. — Montgomery County, Arkansas rescue units en route to Albert Pike Recreation Area.

- 3:00 a.m. — The National Weather Service issues a Flash Flood statement specifically naming Albert Pike Campground, advising 3 to 4 inches of rain.

- 3.00 a.m. — Water level at USGS Langley, Arkansas gauge for Little Missouri indicated level at 9.87 feet.

- 3:04 a.m. — Caller advised the Montgomery County, Arkansas Sheriff's Department that the bridge near the cabins at Albert Pike area is under water and it is still rising. Dispatcher notified U.S. Forest Service Patrol Captain Jimmy Hicks.

- 3:13 a.m. — Montgomery County, Arkansas Sheriff's Department receives report of campers floating down the river from Albert Pike.

- 3:15 a.m. — Rescue unit advised that they cannot make it to Albert Pike from Highway 240 and are turning around.

- 3:26 a.m. — NWS issues Flash Flood Statement specifically addressing flooding at Albert Pike Recreation Area.

- 3:33 a.m. — Montgomery County, AR Sheriff's Department receives call about victims floating in creek.

- 3:37 a.m. — Forest Service Patrol Captain reports in-service, and en route. Arrives at Salem, Arkansas 5 miles west of Glenwood and experienced

heavy rain. He travels on toward Langley, Arkansas but is delayed by water across the road at Little Blocker Creek. After approximately a 30 minute delay, he is able to proceed.

- 3:45 a.m. — Water level at USGS Langley, Arkansas gauges indicate Little Missouri level at 15.66 feet.

- 4.00 a.m. — Water level at USGS Langley, Arkansas gauge indicate Little Missouri level at 17.7 feet.

- 4:14 a.m. — U.S. Forest Service Captain Jimmy Hicks stopped at Highway 84 by high water, cannot get to Albert Pike. Awaits water to recede.

- 4:30 a.m. — Water level at USGS Langley, Arkansas gauge indicated Little Missouri level at 20.57 feet.

- 5:04 a.m. — The Patrol Captain proceeds toward Albert Pike Campground on Highway 369. Approximately halfway to Albert Pike Campground, encounters three mudslides across the road. He is able to circumnavigate two of them by scraping along the guardrail. The last mudslide also has a tree across the road. With an ax from his vehicle, he is able to remove enough of the tree to cross. He proceeds toward Albert Pike Campground.

- 5:30 a.m. — Water level at USGS Langley, Arkansas gauge indicated Little Missouri level at 23.39 feet.

- 5:34 a.m. — As Patrol Captain Hicks nears the "Loop D" in Albert Pike Campground, he sees a pickup truck in place horizontally across the road. Occupants of the vehicle include a man, two women, and a very young child. The man has a serious leg injury and is going into shock. The Patrol Captain retrieves a blanket from his vehicle to cover the man and then proceeds further into Albert Pike Campground.

  › Patrol Captain Hicks begins to assess that fatalities have been sustained. Evident survivors are in peril; many hanging high into trees. By this time, the Montgomery County Sheriff's office has arrived. The Patrol Captain calls for all Forest Service staff to respond. Responders begin a rescue operation.

- 5:44 a.m. — Montgomery County Emergency Management Service's medical unit en route to Albert Pike Campground.

- 6:07 a.m. — NWS continues Flash Flood Warning.

- 6:30 a.m. — U.S. Forest Service Interagency Coordination Center Manger Randy Nichols is notified of flood event. Begin discussions with Deputy Forest Supervisor about the organization and structure of the Incident Command being established.

- 6:45 a.m. — Patrol Captain Hicks calls for blankets for 100 plus people.

- 6:59 a.m. — Patrol Captain Hicks requests Mena Ranger District check south end of campground for additional problem areas.

- 7:00 a.m. — Twenty-four hour rainfall totals through 7:00 a.m. CDT June 11, 2010 included 6.83 inches at Mount Ida (Montgomery County), 6.78 inches at Hooper (Montgomery County) and 6.55 inches at Glenwood (Pike County). The closest rainfall reading to Albert Pike Recreation Area is 7.20 inches. The reading was taken by a cooperative weather observer at Langley, Arkansas, whose rain gauge is certified by the National Weather Service.

- 7:06 a.m. — 4 dead, Patrol Captain Hicks is at the store near Albert Pike, suggests no further resources.

- 7:28 a.m. — Arkansas State Police unit advised en route to Langley and more troopers en route from Hot Springs, Arkansas.

- 7:29 a.m. — Coroner advised of fatalities and en route to Albert Pike with trailer.

- 8:37 a.m. — U.S. Forest Service requests public affairs person and Red Cross.

- 8:38 a.m. — Arkansas State Police (ASP) arrive and begin managing a search and rescue operation in unified command with the USDA Forest Service. When the ASP sets up an incident command post at Langley, survivors are relocated to the Pilgrim Rest Missionary Baptist Church to remove them from the site of operations. The Pastor begins providing relief for surviving family members.

- Patrol Captain Hicks assumes command of a search and rescue operation and directs the area to be secured. He requests advice, through the Montgomery County Sheriff's Office and the local coroner's office, concerning disposition of the bodies. Coroner's office advises to document location and remove bodies to a central location. Coroner arrives at Albert Pike Campground some time later.

- The Incident Command System has been initialized with a Caddo-Womble Ranger District employee serving as Incident Commander Type 3 (ICT3) and Forest Service resource coordinator with Patrol Captain Hicks who is serving as Incident Commander for the law enforcement side of the operation

- Responders begin removing bodies and taking them to a nearby bathhouse in the campground. Surviving family members report other members of their party as missing.

- 8:42 a.m. — Requests by U.S. Forest Service for Public Information Officer (IC).

- 9:19 a.m. — Report of body under bridge at Norman.

- 9:37 a.m. — Patrol Captain Hicks requests other Forest Service officers check other campgrounds in the area.

- 9:42 a.m. — U.S. Forest Service IC Fryar requests Safety Officer.

- 9:45 a.m. — Two (2) National Guard helicopters en route to Albert Pike area.

- 9:51 a.m. — Arkansas State Police Cpt. Fletcher will be liaison between the incident and Public Affairs.

- 10:40 a.m. — Patrol Captain Hicks requests Region 8 Law Enforcement be informed of incident.

- 11:39 a.m. — Region 8 U.S. Forest Service Law Enforcement office is notified Acting Regional Patrol Commander Robert Harris.

- Media outlets begin arriving. Two Forest Service Public Affairs Officers (PAO) are dispatched to site.

- Search and Rescue operations take place throughout the day.

- By the end of the day on Friday, 16 bodies have been recovered with 14 tentatively identified. The Red Cross is in place at the Pilgrim Rest Missionary Baptist Church at Lodi, Arkansas, where family members are located. The Ouachita Forest Supervisor orders a Type 2 National Inter-agency Incident Management Team (ICT2) to arrive by noon the next day.

- Albert Pike Recreation Area is closed and will remain closed until further notice to allow for search, rescue and recovery efforts.

- Search and rescue operations ceased at nightfall as treacherous conditions make it unsafe for rescue personnel. The campground will be secured by law enforcement officers from partner agencies including the Arkansas State Police, Arkansas Game and Fish Commission, Montgomery and Pike County Sheriff's Officers and the U.S. Forest Service.

Saturday, June 12, 2010

- Search, rescue, and recovery operations activated.

- U.S. Forest Service Special Agent James Alford begins search efforts at Albert Pike.

- Site visit by U.S. Senator Blanche Lincoln, U.S. Senator Mark Pryor, U.S. Congressman Mike Ross, USDA Secretary Tom Vilsack and Forest Service Chief Tom Tidwell.

- 12:00 p.m. — An Incident Command Team (ICT2) is assigned, and a transition meeting is held at the Glenwood Church of Christ. The church will serve as the Incident Command Post for the team. The team is tasked to provide support to the overall effort in the Albert Pike area, and their assignment includes assisting and supporting search and rescue efforts coordinated by the State Police and Sheriff's Office, managing agency resources associated with search and recovery efforts, assisting with development of initial rehabilitation plan, and assisting in preparation of an initial damage assessment.

- Media outlets have grown close to 50. Major television, print and radio media from the U.S. and some from the UK and Canada are in place at Langley, Arkansas. Local media is present from Little Rock, Texarkana, Ft. Smith, Oklahoma City and Shreveport, Louisiana.

- A Forest Service Public Information officer is assigned as a family liaison at the Lodi Family Center. Families are updated every two hours or as information becomes available. Two bodies are recovered on Saturday and identified by family members.

- Search efforts terminate for the night due to safety issues, will resume on the following day. Law Enforcement Officers to secure the area for the night. (U.S. Forest Service, Arkansas State Police, Arkansas Game and Fish, Montgomery and Pike County, Sheriff's Departments).

Sunday, June 13, 2010

- Operations continue. The use of K9 units and dive teams are used to assist in the search, rescue, and recovery efforts. Media interest remains extremely high. One body is recovered and identified by family members.

- U.S. Forest Service Special Agent Alford assisting with search efforts.

Monday, June 14, 2010

- Operations continue. At 10:15 a.m., the body of the final confirmed missing person is located and removed for identification. The last remaining family leaves the Lodi Family Center.

Tuesday, June 15, 2010

- A Critical Incident Stress Management (CISM) Team is in place to counsel all emergency responders. Participating FS units demobilize with a CISM session held for Caddo-Womble Ranger District, Incident Command Team, and some Ouachita National Forest Supervisor's Office employees.

- Plans are made to have hazardous material specialists assess the campground.

- USDA inquiry team members arrive and begin reviewing flood incident.

Wednesday, June 16, 2010

- A transition meeting is held with the National Incident Management Team and the Ouachita National Forest at the Glenwood Incident Command Post, and the team is released from the Albert Pike Flood incident. Incident records are turned over to the Ouachita National Forest.

- The incident will continue to be managed by the Ouachita National Forest Incident Commander-Type 3 (ICT3).

Thursday, June 17, 2010

- Incident team structure under Incident Commander (ICT3) is finalized. Tasks for the team include completion of the hazard assessment of affected areas, collection and storage of personal items that may have been lost by the affected visitors (Law Enforcement will assist in the supervision of this process), cleanup of hazardous material and other non-natural materials, and identification and removal of damaged trees. Work at this time will also include conducting road and bridge analysis and performing necessary corrective actions as needed for safety. This will be conducted by the Engineering staff from the Supervisors Office of the Ouachita National Forest.

Friday, Saturday and Sunday, June 18 — 20, 2010

- Plans are completed for the weekend that include completion of the hazard assessment, hazard tree identification, procurement of proper storage and transportation for items collected, and treatment and stabilization of the restroom facilities in the campground.

Monday, June 21, 2010

- Crews start the process of collecting personal property and other materials remaining on the site. Law enforcement staff continue providing oversight and support for collection, cataloging, transporting and storage of this material.

Wednesday, July 7, 2010

- U.S. Forest Service ICT3 Ben Rowland transfers command from IC to Forest Supervisor.

Wednesday, July 14, 2010

- USGS Hydrologist Holmes makes determination that the flood event at Albert Pike Recreation Area on June 11, 2010 exceeded a 500-year flood event.

APPENDIX B — INDEX OF EXHIBITS

Exhibit 1 Memorandum of Interview, Special Agent James Alford, USDA-FS, Ouachita National Forest, Broken Bow, Oklahoma, dated 06/16/10.

A. Map of Albert Pike Recreation Area Showing Location of Bodies Recovered
B. List of Campers, Albert Pike Recreation Campground, Loops A, B, and D
C. Report of Investigation - Albert Pike Flood 06/11/10 - 07/1/10

Exhibit 2 Memorandum of Interview, Patrol Captain Jimmy Hicks, USDA-FS, Ouachita National Forest, Hot Springs, Arkansas, dated 06/16/10

A. Flood or High Water Incident Reports (13) 03/27/00 — 09/02/08
B. FSM 5300 — Law Enforcement
C. Cooperative Agreement — Montgomery County Sheriffs Department
D. Cooperative Law Enforcement Annual Financial Operating Plan
E. Memorandum of Understanding — Montgomery County Sheriffs Office
F. Arkansas Emergency Operations Plan (AR Department of Game and Fish designated as coordinator in Search/Rescue)
G. Montgomery County, Arkansas, Sheriff's Dispatch Logs for 6/10/10 and 6/11/10
H. Pike County, Arkansas, 911 Dispatch Log for 6/11/10

Exhibit 3 Memorandum of Interview, Gloria Chrismer, District Ranger, Caddo-Womble, USDA-FS, Ouachita National Forest, Mount Ida, Arkansas, dated 06/16/10

A. District Ranger Position Description (Generic).
B. US Forest Service Caddo-Womble Ranger District 2010 Safety Action Plan
C. US Forest Service Handouts Describing Trails (Eagle Rock Loop, Athens-Big Fork, Little Missouri, Albert Pike, Viles Branch)

Exhibit 4 Memorandum of Interview, Robert R. Holmes, Jr., Hydrologist, US Geological Survey, Rolla, Missouri, dated 06/17/10

Exhibit 5 Memorandum of Interview, LEO Christopher Wayne Johnson, USDA-FS, Ouachita National Forest, Mount Ida, Arkansas, dated 06/17/10

Exhibit 6 Memorandum of Interview, LEO Timothy Ray Fincham, USDA-FS, Ouachita National Forest, Glenwood, Arkansas, dated 06/17/10

A. Arkansas State Police - Verified Deceased List (20), dated 06/11/10-06/14/10

Exhibit 7 Memorandum of Interview, Joshua Ray Collins, Albert Pike Recreation Technician and Reserve Law Enforcement Officer, USDA-FS, Ouachita National Forest, Glenwood, Arkansas, dated 06/07/10

Exhibit 8 Memorandum of Interview, Lisa Cline, NEPA Coordinator, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 06/18/10

Exhibit 9 Memorandum of Interview, James A. Clingenpeel, Hydrologist, USDA-FS, Ouachita National Forest, Supervisor's Office, Hot Springs, Arkansas, dated 06/18/10

A. US Geological Survey Service — Langley Water Gauge Data
B. Mt. Ida, Arkansas, KMWT weather underground data from website (6/11/10)
C. National Weather Service Forecast Office webpage information for 6/10/10 and 6/11/10

Exhibit 10 Memorandum of Interview, Randy Nichols, Arkansas-Oklahoma Incident Command Center (AOICC), USDA-FS, Ouachita National Forest, Hot Springs, Arkansas 06/21/10

A. US Forest Service Incident Command (Type 3) — Albert Pike Flood Incident 6/11/10

(1) US Forest Service Briefing Paper, Topic: NFS/LEI-Emergency Response to Flash Flood Incident — Ouachita National Forest, dated 6/11/10 (12:48 hrs)
(2) US Forest Service News Release, Topic: Forest Service Temporarily Closes Albert Pike Campground, dated 6/11/10 (20:10 hrs)
(3) US Forest Service Briefing Paper, Topic: NFS/LEI-Emergency Response to Flash Flood Incident — Ouachita National Forest, dated 6/13/10 (22:55 hrs)

B. US Forest Service Incident Commands — Albert Pike Flood Incident 6/12/10

(1) Delegation letter dated 6/12/10 appointing Mike Quisenberry as Incident Commander (Incident GA-R08-100006) (Type 1)
(2) Resource Order for Type 1 Incident Command Team
(3) Information Section Narrative — Albert Pike Flood Incident
(4) Attachment J — Serious Incident/Fatality Contact Protocol
(5) Damage Assessment at Albert Pike Recreational Area, Loops A — D (with photos and estimated construction and repair cost)
(6) Ouachita National Forest 6/12/10 Status Summary

C. US Forest Service Incident Commands — Albert Pike Flood Incident 6/13/10

(1) Delegation letter dated 6/13/10 appointing Mike Quisenberry as Incident Commander (Incident GA-R08-100006 and AR-AOC-010066) (Type 1)
(2) Job Hazard Analysis, dated 6/13/10
(3) Bridge Inspection Report (with photos), dated 6/13/10
(4) Incident Command Fact Sheet — Albert Pike Flood Incident, dated 6/13/10
(5) Key Questions/Answers — Albert Pike Flood, dated 6/13/10
(6) US Forest Service Briefing Paper, Topic: NFS/LEI-Emergency Response to Flash Flood Incident — Ouachita National Forest, dated 6/13/10 (2100 hrs)
(7) USA Today news article headline: *"Walls of water hit with little warning,"* dated 6/13/10
(8) MSNBC Today article headline: *"Death toll hits 19 in Arkansas floods"*
(9) Vermont Public Radio topic: *"At Arkansas Campground, A Search Amid Devastation,"* dated 6/13/10

D. US Forest Service Incident Commands — Albert Pike Flood Incident 6/14/10

(1) Delegation letter dated 6/14/10 appointing Mike Quisenberry as Incident Commander (Incident GA-R08-100006 and AR-AOC- 010066) (Type 1)
(2) Albert Pike Restoration Guidelines

(3) Ouachita National Forest — Albert Pike Flood Incident Timeline, Thursday, June 10, 2010, to Tuesday, June 15, 2010
(4) Flash Flood Incident — Ouachita National Forest Incident Action Plan, dated 6/14/10 (Day Shift 0700-1900)
(5) Incident Status Summaries (ICS-2019), dated 6/14/10 and 6/15/10
(6) Arkansas Democrat Gazette article headline: *"Girl's body found, believed the last,"* dated 6/15/10

E. US Forest Service Incident Commands — Albert Pike Flood Incident 6/16/10

(1) Return of Delegation of Authority document, dated 6/16/10
(2) Incident Transition Plan (Albert Pike Flood, Incident Number AR- AOC-010066) (Type 1 to Ouachita National Forest), dated 6/16/10

F. Delegation of Authority letter, Subject: Albert Pike Flood Incident Restoration (Transition from Type 1 to Type 3), dated 6/17/10
G. Delegation of Authority letter, Subject: Albert Pike Flood Incident Restoration (Transition from Type 3 to District Ranger), dated 7/07/10
H. Miscellaneous News Articles

(1) MSNBC Today article headline: *"Science of flash floods,"* dated 6/11/10
(2) CBS News article headline: *"At least 16 dead, 40 Missing in Arkansas Floods,"* dated 6/11/10

I. National Interagency Fire Center Guide, Chapter 11 (Incident Management & Response) (January 2010).

Exhibit 11 Memorandum of Interview, Susan K. Deimel, Forest Safety Officer, USDA-FS, Ouachita National Forest, Hot Springs, Arkansas, dated 06/21/10

A. (1) Designation as Forest Safety Officer, dated 04/18/07; (2) Position Description Correction Notice, Time Distribution of Duties, Safety Officer Twenty Percent (20%); (3) Request To Be Removed From Collateral Duty as Safety Officer, dated 04/14/10.
B. Safety Assessment, Ouachita National Forest, dated 10/06/08

Exhibit 12 Memorandum of Interview, Betty Crump, Ouachita Forest Stream Ecologist, USDA-FS, Hot Springs, Arkansas, dated 06/21/10

Exhibit 13 Memorandum of Interview, Milburn Brewster, Ouachita Forest Civil Engineer Supervisor, USDA-FS, Hot Springs, Arkansas, dated 06/22/10

Exhibit 14 Memorandum of Interview, James Clingenpeel, Hydrologist, USDA-FS, Hot Springs, Arkansas, dated 06/22/10 (2nd interview)

A. Diagram/drawing of Bankfull Method of establishing flood plain
B. Two (2) maps — one Administrative US Forest Service and one GIS map with flood plain Loop D

Exhibit 15 Memorandum of Interview, Johnny Fleming, Bridge Engineer, USDA-FS, Ouachita National Forest, Arkansas, Forest Supervisor's Office dated 06/22/10

A. Construction Drawings of Loop D Albert Pike Recreation Area
B. Health and Safety Inspection Reports for Albert Pike Recreation Area

Exhibit 16 Memorandum of Interview, Lisa Cline, NEPA Coordinator, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 06/18/10

A. Albert Pike Soils Map — Unit 055 designates flood plain
B. Map Unit 055 — 100 year flood plain - yes
Map Unit 062 — 100 year flood plain - no
C. Albert Pike Soils showing Loops C and D in flood plain — NEPA file
D. Map of Albert Pike Recreation Area showing proposed sites - NEPA file
E. Construction drawings for Loop D of Albert Pike Recreation Area
F. Amended Land and Resource Management Plan — Ouachita National Forest. Pages IV-5, IV-99, and IV-121. Public Health and Safety Requirement (3.13) and Mitigation Requirement (IV-121).

Exhibit 17 Memorandum of Interview, Michael White, Engineering Staff Officer (Fleet, Lands, & Minerals and GIS), USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, AR, dated 6/22/10

Exhibit 18 Memorandum of Interview, Thomas Ledbetter, Recreation Technician, USDA-FS, Ouachita - Caddo Ranger Office, Glenwood, Arkansas dated 6/23/10

A. Health and Safety Code Handbook (FSH-6709.11), Pages 0-3,0-4, and 50-45.

Exhibit 19 Memorandum of Interview, Anita B. Hill, Receptionist, USDA-FS, Caddo-Womble Ranger Office, Glenwood, Arkansas, dated 6/23/10

Exhibit 20 Memorandum of Interview, Christy Price, Receptionist, USDA-FS, Caddo-Womble Ranger Office, Glenwood, Arkansas, dated 6/23/10

Exhibit 21 Memorandum of Interview, Ron Krupa, Landscape Architect, USDA-FS, Ouachita National Forest, Hodgen, Oklahoma, dated 6/23/10

A. Krupa designed field notes for Albert Pike Recreation Area Rehabilitation dated 11/09/00

Exhibit 22 Memorandum of Interview, Gloria Chrismer, District Ranger, Caddo-Womble, USDA-FS, Ouachita National Forest, Mt. Ida, Arkansas, dated 6/23/10 (2nd interview)

Exhibit 23 Memorandum of Interview, Carolyn Mitchell, Editorial Assistant, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/23/10

Exhibit 24 Memorandum of Interview, Kathryn Duncan, NEPA Coordinator/Employee Rights, USDA-FS, Angalina National Forest, Texas dated 6/24/10

Exhibit 25 Memorandum of Interview, Frank Chrismer, GIS Specialist, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/24/10

A. Albert Pike Incident Vicinity Map (showing USFS property in green)
B. Albert Pike Incident Vicinity Map
C. Albert Pike map showing photo reference maps

Exhibit 26 Memorandum of Interview, Elizabeth Gross (Hobbs), Biological Scientist/ Employee Rights, USDA-FS, Ouachita National Forest, Caddo-Womble Ranger District, Mt. Ida, Arkansas, dated 6/24/10

A. Caddo-Womble Ranger District Hazardous Weather Policy (for employees) dated 1/28/09

Exhibit 27 Memorandum of Interview, Timothy Oosterhous, Recreation Program Manager, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/25/10

A. Report on Albert Pike Recreation Area, Ouachita National Forest, Caddo District (with map) — NEPA file (undated)
B. Environmental Analysis for Albert Pike (rough draft 1/28/77)
C. Letter by George Dissmeyer, Regional Hydrologist, Subject: Albert Pike Campground Flood of 1982 (with photos and map), dated 9/26/85
D. Ouachita National Forest document relinquishing management of Albert Pike Campground to Ranger, dated 6/06/36
E. Letter by George C. Hoffman, District Ranger, Norman, Arkansas, related to Albert Pike Campground proposed construction, dated 1/17/35
F. Letters related to flooding in the Albert Pike area, dated 2/4/75-4/21/75
G. US Forest Service Memoranda related to flooding damages at Albert Pike, dated 5/12/61 and 9/8/61
H. Letter by Robert J. Daley, Staff Officer, Management Services, Ouachita National Forest, Hot Springs, Arkansas, Subject: Flood Damage at Albert Pike Campground, dated 4/9/87
I. Albert Pike Campground history narrative

Exhibit 28 Memorandum of Interview, Timothy Oosterhous, Recreation Program Manager, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/25/10 (2nd interview)

A. Email from Hydrologist J. Alan Clingenpeel, Forest Hydrologist, to Tom Ledbetter and Tim Oosterhous, Subject: Little Missouri Falls — Within 100 Year Flood plain and Executive Order 11988 Applies, dated 6/08/05

Exhibit 29 Memorandum of Interview, Frank Chrismer, GIS Specialist, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/25/10 (2nd interview)

Exhibit 30 Memorandum of Interview, James Clingenpeel, Hydrologist, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/25/10(3rd interview)

Exhibit 31 Memorandum of Interview, Johnny Fleming, Bridge Engineer, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 6/25/10 (2nd interview)

A. US Forest Service (USFS) EM-7100-15 (Sign and Poster Guidelines for the Forest Service), page 13-2 "Flood Hazard Warning Signs" and page 13-3 "Flood Hazard Warning Notices"

Exhibit 32 Memorandum of Interview, LEO Scott Kalna, USDA-FS, Law Enforcement Office, Monongahela National Forest, West Virginia, dated 6/28/10

A. Photographs taken by LEO Kalna, USFS, of flood hazard warning signs posted at Tea Creek Campground, Monongahela National Forest

Exhibit 33 Memorandum of Interview, Cody Duren, Arkansas Department of Emergency Management (ADEM), (AWIN Radio System) dated 6/29/10

Exhibit 34 Memorandum of Interview, Ken Luckow, Retired Soil Scientist, USDA-FS, Ouachita National Forest, Hot Springs, Arkansas, dated 6/29/10

A. Luckow letter to District Ranger, Caddo RD, Subject: Soil and Water Input to Albert Pike Campground expansion/renovation project, dated 11/28/01
B. Albert Pike Soils Map - Unit 55 and 62
C. Map of Albert Pike Recreation Area - Ouachita National Forest
D. Page 15, Albert Pike Environmental Assessment referenced during Luckow's interview

Exhibit 35 Memorandum of Interview, Cathy Cleveland, Volunteer Host, USDA-FS, Ouachita National Forest, Albert Pike Recreation Area, D-Loop, Glenwood, Arkansas, dated 6/30/10

A. USFS Volunteer Agreement with the Clevelands (Albert Pike), dated 6/04/10
B. Handwritten Notes by Tom Ledbetter on volunteer host orientation and placed in volunteer Host file, Caddo-Womble Ranger District, dated 6/16/10
C. Thank-you letter to Mr. and Mrs. Reuben Cleveland from USFS Ranger Chrismer dated 6/03/10

D. USFS Volunteer Agreement for Mary K. Dunning (Cleveland) for 2005

Exhibit 36 Memorandum of Interview, James Watson, Retired Caddo District Ranger, USDA-FS, Ouachita National Forest, Glenwood, Arkansas, dated 7/06/10

A. Reference material for Watson Interview: Soil Scientist letter dated 11/28/2001; Albert Pike Environmental Assessment, dated 12/09/02; Decision Letter by USFS Retired Ranger WATSON, dated 1/17/03

Exhibit 37 Memorandum of Interview, Jim Kozik, Regional Sign Coordinator, USDA-FS, Region 8, Atlanta, Georgia, dated 7/07/10

Exhibit 38 Memorandum of Interview, Francisco Garcia, FEMA, FEMA Project Library, Alexandria, Virginia, dated 7/07/10

Exhibit 39 Memorandum of Interview, Jeff Olson, Soil Scientist, USDA-FS, Ouachita National Forest, Hot Springs, Arkansas, dated 7/07/10

A. Flood maps showing Albert Pike area prone to flooding (more than 50% chance/yr)

Exhibit 40 Memorandum of Interview, Norman Wagoner, Forest Supervisor, USDA-FS, Ouachita National Forest, Hot Springs, Arkansas, dated 7/07/10

Exhibit 41 Memorandum of Interview, James Clingenpeel, Hydrologist, USDA-FS, Ouachita National Forest, Forest Supervisor's Office, Hot Springs, Arkansas, dated 7/08/10(4th interview) (Albert Pike Watershed Number 08040103)

B. EPA.gov, web page for Little Missouri Watershed designation (08040103)

Exhibit 42 Memorandum of Interview, Dale Weston, Owner, Emergency Medical Transport, Glenwood, Arkansas, dated 07/08/10

Exhibit 43 Memorandum of Interview, Rodney Haney, Owner/Operator, Delight Volunteer Ambulance Service, Delight, Arkansas, dated 07/08/10

Exhibit 44 Memorandum of Interview, Milburn Brewster, Civil Engineer, USDA-FS, Ouachita National Forest, Hot Springs, Arkansas, dated 7/09/10

A. Copy of USFS EM 7100-15, Sign and Poster Guidelines for the Forest Service, (August 1998) effective 1998-2005

Exhibit 45 USDA Albert Pike Flood Incident Review Team Photos

B. USDA Albert Pike Incident AR369 Highway Water Level Photos (aerial) 6/22/10
C. USDA Albert Pike Flood Incident Review Team Photos Site Location Map

Exhibit 46 Decision Notice (USFS Albert Pike Recreation Area Construction Project), dated 1/17/03

Exhibit 47 Environmental Assessment for the Albert Pike Recreation Area Construction and Rehabilitation Project

Exhibit 48 Letter from Soil Scientist Ken Luckow to District Ranger, Caddo RD, Subject: Soil and Water Input to Albert Pike Campground Renovation Project, dated 11/28/01 (NEPA folder)

Exhibit 49 Maps (NEPA folder)

A. Albert Pike Soils Map with red marker
B. Albert Pike Soils Map handwritten notes and drawings
C. Albert Pike Recreation Soils Map
D. Albert Pike Recreation Topographical Map with hand drawings
E. Albert Pike Construction Drawings

Exhibit 50 Definition of Soil, Map Unit 055 (Land form: flood plain) (NEPA folder)

Exhibit 51 Amended Land and Resource Management Plan - Ouachita National Forest. Pages IV-5, IV-99, IV-116, IV-120, IV-121, and VI.

Exhibit 52 USFS EM-7100-15, Engineering Manual (USFS) related to flooding signs (objectives, purpose, flood signs)

Exhibit 53 USFS Policy Directives, FSM 1830 (Volunteer Programs), §§1833.1 — 1834.3

Exhibit 54 US Forest Service Policy Directives, FSM 2330 (Policy Managed Recreation Opportunities), §§2331.27 — 2334.26

Exhibit 55 US Forest Service Policy Directives, FSM 2520 (Watershed Protection and Management), §§2526.2 — 2528.01

Exhibit 56 US Forest Service Policy Directives, FSM 2520 Region 8 Supplement, §2527.02 — Objectives and §2527.5 — Posting of Past and Probable Flood Heights, effective 6/07/1992

Exhibit 57 US Forest Service Health and Safety Code Handbook, FSH 6709.11 (selected sections)

Exhibit 58 US Forest Service Policy Directives, FSM 7160-Signs and Posters, sections 7160.2 — Objectives to 7160.42c-Forest Supervisor

Exhibit 59 US Forest Service Policy Directives, FSM 7721.16-Flood Hazard Considerations

Exhibit 60 FSM 1800 — Senior, Youth and Volunteer Programs, Chapter 1830 - Volunteer Program, 09/13/02

Exhibit 61 Executive Order No. 11990, Protection of Wetlands, 05/24/77, 42 F.R. 26961

Exhibit 62 Executive Order No. 11988, Flood Plain Management, 05/24/77, 42 F.R. 26971

Exhibit 63 FSM 2500 — Watershed and Air Management, WO Amend. 2500-90-1, 06/1/90, Chapter 2510 - Watershed Planning

Exhibit 64 FSM 2500 — Watershed and Air Management R-8 Supplement 2500-92-1, 06/07/92 Chapter 2520 - Watershed Protection and Management

Exhibit 65 FSM 2300 — Recreation, Wilderness, and Related Resource Management, Chapter 2330 — Publicly Managed, 05/22/06

Exhibit 66 FSM 2500 - Watershed and Air Management, Chapter 2520 - Watershed Protection and Management, Amend. No. 2500-2004-1, 05/26/04

Exhibit 67 FSM Title 7100 - Engineering Operations, Chapter 7160 - Signs and Posters, 09/15/2000

Exhibit 68 Forest Service EM-7100-15 *"Signs and Posters for the Forest Service,"* December 2005, Chapter 1, Introduction and Principles Policy and Standards, Chapter 7 Recreation Site Signing and Chapter 13 Accident Prevention and Safety Signing

Exhibit 69 Forest Service EM-7100-15 *"Sign and Poster for the Forest Service,"* August 1998, Chapter 10 - Accident Prevention and Safety Signs (10.2 Flood Hazard Warning Signs

Exhibit 70 FSM 7700 - Transportation System, Chapter 7721.16 - Flood Hazard Considerations, 08/26/2005

Exhibit 71 FSM Title 2300 - Recreation, Wilderness, and Related Resource Management,
Region 8 Supplement 2300-93-2, Effective 07/01/93 (Project Plan Phase Approval Schedule)

Exhibit 72 Notice to Hikers posted on kiosk at Albert Pike Recreation Area, Loop D — Photo taken by Bill Pell on 6/13/10.

Exhibit 73 FSM 6710 — Safety and Health Program Administration, effective date: 12/17/2002

Exhibit 74 FSM 6720 — Occupational Health Program, effective date 12/17/2002

Exhibit 75 FSM 1950 — Environmental Policy and Procedures, effective date 09/21/1992

Exhibit 76 FSH 1909.15 — Environmental Policy and Procedures Handbook, Chapter 10 — Environmental Analysis, effective date 09/21/1992

Exhibit 77 FSH 1909.15 — Environmental Policy and Procedures Handbook, Chapter 30 — Categorical Exclusion From Documentation, effective date 09/21/1992

Exhibit 78 FSH 1909.15 — Chapter 40, Environmental Assessments and Related Documents, effective date 09/21/1992

Exhibit 79 Excess of 500 year Flood Event at Albert Pike Campground (E-mail from Alan Clingenpeel, Forest Hydrologist, dated 07/14/2010)

APPENDIX C — INDEX OF ACRONYMS

ADEM — Arkansas Department of Emergency Management

APRA — Albert Pike Recreation Area

AWIN — Arkansas Wireless Information Network

CEQ — Council on Environmental Quality

CFR — Code of Federal Regulation

DN — Decision Notice

EA — Environmental Assessment

EIS — Environmental Impact Statement

EM — Engineers Manual

EO — Executive Order

Ex(s) — Exhibit(s)

FEMA — Federal Emergency Management Agency

FLMP — Forest and Land Management Plan

FLPMA — Federal Land Policy Management Act of 1976

FR — Federal Register

FS — USDA Forest Service

FSH — Forest Service Handbook

FSM — Forest Service Manual

FONSI — Finding of No Significant Impact

GIS — Geographical Information System

IC — Incident Commander

ICS — Incident Command System

ICT — Incident Command Type

LEIMARS — Law Enforcement & Investigations Management Attainment and Reporting System

LEO — USFS Law Enforcement Officer

LRMP — Land and Resource Management Plan (Ouachita National Forest)

MOI — Memorandum of Interview

NEPA — National Environmental Protection Act

NFIP — National Flood Insurance Program

NFMA — National Forest Management Act

NFS (lands) — National Forest System (lands)

NOAA — National Oceanic and Atmospheric Administration

NRCS — USDA National Resource Conservation Service

NWS — National Weather Service

OGC — USDA Office of the General Counsel

OMB — Office of Management and Budget

ONF — Ouachita National Forest

R8 — Region 8 of the U.S. Forest Service

ROI — **Report of Investigation**

SA — **USFS Special Agent**

USC — **United States Code**

USDA — **United States Department of Agriculture**

USFS — **United States Forest Service**

USGS — **United States Geological Survey**

WM — **Watershed Management**

WO — **Washington Office of the U.S. Forest Service**