

## **Appendix A**

### **Data Resources**

Data Resources will be provided separately on CD. Data Resources for Camp Grayling include:

#### **Camp Grayling AFFF Release Documentation**

- 2018 Interview List Correspondence and GIS Data Request
- 2018 AFFF Release Maps

#### **Camp Grayling Firefighting Training Documentation**

- Photographs provided by former Camp Grayling Firefighter Kim Halstead, annotated by Kimberly Bolan, Camp Grayling Environmental Quality Specialist

#### **Previous Investigations Completed at Camp Grayling**

- 2007 Integrated Natural Resources Management Plan
- 2013 Operational Range Assessment, Phase II Report
- 2017 PFCs Investigation – Camp Grayling Airfield
- 2017 PFOS and PFOA Sampling and Analysis Report, Maneuver Training Center (MTC)
- 2018 GIS Data Request

#### **Camp Grayling Integrated Contingency Plans**

- 2013 Integrated Contingency Plan, Camp Grayling Cantonment Area
- 2013 Integrated Contingency Plan, Grayling Army Airfield
- 2013 Integrated Contingency Plan, Camp Grayling MATES

#### **Camp Grayling Installation Maps**

- 1988 Installation Maps
- 2006 Installation Maps

#### **State Regulatory Advisories**

- 2018 Updated Fish Consumption Guidelines Related to PFAS in Crawford, Kent, and Oscoda Counties (Michigan Department of Health and Human Services)

## **Appendix B**

# **Preliminary Assessment Documentation**

## **Appendix B.1**

### **Interview Records**

PA Interview Questionnaire - Environmental Manager

Facility: Camp Grayling  
 Interviewer: J. Li + C. Mitchell  
 Date/Time: 2/27/18

<p><b>Interviewee:</b> <u>Kimberly Bolan</u>  <b>Title:</b> <u>Env. Qual. Specialist - Compliance</u>  <b>Phone Number:</b> <u>989-344-6178</u>  <b>Email:</b> <u>kimberly.a.bolan.nfg@mail.mil</u></p>	<p>Can your name/role be used in the PA Report? <input checked="" type="radio"/> Y or N                  Can you recommend anyone we can interview?                  Y or <input checked="" type="radio"/> N _____</p>		
<p>1. Roles or activities with the Facility/years working at the Facility.</p> <p style="text-align: center;"><u>2002 - 2003 - part time special duty, full time to date since</u></p>			
<p>2. Where can I find previous facility ownership information?</p> <ul style="list-style-type: none"> <li>• <u>Part of Zosmash land Grant to use as military training facility</u>                  ↳ <u>60k acres</u></li> <li>• <u>rest leased lands</u></li> <li>• <u>History in EIS</u></li> </ul>			
<p>3. What can you tell us about the history of PFAS including aqueous film forming foam (AFFF) at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.</p> <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <p><u>Maintenance</u></p> <p><u>Fire Training Areas</u></p> <p><u>Firefighting (Active Fire)</u></p> <p><u>Crash</u> <u>no air craft crashes,</u></p> <p><u>Fire Suppression Systems (Hangers/Dining Facilities)</u></p> <p><u>Fire Protection at Fueling Stations</u></p> <p><u>Non-Technical/Recreational/ Pest Management</u></p> <p><u>Metals Plating Facility</u></p> <p><u>Waterproofing Uniforms (Laundry Facilities)</u></p> <p><u>Other</u></p> </td> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> <li>• <u>one car crash on 4-mile road AFFF used</u></li> <li>• <u>old ASP "Cadillac Gate"</u> <ul style="list-style-type: none"> <li>• <u>ammunition supply building demolished + AFFF used</u></li> </ul> </li> <li>• <u>Range 6 had "hit"</u></li> <li>• <u>MATES: 2 wells with low level "hits"</u></li> </ul> </td> </tr> </table>		<p><u>Maintenance</u></p> <p><u>Fire Training Areas</u></p> <p><u>Firefighting (Active Fire)</u></p> <p><u>Crash</u> <u>no air craft crashes,</u></p> <p><u>Fire Suppression Systems (Hangers/Dining Facilities)</u></p> <p><u>Fire Protection at Fueling Stations</u></p> <p><u>Non-Technical/Recreational/ Pest Management</u></p> <p><u>Metals Plating Facility</u></p> <p><u>Waterproofing Uniforms (Laundry Facilities)</u></p> <p><u>Other</u></p>	<ul style="list-style-type: none"> <li>• <u>one car crash on 4-mile road AFFF used</u></li> <li>• <u>old ASP "Cadillac Gate"</u> <ul style="list-style-type: none"> <li>• <u>ammunition supply building demolished + AFFF used</u></li> </ul> </li> <li>• <u>Range 6 had "hit"</u></li> <li>• <u>MATES: 2 wells with low level "hits"</u></li> </ul>
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<p>4. Fill out CSM Information worksheet with the Environmental Manager.</p>			
<p>5. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing the AFFF/suppression system? Do you have "As Built" drawings for the buildings?</p> <p style="text-align: center;"><u>Not that aware of.</u></p>			

PA Interview Questionnaire - Environmental Manager

Facility: Camp Grayling  
Interviewer: J.L. & C. Mitchell  
Date/Time: 2/27/18

6. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam? If retrofitted, when was that done?

N/A

7. How is AFFF procured? Do you have an inventory/procurement system that tracks use?

Kim Halstead & Roger Green have information.

8. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?

unknown - likely Ansul

9. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?

5-gallon Buckets at FD, maybe Building 36 (DPW)

10. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

- Building 600 area
- Wash Racks
- Airfield
- ASP once (Former ASP)

PA Interview Questionnaire - Environmental Manager

Facility: Camp Grayling  
Interviewer: J. + C. Mitchell  
Date/Time: 2/27/18

11. When a release of AFFF occurs during a fire training exercise, now and in the past, how is the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

- Did not dump any

12. Can you recall specific times when city, county, and/or state personnel came on-post for training? If so, please state which state/county agency or military entity? Do you have any records, including photographs to share with us?

no

13. Did military routinely or occasionally fire train off-post? List the units that you can recall used/trained at various areas.

- one Emergency response to car crash
- Indiana guard came w/ aerating nozzles + trained

14. Did individual units come with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

- unknown

15. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

- Grayling FD responded to car crash on 4-mile road once

PA Interview Questionnaire - Environmental Manager

Facility: Camp Grayling  
Interviewer: J. Li + C. Mitchell  
Date/Time: 2/27/18

16. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

• AFFF never used to wash away spills

17. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

ASK Diane Brooks

18. Are there mutual aid/use agreements between county, city, and local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement?

• Grayling fire department. (city)

19. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste treatment plants, and AFFF ponds)?

• FD - maybe Building 36 - old DPW building

20. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

No, but used as "wet water" - ask Kim Halshead for details



PA Interview Questionnaire - Environmental Manager

Facility: Camp Grayling  
Interviewer: J. L. & C. Mitchell  
Date/Time: 2/27/18

21. Are there past studies you are aware of with environmental information on plants/animals/groundwater/soil types, etc., such as Integrated Cultural Resources Management Plans or Integrated Natural Resources Management Plans?

• TCE investigation south airfield  
• INRMMP - will provide  
• Integrated Contingency Plans for airfield, confinement, MATES  
↳ will send

22. What other records might be helpful to us (environmental compliance, investigation records, admin record) and where can we find them?

23. Do you have or did you have a chrome plating shop on base? What were/are the years of operation of that chrome plating shop?

No

24. Do you know whether the shop has/had a foam blanket mist suppression system or used a fume hood for emissions control? If foam blanket mist suppression was used, where was the foam stored, mixed, applied, etc.?

N/A

25. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

Never disposed of.

PA Interview Questionnaire - Environmental Manager

Facility: Camp Grayling  
Interviewer: J. Li + C. Mitchell  
Date/Time: 2/27/18

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?

No

- WWTP - sludge never removed
  - Effluent discharged air irrigation (spray)
  - Located west side of Lake Margrethe
    - ↳ irrigation to west of lagoons.

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
 Interviewer: J.L. + C.M.  
 Date/Time: 2/27/18 @ 1300

<p>Interviewee: <u>See #1 Below for list</u>                  Title: <u>L</u>                  Phone Number: <u>L</u>                  Email: _____</p>	<p>Can your name/role be used in the PA Report? <input checked="" type="radio"/> Y or N                  Can you recommend anyone we can interview?                  Y or N _____</p>
<p>1. Roles or activities with the Facility/years working at the Facility.</p> <p><u>Russel Strophenal Jr - 37 yrs Grayling FD, Chief, 4 yrs AF<sup>3</sup> training (#989-390-2223)</u>  <u>Kim Halstead - 1977 - 2001 Camp Grayling FD (#989-745-6106)</u>  <u>Roger Green - Fire fighter, 1975 (June 12<sup>th</sup>) till 1983 (#989-389-74107)</u>  <u>Duane Brooks - 35 yrs former Grayling FD Chief, DNR supervisor (35 yrs), (#989-348-9814)</u></p>	
<p>2. What can you tell us about the history of AFFF at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.</p> <p style="text-align: right;"><u>• Brush fires</u></p> <p>Maintenance (e.g., ramp washing)  <u>Fire Training Areas</u>  <u>Firefighting (Active Fire)</u>                  Crash - <u>Car on 4-mile</u>                  Fire Suppression Systems (Hangers/Dining Facilities)                  Fire Protection at Fueling Stations                  Non-Technical/Recreational/ Pest Management</p>	
<p>3. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing at the AFFF/suppression systems?</p> <p><u>no.</u></p>	
<p>4. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?</p> <p><u>no.</u></p>	
<p>5. How is AFFF procured? Do you have an inventory/procurement system that tracks use?</p> <p><u>Ordered through GSA Catalogue</u></p>	

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: JL & CM  
Date/Time: 2/27/18 @ 1300

KH  
RS

<p>6. What type of AFFF has been/is being used (3% 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?</p> <p>3M Ansul</p> <p>Army would purchase order through GSA catalogue 5-gallon Buckets.</p>
<p>7. Is AFFF formulated on base? If so, where is the solution mixed, contained, transferred, etc.?</p> <p>No.</p>
<p>8. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?</p> <p>- stored at Grayling Fire Department and - Fire Barn.</p>
<p>9. How is the AFFF transferred to emergency response vehicles, suppression systems, flightline extinguishers? Is/was there a specified area on the facility where vehicles are filled with AFFF and does this area have secondary containment in case of spills? How and where are vehicles storing AFFF cleaned/decontaminated?</p> <p>Dumped into truck w/ 5-gallon buckets.</p>
<p>10. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located?</p> <p>- Fire trucks.</p>
<p>11. Any vehicles have a history of leaking AFFF? Do you/did you test the vehicles spray patterns to make sure equipment is working properly? How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?</p> <p>- Yes. Trucks leaked ~80 gal/day. Parked at airfield off ramp - see map - Nozzle checks into/at Lake Marguerite. RB - wash tanks out into Lake Marguerite. KH - North airfield Bismarck Staging: 2 Summers, 2 weeks each ~ '82 - '83</p>

once Steve Green started; they stopped using wet water - ~~XXXX~~ 1986-1987.

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: JL & CM  
Date/Time: 2/27/18 @ 1300

12. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

• NO active FTAs w/ AFFF, Past FTAs indicated on ~~map~~ map  
• AFFF training ~1970's - 1980's, KH: Didn't have foam nozzles so made "wet water" & used (mix AFFF + water in tanker trucks) for training & response  
• Locations of FTA's shown on map.

13. What types of fuels/flammbles were used at the FTAs?

mixture of gas/water would mix w/ JP8 to use for fire training activities  
or gas/diesel fuel mixture

14. What was the frequency of AFFF use at each location? When a release of AFFF occurs during a fire training exercise, now and in the past, how is/was the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

KH: 2 training weekends/month - starting using wet water in ~78  
RS: has only trained on the airfield a few times  
84-86 - would train a few years apart.

15. Are there mutual aid/use agreements between county, city, local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement? Can you recall specific times when city, county, state personnel came on-post for training? If so, please state which state/county agency, military entity? Do you have any records, including photographs to share with us?

Dan Shrock on fire department + chief camp grayling  
DNR of Camp Grayling would bring campers.  
Camp Grayling had an agreement w/ DNR  
↳ DNR would have to "officially" give the go ahead.

16. Did individual units come on-post with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

Indiana Guard - brought right nozzles for foam  
Ohio Guard.



PA Interview Questionnaire – Fire Station

Facility: Compton, MI  
Interviewer: JL & CM  
Date/Time: 2/27/18 @ 1300

17. Did military routinely or occasionally fire train off-post? List units that you can recall used/trained at various areas.

- No

18. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

RS - no, only the car crash on Amble Drive.

19. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

Common practice to use the "wet water" on fuel spills.  
mostly  
Run reports are available

20. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

yes. on operational Ranges.  
Range 40, 30, known Distance, Range 13

21. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste water treatment plants, and AFFF ponds)?

Non-military car dealership - used scotchguard to detail cars for many years.  
Tank trail; used for dust control. Airport Lewiston grade btwn 27(?) + 75 (Roberts Road(?))

↑  
Kunt + Chief.  
used as dust control - North Tob. (12x per year)

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: JL + CM  
Date/Time: 2/27/18 @ 1300

22. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

Dust control - see 21.

23. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

- used for training; not thrown away.
- would use other entities older foam + replenish w/ new foam.

24. Do you recommend anyone else we can interview? If so, do you have contact information for them?

~~Joe Meredith~~  
Meredith → lives in Traverse city; Airfield commander  
→ helped w/ coordination of training (potentially)  
→ Joe's ex-wife works at officers club; contact her to see if Joe is available.

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling  
 Interviewer: J. Li + C. Mitchell  
 Date/Time: 2/27/18 @ ~1500

<p>Interviewee: <u>Paul Smith</u>                  Title: <u>Retired Fire Fighter</u>                  Phone Number: <u>989-390-5577</u>                  Email: <u>dldgreat659@hotmail.com</u></p>	<p>Can your name/role be used in the PA Report? (Y or N)                  Can you recommend anyone we can interview?                  Y or N _____</p>
<p>1. Roles or activities with the Facility/years working at the Facility.</p> <p><u>Fire Fighter under Dan Schrock</u>  <u>Retired 1998</u>  <u>'78/'79 started</u>      <u>wt/1439-1440m units</u></p>	
<p>2. What can you tell us about the history of AFFF at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.</p> <p>Maintenance (e.g., ramp washing)  <u>Fire Training Areas</u> - @ air 8: dld @ Camp + Wildfires  <u>Firefighting (Active Fire)</u> - wild fires  <u>Crash</u> - Behind 39<sup>th</sup> Building = Helicopter Crash simulation                  Fire Suppression Systems (Hangers/Dining Facilities)                  Fire Protection at Fueling Stations  <u>Non-Technical/Recreational/ Pest Management</u>      <u>Demonstration @ Parade Grounds + Ross Commons</u>  <span style="margin-left: 400px;"><u>Fireman's memorial</u></span></p>	
<p>3. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing at the AFFF/suppression systems?</p> <p><u>NO</u></p>	
<p>4. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?</p> <p><u>N/A</u></p>	
<p>5. How is AFFF procured? Do you have an inventory/procurement system that tracks use?</p> <p><u>• unknown</u></p>	



PA Interview Questionnaire – Fire Station

Facility: Camp Grayling  
Interviewer: J. Li + C. M. Achelle  
Date/Time: 2/27/18 @ ~1500

<p>6. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?</p> <p><i>Not sure</i></p>
<p>7. Is AFFF formulated on base? If so, where is the solution mixed, contained, transferred, etc.?</p> <p><i>No</i></p>
<p>8. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?</p> <p><i>Buckets stored at Building 36, 560, FD station building 39, and fire station at the airfield.</i></p>
<p>9. How is the AFFF transferred to emergency response vehicles, suppression systems, flightline extinguishers? Is/was there a specified area on the facility where vehicles are filled with AFFF and does this area have secondary containment in case of spills? How and where are vehicles storing AFFF cleaned/decontaminated?</p> <p><i>• Filled tankers as needed</i></p>
<p>10. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located?</p> <p><i>• All of the 530's (tankers) used AFFF. Each 5,000 gal tanks.</i></p>
<p>11. Any vehicles have a history of leaking AFFF? Do you/did you test the vehicles spray patterns to make sure equipment is working properly? How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?</p> <p><i>—</i></p>

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling  
Interviewer: J. Li & C. Mitchell  
Date/Time: 2/27/18 @ 1500

12. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

- Old MATES, many different areas, cannot direct via phone
- Intense training, 2 weekends every month
- The 39<sup>th</sup> + 40<sup>th</sup> units trained during Summer Camp at the airfield.

13. What types of fuels/flammables were used at the FTAs?

- JP8
- Buildings, out in Cantonment, layout struc. of air craft + response drills

14. What was the frequency of AFFF use at each location? When a release of AFFF occurs during a fire training exercise, now and in the past, how is/was the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

- See above frequency
- Training (release areas not cleaned → foam soaked into ground.)

15. Are there mutual aid/use agreements between county, city, local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement? Can you recall specific times when city, county, state personnel came on-post for training? If so, please state which state/county agency, military entity? Do you have any records, including photographs to share with us?

- Camp Grayling FD supported Grayling City FD as needed.
- 26 fires responded to in one weekend - unknown date
- May 1990' fire burned 1,000's of acres south<sup>3</sup> East of town

16. Did individual units come on-post with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

- IN, OH, MI guard units
- Speculate IN brought (+OH) AF<sup>3</sup> w/ them
- Training went by book

- 1439<sup>th</sup> + 1440<sup>th</sup> members also volunteer FD members
- Joint training w/ all entities.

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling  
Interviewer: J.L. + C. Mitchell  
Date/Time: 2/27/18 @ ~1500

17. Did military routinely or occasionally fire train off-post? List units that you can recall used/trained at various areas.

NO

18. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

• Check w/ State Fire Marshal office <sup>in</sup> Lansing for records since <sup>Camp</sup> Grayling FD was state certified.

19. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

was told of refueling issues w/ a helicopter at the airport along the flight line.

20. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

—

21. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste water treatment plants, and AFFF ponds)?

No

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling  
Interviewer: J.L. & C. Mitchell  
Date/Time: 2/27/18 @ ~1520

22. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

- Used during demonstration shows, specifically during the Fireman's Memorial at Ross Commons.

23. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

- Not dumped
- Rotated stock

24. Do you recommend anyone else we can interview? If so, do you have contact information for them?

- Steve Green
- Mike Carlew (commander of 1440<sup>th</sup>)
- Dan Ellis
- Garry ~~\_\_\_\_\_~~ Jines
- Louis Dudas

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling  
 Interviewer: Jili + C. Mitchell  
 Date/Time: 2/28/18 @ 1000

<p>Interviewee: <u>Steve Green</u>                  Title: <u>Former Fire Chief/Captain</u>                  Phone Number: <u>989-344-6191</u>                  Email: _____</p>	<p>Can your name/role be used in the PA Report? <u>Y</u> or N                  Can you recommend anyone we can interview?                  Y or <u>N</u> _____</p>
<p>1. Roles or activities with the Facility/years working at the Facility.</p> <p><u>Fire Chief/Captain 1986 - 2002 12-13 yrs</u>  <u>Camp Grayling FD off + on</u></p>	
<p>2. What can you tell us about the history of AFFF at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.</p> <p>Maintenance (e.g., ramp washing)  <u>Fire Training Areas</u> <u>Spring &amp; Summer</u>                  Firefighting (Active Fire)                  Crash                  Fire Suppression Systems (Hangers/Dining Facilities)                  Fire Protection at Fueling Stations                  Non-Technical/Recreational/ Pest Management</p> <p><u>• Didn't use much AFFF due to availability</u>  <u>• Emergency response to Ranges 40, 13, 8 (machine gun), 3, and 20/21</u></p>	
<p>3. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing at the AFFF/suppression systems?</p> <p><u>NO</u></p>	
<p>4. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam?</p> <p><u>N/A</u></p>	
<p>5. How is AFFF procured? Do you have an inventory/procurement system that tracks use?</p> <p><u>ordered via catalog - approx. 40-5gal buckets/year</u></p>	

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: JL & CM  
Date/Time: 2/28/18 @ 1000

6. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)?  
Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?

unknown, blue buckets w/ white lettering

7. Is AFFF formulated on base? If so, where is the solution mixed, contained, transferred, etc.?

No

8. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?

- 5 gal buckets  
- ceased storage in Fire truck tanks during tenure

9. How is the AFFF transferred to emergency response vehicles, suppression systems, flightline extinguishers? Is/was there a specified area on the facility where vehicles are filled with AFFF and does this area have secondary containment in case of spills? How and where are vehicles storing AFFF cleaned/decontaminated?

NA

10. Provide a list of vehicles that carried AFFF, now and in the past, and where are/were they located?

2-5 ton tanker trucks, got foam trucks

11. Any vehicles have a history of leaking AFFF? Do you/did you test the vehicles spray patterns to make sure equipment is working properly? How often are/were these spray tests performed and can you provide the locations of these tests, now and in the past?

- stopped using tanker trucks w/ AFFF due to mixed use of water trucks and leaking wear on the tanks during his tenure



PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: JL & CM  
Date/Time: 2/28/18 @ 1000

12. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

- Building 600 area - formerly "tent city"
- Exposed foam used for training

13. What types of fuels/flammables were used at the FTAs?

unk. Demonstrations done on concrete pads

14. What was the frequency of AFFF use at each location? When a release of AFFF occurs during a fire training exercise, now and in the past, how is/was the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

NA

15. Are there mutual aid/use agreements between county, city, local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement? Can you recall specific times when city, county, state personnel came on-post for training? If so, please state which state/county agency, military entity? Do you have any records, including photographs to share with us?

unknown

16. Did individual units come on-post with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

NA

PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: JL & CM  
Date/Time: 2/28/18 @ 1000

17. Did military routinely or occasionally fire train off-post? List units that you can recall used/trained at various areas.

NO

18. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

MPRC southland (Range 30), North SOB

19. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

No

20. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

Emergency Response to Small Arms Range, MPRC southland, North SOB

21. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste water treatment plants, and AFFF ponds)?



PA Interview Questionnaire – Fire Station

Facility: Camp Grayling, MI  
Interviewer: PL + CM  
Date/Time: 2/28/18 @ 1000

22. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

Not used for dust control during tenure

23. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

Expired AFFF used for training.

24. Do you recommend anyone else we can interview? If so, do you have contact information for them?

No.

Follow-up interview - Kim Halstead, Camp Grayling Firefighter  
cell#: 989-889-0448

Enquired regarding the location of the former tank trail and if AFFF was used.

- Only used AFFF along Lewiston grade road.
- Tank trail previously went through Airfield but it has since been changed.
- Sprayed foam / wet water on Lewiston grade Rd due to dust complaints by home owners.

Location of Bivouac Area.

- Stated the location of Bivouac Area was more east than originally told during original interview. Mr. Halstead stated they could see the runway from ~~where~~ the bivouac area & circled an area NW of runway 5/23.

Northern End of Runway 5/23

- Mr Halstead stated the City of Grayling Fire Department did fire training in this area.
- Performed "a few" times during the <sup>late-</sup>1970's to early 1980's (not a regular training event).
- This area is now associated w/ the municipal airport.

**DRAFT - Michigan Department of Natural Resources Input to the Army National Guard Grayling Preliminary Assessment**

The Michigan Department of Natural Resources (MDNR) responds to wildfires in the areas surrounding Camp Grayling and will assist, when requested, on the base. In many cases, MDNR will assist with controlled burns to reduce wildfire potential and intensity. MDNR uses a Class A Foam manufactured by Phos-Chek/ICL Performance products. Class A foam is a biodegradable mixture of foaming and wetting agents and does not contain AFFF. Additionally, the DNR has historically used a wetting agent, commonly called “wetwater” which is very similar in chemical composition to Class A Foam but does not have the foaming abilities. MDNR used a wetting agent labelled 5100-103b that was approved by U.S.D.A. Forest Service and can be found referenced in federal wildland firefighting manuals and guidance. Preliminary research of DNR records dating back to the 1970s provides no evidence that any firefighting agents used contained AFFF and currently the DNR does not use or procure any products with AFFF for fighting wildland fires. In response to USANG inquiries related to firefighting and Camp Grayling, the generic use of the term “foam” may lead to a misunderstanding of the actual agent used as well as lead to uncertainty in the areas where AFFF contamination may be present. Future work around Camp Grayling should seek to better define this uncertainty while proactively testing to protect public health. However, simply assuming that wherever the DNR responded to a wildland fire resulted in an AFFF release would be incorrect.

June 26, 2018

Submitted by T.J. Newcomb, Ph.D.  
MDNR Senior Water Policy Advisory  
[newcombt@michigan.gov](mailto:newcombt@michigan.gov)  
(517)284-5832

**PA Interview Questionnaire - Other**

**Facility: Camp Grayling, MI**  
**Interviewer: J. Li**  
**Date/Time: 07/03/2018 @ 0900**

<p><b>Interviewee:</b> Susan Thiel  <b>Title:</b> Unit Manager, Grayling Forest Management Unit; Michigan DNR  <b>Phone Number:</b> 989-348-6371, x7440  <b>Email:</b> ThielS1@michigan.gov</p>	<p>Can your name/role be used in the PA Report? <u>Y</u> or N          Can you recommend anyone we can interview?          Y or N _____</p>
<p><b>Roles or activities with the Facility/Years working at the Facility:</b></p>	
<ul style="list-style-type: none"> <li>- Approximately 33 years total with Michigan DNR</li> </ul>	
<ul style="list-style-type: none"> <li>- Over 25 years with the Grayling Unit</li> </ul>	
<ul style="list-style-type: none"> <li>- Approximately 22 years as Unit Manager</li> </ul>	
<p><b>PFAS Use:</b> Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as builds), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?</p>	
<p><b>Has DNR had any past or present AFFF or Class B foam use?</b></p>	
<ul style="list-style-type: none"> <li>- Not aware of any use of AFFF type foam used. Class A foam that was used did not contain the chemicals of concern with AFFF. DNR did not have foam capability at first. Foam not used in the 1970's, DNR got the foaming capability in the mid-late 1980's.</li> <li>- Foam use was not common or regular. It was only used in extreme drought conditions and tracked.</li> </ul>	
<p><b>What manufacturer or Brand of Foam was used?</b></p>	
<ul style="list-style-type: none"> <li>- Unknown manufacturer or concentration, containers were yellow or clear/white in color. Likely tracked by state.</li> </ul>	
<p><b>Was "wet water" used and how was it made?</b></p>	
<ul style="list-style-type: none"> <li>- Use of wet water was before her time. Understood that it was essentially a mixture of water and "heavy soap"</li> </ul>	
<p><b>Any mutual aid use agreements with Camp Grayling Fire Department?</b></p>	
<ul style="list-style-type: none"> <li>- Yes, likely on file with DNR.</li> </ul>	
<ul style="list-style-type: none"> <li>- Typically fires on Camp Grayling were first responded to by Camp Grayling Fire Department units; if the fire extended beyond the Camp's fences then DNR would provide support. DNR support included creating fire breaks that would be wetted down with either water or Forest Service approved foam (non-AFFF).</li> <li>- DNR responded to the "Meridian Fire" and a fire that originated at Range 9 on Camp Grayling that resulted from a controlled burn that became out of control.</li> </ul>	
<p><b>Was any joint training conducted with Camp Grayling units?</b></p>	
<ul style="list-style-type: none"> <li>- Yes, training classes were typically the basics and classroom based with practical training for pump use and fire shelter creation. Not aware of any intentional fires being put out with foam during training activities.</li> </ul>	
<p><i>**Follow-up email with additional information from interviewee provided on next page**</i></p>	

## PA Interview Questionnaire - Other

Facility: Camp Grayling, MI  
Interviewer: J. Li  
Date/Time: 07/03/2018 @ 0900

**From:** Thiel, Susan (DNR) <Thiels1@michigan.gov>  
**Sent:** Tuesday, July 03, 2018 11:00 AM  
**To:** Li, Jennifer J (Germantown)  
**Cc:** Edgerly, Jonathan (DMVA)  
**Subject:** Additional fire information  
**Attachments:** Michigan NG Mutual Aid Agreement 2-21-17.pdf

Jennifer:

The start date of Range 9 and Meridian fires was May 18, 2010. Please note we also assisted with a fire a couple years later in the same area called the Range 8 fire. Some folks get those two confused. Per the fire report for Range 9 fire, we used 4 gallons of Fire Trol 1 Class A foam over the several day suppression period. Another point I neglected to mention is we cannot switch types of foam in our engines or it may gum up the inductors (not sure if that is truly correct terminology). So staff need to stick with same type of foam we use regularly to keep equipment running. Historically we did not have foam capabilities until mid to late 80's. We did not use foam regularly after that as it was expensive and so we did not make it common practice. I can't remember using foam when I worked on the large Stephan Bridge fire as an engine operator in 1990. We also cannot use foam if we draft from a natural water body (lake, stream, pond). So if we use a local water source for suppression in the field, we don't use foam. With that said, our use of class A foam has been increasing in the past few years due to reduction in staff. My staff have been using it more regularly over the past ten years as compared to the 1990s when I worked on the fire line. The use of foam is recorded on our fire reports and can be tracked. Every stat fire we run on has a fire report which outlines equipment use and costs. If foam is used, it is listed as a line item cost on our fire reports. I am not aware of us ever buying or using any Class B foam. I doubt we would even use it if given to us as we would not want to risk running it through our equipment. We should be able to track down the type of foam we have purchased via our historical purchasing records and the type of foam used is also on fire reports.

I checked with my Assistant Mike Janisse who puts on the training that CG staff have attended and I asked if he ever has used foam for hands on activities in the training. He said no, foam has not been used during trainings for the past several years he was involved with.

Attached is a copy of the current mutual aid agreement we are working under. If you have any questions, feel free to contact me. Susan

Susan J. Thiel, Unit Manager  
Grayling Forest Mangement Unit, MDNR  
1955 N. Hartwick Pines Road  
Grayling, MI 49738  
(989) 348-6371 x 7440  
FAX: (989) 348-8825  
[Thiels1@michigan.gov](mailto:Thiels1@michigan.gov)

**PA Interview Questionnaire - Other**

**Facility: Camp Grayling, MI**  
**Interviewer: J. Li**  
**Date/Time: 07/03/2018 @ 1100**

<p><b>Interviewee:</b> Jim Fisher  <b>Title:</b> Fire Section Manager, Forest Resources Division; Michigan DNR  <b>Phone Number:</b> 517-284-5866  <b>Email:</b> FisherJ@michigan.gov</p>	<p>Can your name/role be used in the PA Report? <u>Y</u> or N          Can you recommend anyone we can interview?          Y or N _____</p>
<p><b>Roles or activities with the Facility/Years working at the Facility:</b></p>	
<ul style="list-style-type: none"> <li>- Approximately 32 years total with Michigan DNR</li> </ul>	
<ul style="list-style-type: none"> <li>- Current role as supervisor for past 2.5 years</li> </ul>	
<ul style="list-style-type: none"> <li>- Started in 1985-1986 as fire fighter in Roscommon, MI and worked way up since</li> </ul>	
<p><b>PFAS Use:</b> Identify accidental/intentional release locations, time frame of release, frequency of releases, storage container size (maintenance, fire training, firefighting, buildings with suppression systems (as builds), fueling stations, crash sites, pest management, recreational, dining facilities, metals plating, or waterproofing). How are materials ordered/purchased/disposed/shared with others?</p>	
<p><b>Has DNR had any past or present AFFF or Class B foam use?</b></p>	
<ul style="list-style-type: none"> <li>- Not aware of any use of AFFF or Class B foams ever by DNR. Only used Class A foams and wetting agents approved by the Forest Service (currently listed on forest service website).</li> <li>- They switched from using “wet water” to Class A foams in the late 1980’s or 1990 when DNR got in-line injection pumps for foam use.</li> </ul>	
<p><b>What manufacturer or Brand of Foam was used?</b></p>	
<ul style="list-style-type: none"> <li>- Phos-chek and Fire Trol 103B</li> </ul>	
<p><b>Was “wet water” used and how was it made? Was it ever made with foam concentrate?</b></p>	
<ul style="list-style-type: none"> <li>- The term “wet water” is a general term used and not a brand type. Quart sized bottles of a liquid or dish washing detergent was used to mix batches of “wet water.” Cannot speak to the use of foam concentrate to make it, his experience was using the above methods, primarily dish soap to break surface tension of the water.</li> </ul>	
<p><b>Any mutual aid use agreements with Camp Grayling Fire Department?</b></p>	
<ul style="list-style-type: none"> <li>- Not sure if it is a MOU agreement, but an annual agreement exists for joint use, support, communication, and training. Agreement in place since at least early 1990’s.</li> </ul>	
<p><b>Aware of instances where Camp Grayling Units responded to fires off Camp Grayling property?</b></p>	
<ul style="list-style-type: none"> <li>- Camp Grayling typically did not go off of their facility. May have been a couple of instances but cannot remember any specific details or dates.</li> </ul>	
<p><b>Was joint training conducted with Camp Grayling units?</b></p>	
<ul style="list-style-type: none"> <li>- Yes, classroom based mostly. Also hands on truck operation, tactics, and communication. Prescribed burns treated as training; typically units involved in the training provided their own equipment. Joint training instances of prescribed burns usually on Camp Grayling and its ranges.</li> </ul>	

## **Appendix B.2**

# **Visual Site Inspection Checklists**



# Visual Site Inspection Checklist

Names(s) of people performing VSI: JLi + CM (AECCM), R. Macleod (MIA RANG), M. Leaper (ARNG), LTC Johnson (ARNG), LTC Crowley (ARNG)

Recorded by: JLi (AECCM)

ARNG Contact: Rob Macleod (MIA RANG), M. Leaper (ARNG)

Date and Time: 2/28/18 @ 1000

Method of visit (walking, driving, adjacent): walking + driving

## Source/Release Information

Site Name / Area Name / Unique ID: Camp Grayling Army Airfield

Site / Area Acreage: \_\_\_\_\_

Historic Site Use (Brief Description): Airfield - military + municipal

Current Site Use (Brief Description): same

Physical barriers or access restrictions: fence + locked gates

1. Was PFAS used (or spilled) at the site/area?  Y  N

1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):  
FTA's + Fire tankers truck leaks ~ 1970's-1980's - exact timeframes unknown.

2. Has usage been documented?  Y  N

2a. If yes, keep a record (place electronic files on a disk):  
NA

3. What types of businesses are located near the site? Industrial / Commercial / Plating / Waterproofing / Residential

3a. Indicate what businesses are located near the site  
lodging, car dealership, auto repair shops

4. Is this site located at an airport/flightline?  Y  N

4a. If yes, provide a description of the airport/flightline tenants:  
Army Airfield, municipal use @ northern end of airfield, 2 flight lines.



# Visual Survey Inspection Log

## Other Significant Site Features:

1. Does the facility have a fire suppression system?

Y  N

1a. If yes, indicate which type of AFFF has been used:

N/A

1b. If yes, describe maintenance schedule/leaks:

N/A

1c. If yes, how often is the AFFF replaced:

N/A

1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

N/A

## Transport / Pathway Information

### Migration Potential:

1. Does site/area drainage flow off installation?

Y  N

1a. If so, note observation and location:

Little overland flow due to sandy soil, likely GWS divide  
w/in airfield to west + east flow directions

2. Is there channelized flow within the site/area?

Y  N

2a. If so, please note observation and location:

N/A

3. Are monitoring or drinking water wells located near the site?

Y  N

3a. If so, please note the location:

Boundary VAP samp. locations surrounding airfield boundary  
DW wells in adjacent communities.

4. Are surface water intakes located near the site?

Y  N

4a. If so, please note the location:

N/A

5. Can wind dispersion information be obtained?

Y  N

5a. If so, please note and observe the location.

N/A

6. Does an adjacent non-ARNG PFAS source exist?

Y  N

maybe

6a. If so, please note the source and location.

• auto dealership to east suggested by interviewees as potentially  
do water proofing detailing to cars

6b. Will off-site reconnaissance be conducted?

Y  N

## Visual Survey Inspection Log

### Significant Topographical Features:

1. Has the infrastructure changed at the site/area?

Y  N

1a. If so, please describe change (ex. Structures no longer exist):

N/A

2. Is the site/area vegetated?

Y  N

2a. If not vegetated, briefly describe the site/area composition:

Vegetated except for runways and northern municipal area

3. Does the site or area exhibit evidence of erosion?

Y  N

3a. If yes, describe the location and extent of the erosion:

N/A

4. Does the site/area exhibit any areas of ponding or standing water?

Y  N

4a. If yes, describe the location and extent of the ponding:

N/A

### Receptor Information

1. Is access to the site restricted?

Y  N

1a. If so, please note to what extent:

fenced boundary w/ locked gates

2. Who can access the site?

Site Workers /  Construction Workers /  Trespassers /  Residential /  Recreational  
 Users /  Ecological

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site?

Y  N

3a. If so, please note the location/distance:

abutting airfield on all sides

4. Are any schools/day care centers located near the site?

Y  N

4a. If so, please note the location/distance/type:

N/A

5. Are any wetlands located near the site?

Y  N

5a. If so, please note the location/distance/type:

Riparian wetlands associated w/ Au Sable River + tributaries

## Visual Survey Inspection Log

### *Additional Notes*

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### *Photographic Log*

<b>Photo ID/Name</b>	<b>Date &amp; Location</b>	<b>Photograph Description</b>

### Visual Site Inspection Checklist

Names(s) of people performing VSI: JL + CM (AECOM), P. MacLeod (MIARNG), Kim Boker (Camp Grayling)

Recorded by: JL (AECOM)

ARNG Contact: Rob MacLeod (MIARNG), M. Leeper (ARNG)

Date and Time: 2/28/16 @ 1400

Method of visit (walking, driving, adjacent): Driving + walking

#### Source/Release Information

Site Name / Area Name / Unique ID:

Camp Grayling South Post Ranges

Site / Area Acreage:

various

Historic Site Use (Brief Description):

Range 8 - multipurpose machine gun, Range 3 - small arms,  
Ranges 20-21 - Demo HE, Range 13/17 - grenade / mortar

Current Site Use (Brief Description):

same

Physical barriers or access restrictions:

all fence ~~is~~ fenced w/ locked gates

1. Was PFAS used (or spilled) at the site/area?

Y  N

1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):

Emergency wildfire Response in 1970's - 1980's

2. Has usage been documented?

Y  N

2a. If yes, keep a record (place electronic files on a disk):

3. What types of businesses are located near the site?

**Industrial / Commercial / Plating / Waterproofing / Residential**

3a. Indicate what businesses are located near the site

none

4. Is this site located at an airport/flightline?

Y  N

4a. If yes, provide a description of the airport/flightline tenants:

# Visual Survey Inspection Log

## Other Significant Site Features:

1. Does the facility have a fire suppression system?  Y  N

1a. If yes, indicate which type of AFFF has been used:

N/A

1b. If yes, describe maintenance schedule/leaks:

N/A

1c. If yes, how often is the AFFF replaced:

N/A

1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

N/A

## Transport / Pathway Information

### Migration Potential:

1. Does site/area drainage flow off installation?  Y  N

1a. If so, note observation and location:

no overland flow, GW infiltration to + potential GW migration to nearby SW bodies - see map

2. Is there channelized flow within the site/area?  Y  N

2a. If so, please note observation and location:

3. Are monitoring or drinking water wells located near the site?  Y  N

3a. If so, please note the location:

2013 ORCA wells may still be present around Range 13 Complex + Range 20/21

4. Are surface water intakes located near the site?  Y  N

4a. If so, please note the location:

5. Can wind dispersion information be obtained?  Y  N

5a. If so, please note and observe the location.

6. Does an adjacent non-ARNG PFAS source exist?  Y  N

6a. If so, please note the source and location.

6b. Will off-site reconnaissance be conducted?  Y  N

N/A

## Visual Survey Inspection Log

### Significant Topographical Features:

1. Has the infrastructure changed at the site/area?

Y /  N

1a. If so, please describe change (ex. Structures no longer exist):

2. Is the site/area vegetated?

Y /  N

2a. If not vegetated, briefly describe the site/area composition:

except for heavy use training lanes & Demo areas.

3. Does the site or area exhibit evidence of erosion?

Y /  N

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water?

Y /  N

4a. If yes, describe the location and extent of the ponding:

### Receptor Information

1. Is access to the site restricted?

Y /  N

1a. If so, please note to what extent:

all ranges fenced w/ controlled gates. South post access controlled by manual gate.

2. Who can access the site?

Site Workers /  Construction Workers /  Trespassers /  Residential /  Recreational Users /  Ecological

2a. Circle all that apply, note any not covered above:

access by guardsmen

3. Are residential areas located near the site?

Y /  N

3a. If so, please note the location/distance:

4. Are any schools/day care centers located near the site?

Y /  N

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site?

Y /  N

5a. If so, please note the location/distance/type:

North end of Range 8

## Visual Survey Inspection Log

### *Additional Notes*

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### *Photographic Log*

<b>Photo ID/Name</b>	<b>Date &amp; Location</b>	<b>Photograph Description</b>



### Visual Site Inspection Checklist

Names(s) of people performing VSI: JL & CM (AECOM)  
Recorded by: JL  
ARNG Contact: Rob Macdonald (MIARNG) + M. Lupton (ARNG)  
Date and Time: 3/1/18 @ 1500

Method of visit (walking, Driving, adjacent): Driving

#### Source/Release Information

Site Name / Area Name / Unique ID: Camp Grayby Containment

Site / Area Acreage: unknown at time

Historic Site Use (Brief Description): Training Installation Containment

Current Site Use (Brief Description): Same

Physical barriers or access restrictions: fenced and controlled gate access

1. Was PFAS used (or spilled) at the site/area?  Y  N  
1a. If yes, document how PFAS was used and usage time (e.g., fire fighting training 2001 to 2014):  
Fire Training ~1970's - 1980's, old Fire Barn, 600+500 building areas, Wash Racks, Parade Ground, Former ABP, Wilson Hall, 22880

2. Has usage been documented?  Y  N  
2a. If yes, keep a record (place electronic files on a disk):

3. What types of businesses are located near the site? Industrial / Commercial / Plating / Waterproofing / Residential  
3a. Indicate what businesses are located near the site  
Grayby Winter Recreation - Henson Hills located off post to east of containment

4. Is this site located at an airport/flightline?  Y  N  
4a. If yes, provide a description of the airport/flightline tenants:



# Visual Survey Inspection Log

## Other Significant Site Features:

1. Does the facility have a fire suppression system?

Y  N

1a. If yes, indicate which type of AFFF has been used:

N/A

1b. If yes, describe maintenance schedule/leaks:

N/A

1c. If yes, how often is the AFFF replaced:

N/A

1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

N/A

## Transport / Pathway Information

### Migration Potential:

1. Does site/area drainage flow off installation?

Y  N

1a. If so, note observation and location:

Storm Sewers drain to Lake Marguerite

2. Is there channelized flow within the site/area?

Y  N

2a. If so, please note observation and location:

3. Are monitoring or drinking water wells located near the site?

Y  N

3a. If so, please note the location:

DW wells w/in Containment + NE community on Lake Marguerite.

4. Are surface water intakes located near the site?

Y  N

4a. If so, please note the location:

5. Can wind dispersion information be obtained?

Y  N

5a. If so, please note and observe the location.

6. Does an adjacent non-ARNG PFAS source exist?

Y  N

6a. If so, please note the source and location.

Grayly Winter Recreation - Hanson Hills: Ski + snowboard facility

6b. Will off-site reconnaissance be conducted?

Y  N

## Visual Survey Inspection Log

### Significant Topographical Features:

1. Has the infrastructure changed at the site/area?

Y  N <sup>see</sup>

1a. If so, please describe change (ex. Structures no longer exist):

Building Coco Area - New housing being built

2. Is the site/area vegetated?

Y  N

2a. If not vegetated, briefly describe the site/area composition:

Exception at parking areas near 22802 + wash racks

3. Does the site or area exhibit evidence of erosion?

Y  N

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water?

Y  N

4a. If yes, describe the location and extent of the ponding:

### Receptor Information

1. Is access to the site restricted?

Y  N

1a. If so, please note to what extent:

Containment fenced w/ controlled gate access

2. Who can access the site?

Site Workers / Construction Workers / Trespassers / Residential / Recreational  
 Users / Ecological

Approved

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site?

Y  N

3a. If so, please note the location/distance:

Immediately adjacent to Containment to NE along Lake Margrethe Shore.

4. Are any schools/day care centers located near the site?

Y  N

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site?

Y  N

5a. If so, please note the location/distance/type:

Between Parade Grounds + Lake Margrethe - dammed stock pond.

# Visual Survey Inspection Log

*Additional Notes*

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*Photographic Log*

Photo ID/Name	Date & Location	Photograph Description

## **Appendix B.3**

# **Conceptual Site Model Information**

# Preliminary Assessment – Conceptual Site Model Information

**Site Name:** Camp Grayling – Grayling Army Airfield

---

**Why has this location been identified as a site?**

*Interviews indicated former AFFF used for training and incidental leaking from fire trucks*

---

**Are there any other activities nearby that could also impact this location?**

*No – Car dealership detailing activities likely de minimis*

---

**Training Events**

Have any training events with AFFF occurred at this site? – *Yes, mostly at end of runways*

If so, how often? – *unknown frequency, however, intense training 2x per month reported.*

How much material was used? Is it documented? – *Unknown, not documented*

---

**Identify Potential Pathways:** Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

**Surface Water:**

Surface water flow direction? *East Branch Au Sable flows to south towards Au Sable River which flows to the east/southeast*

Average rainfall? *33.61 inches rain annually – 105.1 inches snow*

Any flooding during rainy season? *No, localized ponding during snow melt due to permafrost*

Direct or indirect pathway to ditches? *none*

Direct or indirect pathway to larger bodies of water? *Infiltration to groundwater, shallow groundwater flows towards nearest surface water features (i.e., Au Sable and its tributaries)*

Does surface water pond any place on site? *No*

Any impoundment areas or retention ponds? *No*

Any NPDES location points near the site? *No*

How does surface water drain on and around the flight line? *Storm water drains off of runways and infiltrates into sandy soil surrounding.*

---

## Preliminary Assessment – Conceptual Site Model Information

### Groundwater:

Groundwater flow direction? *Shallow groundwater flows towards nearest surface water body*

Depth to groundwater? *Average depth to groundwater is approximately 45 feet bgs in City of Grayling.*

Uses (agricultural, drinking water, irrigation)? *Drinking Water*

Any groundwater treatment systems? *Air sparging system south of airfield for TCE plume*

Any groundwater monitoring well locations near the site? *VAP locations surrounding boundary*

Is groundwater used for drinking water? *Yes off post*

Are there drinking water supply wells on installation? *Not at airfield*

Do they serve off-post populations? *No, separate nearby public supply wells in City of Grayling*

Are there off-post drinking water wells downgradient? *Yes*

### Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? *Yes in South Post*

If so, do we understand the process and which water is/was treated at the plant? *Yes, effluent spray irrigated to west of WWTP at South Post.*

Do we understand the fate of sludge waste? *Never removed*

Is surface water from potential contaminated sites treated? *No current PFAS treatment, TCE contamination at southern end of air field has a groundwater air sparging system*

### Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

*Not known.*

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles?

*Yes, nozzles were tested and tanks cleaned into/next to Lake Margrethe in South Post.*

3. Other?

# Preliminary Assessment – Conceptual Site Model Information

## Identify Potential Receptors:

Site Worker

---

**Construction Worker**

---

**Recreational User**

---

**Residential**

---

Child

---

**Ecological**

---

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?  
*Residential households located immediately off-post on all sides of airfield. City of Grayling located immediately south east of the airfield.*

---

## Documentation

Ask for Engineering drawings (if applicable). *None available*

---

Has there been a reconstruction or changes to the drainage system? When did that occur?

---

*Au Sable River dam removed in recent history, exact date unknown. Minor changes to river path.*

---

---

---

---



# Preliminary Assessment – Conceptual Site Model Information

Site Name: Camp Grayling – North Post

---

## Why has this location been identified as a site?

*Interviews indicated former AFFF used for emergency response and controlled burns along fence lines*

---

## Are there any other activities nearby that could also impact this location?

*No – Car dealership detailing activities likely de minimis*

---

## Training Events

Have any training events with AFFF occurred at this site? – *No only emergency response or tanker staging*

---

If so, how often? – *unknown frequency, however, very active fire seasons reported.*

---

How much material was used? Is it documented? – *Unknown, not documented*

---

**Identify Potential Pathways:** Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

## Surface Water:

Surface water flow direction? *North Branch and East Branch Au Sable flow to south towards Au Sable River which flows to the east/southeast*

---

Average rainfall? *33.61 inches rain annually – 105.1 inches snow*

---

Any flooding during rainy season? *No, localized ponding during snow melt due to permafrost*

---

Direct or indirect pathway to ditches? *none*

---

Direct or indirect pathway to larger bodies of water? *Infiltration to groundwater, shallow groundwater flows towards nearest surface water features (i.e., Au Sable and its tributaries)*

---

Does surface water pond any place on site? *Range 40 Complex: Barnes and Timber lakes; Range 30 Complex: Kyle Lake; North FOB: KP Lake*

---

Any impoundment areas or retention ponds? *No*

---

Any NPDES location points near the site? *No*

---

How does surface water drain on and around the flight line? *Storm water drains off of runways and infiltrates into sandy soil surrounding.*

---

## Preliminary Assessment – Conceptual Site Model Information

### Groundwater:

Groundwater flow direction? *Shallow groundwater flows towards nearest surface water body*

Depth to groundwater? *0-200 feet bgs, local average around 45 feet in City of Grayling.*

Uses (agricultural, drinking water, irrigation)? *Drinking Water*

Any groundwater treatment systems? *Only at airfield*

Any groundwater monitoring well locations near the site? *Yes around Range 40 Complex*

Is groundwater used for drinking water? *Yes*

Are there drinking water supply wells on installation? *Yes at current MATES*

Do they serve off-post populations? *No, separate nearby public supply wells in City of Grayling*

Are there off-post drinking water wells downgradient? *Yes*

### Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? *Yes in South Post*

If so, do we understand the process and which water is/was treated at the plant? *Yes, effluent spray irrigated to west of WWTP at South Post.*

Do we understand the fate of sludge waste? *Never removed*

Is surface water from potential contaminated sites treated? *No current PFAS treatment, TCE contamination at southern end of air field has a groundwater air sparging system*

### Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

*Not known.*

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles?

*Yes, nozzles were tested and tanks cleaned into/next to Lake Margrethe in South Post.*

3. Other?

# Preliminary Assessment – Conceptual Site Model Information

## Identify Potential Receptors:

Site Worker

---

Construction Worker

---

Recreational User

---

Residential

---

Child

---

Ecological

---

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?  
*Residential households sporadically located throughout uncontrolled North Post areas. City of Grayling located immediately south of the North Post.*

---

## Documentation

Ask for Engineering drawings (if applicable). *None available*

---

Has there been a reconstruction or changes to the drainage system? When did that occur?

---

*Au Sable River dam removed in recent history, exact date unknown. Minor changes to river path.*

---

---

---

---

# Preliminary Assessment – Conceptual Site Model Information

Site Name: Camp Grayling – South Post

---

## Why has this location been identified as a site?

---

*Interviews indicated former AFFF used for emergency response at ranges, training within the cantonment, and maintenance related discharges.*

---

## Are there any other activities nearby that could also impact this location?

---

*Yes – Grayling Winter Recreation Area/Hanson Hills ski and snowboarding area located east of the cantonment.*

---

## Training Events

Have any training events with AFFF occurred at this site? – *Yes, mostly west cantonment, other minor areas in southern areas along South Access Road.*

---

If so, how often? – *unknown frequency, however, heavy training schedules 2x monthly.*

---

How much material was used? Is it documented? – *Unknown, not documented*

---

**Identify Potential Pathways:** Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

## Surface Water:

Surface water flow direction? *Lake Margrethe drains to Portage Creek which flows west towards the Manistee River; Beaver Creek flows to east towards Au Sable*

---

Average rainfall? *33.61 inches rain annually – 105.1 inches snow*

---

Any flooding during rainy season? *No, localized ponding during snow melt due to permafrost*

---

Direct or indirect pathway to ditches? *none*

---

Direct or indirect pathway to larger bodies of water? *Infiltration to groundwater, shallow groundwater flows towards nearest surface water features (i.e., Lake Margrethe or Portage Creek)*

---

Does surface water pond any place on site? *Kings Ponds near Ranges 20 & 21; Cantonment: Stock pond between Parade Grounds and Lake Margrethe*

---

Any impoundment areas or retention ponds? *No*

---

Any NPDES location points near the site? *No*

---

How does surface water drain on and around the flight line? *N/A*

---

## Preliminary Assessment – Conceptual Site Model Information

### Groundwater:

Groundwater flow direction? *Shallow groundwater flows towards nearest surface water body*

Depth to groundwater? *9-35 feet bgs within cantonment, up to 164 feet bgs in southern hills.*

Uses (agricultural, drinking water, irrigation)? *Drinking Water*

Any groundwater treatment systems? *Only at airfield*

Any groundwater monitoring well locations near the site? *Yes around Range 13 complex, around WWTP*

Is groundwater used for drinking water? *Yes*

Are there drinking water supply wells on installation? *Yes various locations*

Do they serve off-post populations? *No, separate nearby public supply wells in City of Grayling*

Are there off-post drinking water wells downgradient? *Yes*

### Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? *Yes in South Post*

If so, do we understand the process and which water is/was treated at the plant? *Yes, effluent spray irrigated to west of WWTP at South Post.*

Do we understand the fate of sludge waste? *Never removed*

Is surface water from potential contaminated sites treated? *No current PFAS treatment, TCE contamination at southern end of air field has a groundwater air sparging system*

### Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

*Not known.*

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles?

*Yes, nozzles were tested and tanks cleaned into/next to Lake Margrethe.*

3. Other?

# Preliminary Assessment – Conceptual Site Model Information

## Identify Potential Receptors:

Site Worker

---

Construction Worker

---

Recreational User

---

Residential

---

Child

---

Ecological

---

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?  
*Residential households located immediately to north of east side of cantonment along Lake Margrethe shore. Households located sporadically along east side of South Post.*

---

## Documentation

Ask for Engineering drawings (if applicable). *None available*

---

Has there been a reconstruction or changes to the drainage system? When did that occur?  
*None in South Post.*

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## **Appendix C**

### **Photographic Log**



## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 1

**Description:**

Area of interest (AOI) 1:  
Grayling Army Airfield  
(GAAF); Standing on  
southern access road facing  
north towards the firefighting  
training area and Runway 32.  
Snow in foreground.



### Photograph No. 2

**Description:**

AOI1: GAAF; Standing on  
northern side of Building 1194  
facing southeast towards  
AOI1. Snow piles on right  
side of photograph. Leaking  
fire trucks were routinely  
parked near Building 1194.



## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 3

#### Description:

Camp Grayling Fire Department (at GAAF): Class A firefighting foam concentrate stored in the Camp Grayling Fire Department building.



### Photograph No. 4

#### Description:

Camp Grayling Fire Department (at GAAF): Class A firefighting foam concentrate stored in the Camp Grayling Fire Department building.





## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 5

**Description:**

AOI2: GAAF; standing within AOI2 on west side of the southern portion of Runway 32, facing vehicle maintenance Building 1100 (former MATES; AOI3).



### Photograph No. 6

**Description:**

AOI4: GAAF; Standing at intersection of Runway 32 and 23, looking northeast. Former fire training area



## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 7

**Description:**  
AOI1: South Post, Small Arms Range 3A Complex. Standing on southern end of range facing northwest. Snow seen on range floor.



### Photograph No. 8

**Description:**  
AOI10: Range 8 – Multipurpose Machine Gun Range. Standing at firing line looking north-northeast.





## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 9

**Description:**

AOI12: Range 20 – light demolitions range. Range 21 not accessible due to icy roads. Standing on northeast end facing southwest towards range floor.



### Photograph No. 10

**Description:**

AOI13: Range 15. Standing on northwest end facing southeast towards range. Fence seen in foreground.





## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 11

**Description:**

AOI14: Building 39 – Former Fire Barn. Standing on Howe Road facing east.



### Photograph No. 12

**Description:**

AOI15: Building 600 area. Standing on east side of 8<sup>th</sup> Street facing northwest towards Building 600 area.



## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
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### Photograph No. 13

**Description:**

AOI15: Parade Grounds circa 2018. Standing on Howe Road facing north towards Lake Margrethe (seen in background).



### Photograph No. 14


**Description:**


AOI15: Parade Grounds circa 1970s – 1980s. Photograph provided by Kim Halstead. Camp Grayling fire truck parked on Parade Grounds. Blue AFFF bucket seen in back of truck.






## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 15</b></p> <p><b>Description:</b></p> <p>AOI15: Wash Rack on corner of Howe Road and 8<sup>th</sup> Street. Standing on east side facing west. Snow present in wash rack and background.</p>		

<p><b>Photograph No. 16</b></p> <p><b>Description:</b></p> <p>AOI15: Larger Wash Rack on corner of Parade Road and 8<sup>th</sup> Street. Standing on southern side of Wash Rack facing north. Wash Rack surrounded by large concrete pad.</p>		
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## APPENDIX C – Photographic Log


Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 17</b></p> <p><b>Description:</b></p> <p>AOI14: Building 228Q (circa 2018), standing on west side of buildings facing east. Unpaved parking area in foreground.</p>		

<p><b>Photograph No. 18</b></p> <p><b>Description:</b></p> <p>AOI14: Building 228Q (1970s - 1980s). Photograph provided by Kim Halstead.</p>		
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## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 19</b></p> <p><b>Description:</b></p> <p>AOI15: Check nozzle area (2018). Standing on Soldier Drive facing southeast toward a frozen, snow covered Lake Margrethe.</p>		

<p><b>Photograph No. 20</b></p> <p><b>Description:</b></p> <p>AOI15: Check nozzle area (1970s - 1980s). Photograph provided by Kim Halstead. Camp Grayling Firefighters performing check nozzle maintenance on fire truck next to Lake Margrethe.</p>		
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## APPENDIX C – Photographic Log

Army National Guard, Preliminary  
Assessment for PFAS

Camp Grayling

Grayling, Michigan

The following photographs were provided by former Camp Grayling firefighter Kim Halstead and annotated by Camp Grayling Environmental Quality Specialist Kimberly Bolan.

### Photograph No. 21

#### Description:

AOI16

Early 1980-1981  
Wilson Hill - By the track






## APPENDIX C – Photographic Log


Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 22</b></p> <p><b>Description:</b> AOI15</p>	<p data-bbox="673 346 1047 493">Early 1980's 600 ARER</p>  <p data-bbox="1177 997 1453 1249">1438th Quonset Hut Behind General's House Garage Now the wash Rack area</p>	




## APPENDIX C – Photographic Log


Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 23</b></p> <p><b>Description:</b></p> <p>Single time emergency response to car accident.</p>	<p data-bbox="617 289 1339 388"><i>Military at Beaver Road Accident 1979</i></p>  <p data-bbox="727 888 1112 919">KIM-HALSTEAD APPLYING FOAM.</p>  	

## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 24</b></p> <p><b>Description:</b> AOI17</p>	<p>1981 or 1982 after Buildings were Demolished at the Old ASP on south access <sup>RD</sup> By the Old Quonset Hut at the Range Gate. Burning Brush Piles. Used AFFF to Put out Brush fires.</p> 	


<p><b>Photograph No. 25</b></p> <p><b>Description:</b> AOI18</p>	<p>Pre-Burn on Range 30 Complex in the Early 1980s. AFFF was Put into the water tank on the Fire truck and mixed with water to form wet water to Fight wild Land Fires</p>  <p>← AFFF = Blue Containers on Back of fire truck.</p>	
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## APPENDIX C – Photographic Log


Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 26</b></p> <p><b>Description:</b></p> <p>AOII</p>	<p>Fire trucks staged at CGAAF Near Ops Building Early 1980's</p>  <p>The photograph log contains two identical photographs. Each photograph shows a grassy airfield with several military vehicles, including a large fire truck on the right and a smaller utility vehicle on the left. A group of people in military uniforms are gathered around the fire truck. In the background, several military aircraft are parked on the tarmac. The sky is clear and blue.</p>	




## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 27</b></p> <p><b>Description:</b> AOI4</p>	<p>Indiana National Guard troops training at the Airfield (CGAAF) Early 1980's with Foam Cannon &amp; Ground Hoses (Page 1)</p>  <p>The photograph log contains three vertically stacked images. The top image shows a green military truck with a foam cannon mounted on its back, parked on a grassy airfield. A person in a white hazmat suit stands next to the truck. The middle image shows the same truck and person, with a large plume of white foam being discharged from the cannon. The bottom image shows the truck and person again, with a high-pressure water hose being used to spray the ground.</p>	

## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 28</b></p> <p><b>Description:</b> AOI4</p>	<p>Indiana National Guard Training Early 1980's (Page 2)</p> 	

## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 29</b></p> <p><b>Description:</b></p> <p>AOI4</p>	<p>Michigan National Guard CGATS (Fire Detachment) TRAINING mid 1980's (Page 1) AIRFIELD</p> 	

## APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Camp Grayling	Grayling, Michigan
<p><b>Photograph No. 30</b></p> <p><b>Description:</b></p> <p>AOI4</p>	<p>Michigan National Guard CGATS (Fire Detachment) Training mid 1980's (Page 2) AIR Field</p> 