Godwin Unit Rx

Hagerman National Wildlife Refuge, Texas

DECLARED WILDFIRE REVIEW

FINAL REPORT

July 7, 2025

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INTRODUCTION

The Oklahoma & North Texas Fire Management Program (zone) is responsible for implementing fuels treatments and responding to wildfires on fourteen national wildlife refuges and one national fish hatchery. The zone conducts the bulk of its prescribed burning for the year from the 1st of January through mid-April. During this time, additional resources are ordered to assist with implementation throughout the zone. This allows fire zone personnel to implement prescribed burns across multiple units and refuges during overlapping burn windows, maximizing opportunities and accomplishments within the zone.

The Godwin unit prescribed fire was implemented by the zone at Hagerman National Wildlife Refuge (TX-HGR) on February 28th and March 7th, 2025. The unit is 910 acres and rated as a moderate complexity burn that can be split into two separate subunits, north and south, or burned together. The northern subunit is 352 acres, and the southern subunit is 558 acres. The perimeter, adjacent to private property, was mechanically treated under contract the previous fall. This treatment consisted of masticating and chipping to reduce brush and eastern red cedar.

On March 14, the Texas Panhandle, North Texas, and all of Oklahoma - except McCurtain County - was under a red flag warning. The Texas Panhandle and Western Oklahoma experienced wind gusts over 70 mph and relative humidity (RH) values in the teens. The Grayson County Airport, approximately nine miles east of the Godwin unit, experienced wind gusts of 58 mph and RH values in the low teens. Both Texas and Oklahoma experienced multiple high severity wildfires that required assistance from multiple agencies. Zone fire personnel responded to two new starts on opposite ends of the state, stretching resources very thin. During this high fire danger event, smoldering mulch flared up and escaped the Godwin unit and burned ¾ of an acre of private land adjacent to the burn unit.

Photo 1: A prescribed burn conducted at Hagerman NWR, similar to the fuels and burning conditions of the Godwin unit prescribed fire.

Photo 2: Post mastication treatment of the Godwin unit perimeter completed March of 2024. Mulch layers were acceptable to eight inches thick or less throughout the project area.

The Review Team consisted of (position, station):

-TJ Lowder, Fire Management Officer, OK/N. TX Fire Management Zone
-Howard Boss, Prescribed Fire Specialist, OK/N. TX Fire Management Zone
-Brett Idol, Fuels Specialist, Region 2
-Jeff Adams, Fire Planner, Region 2

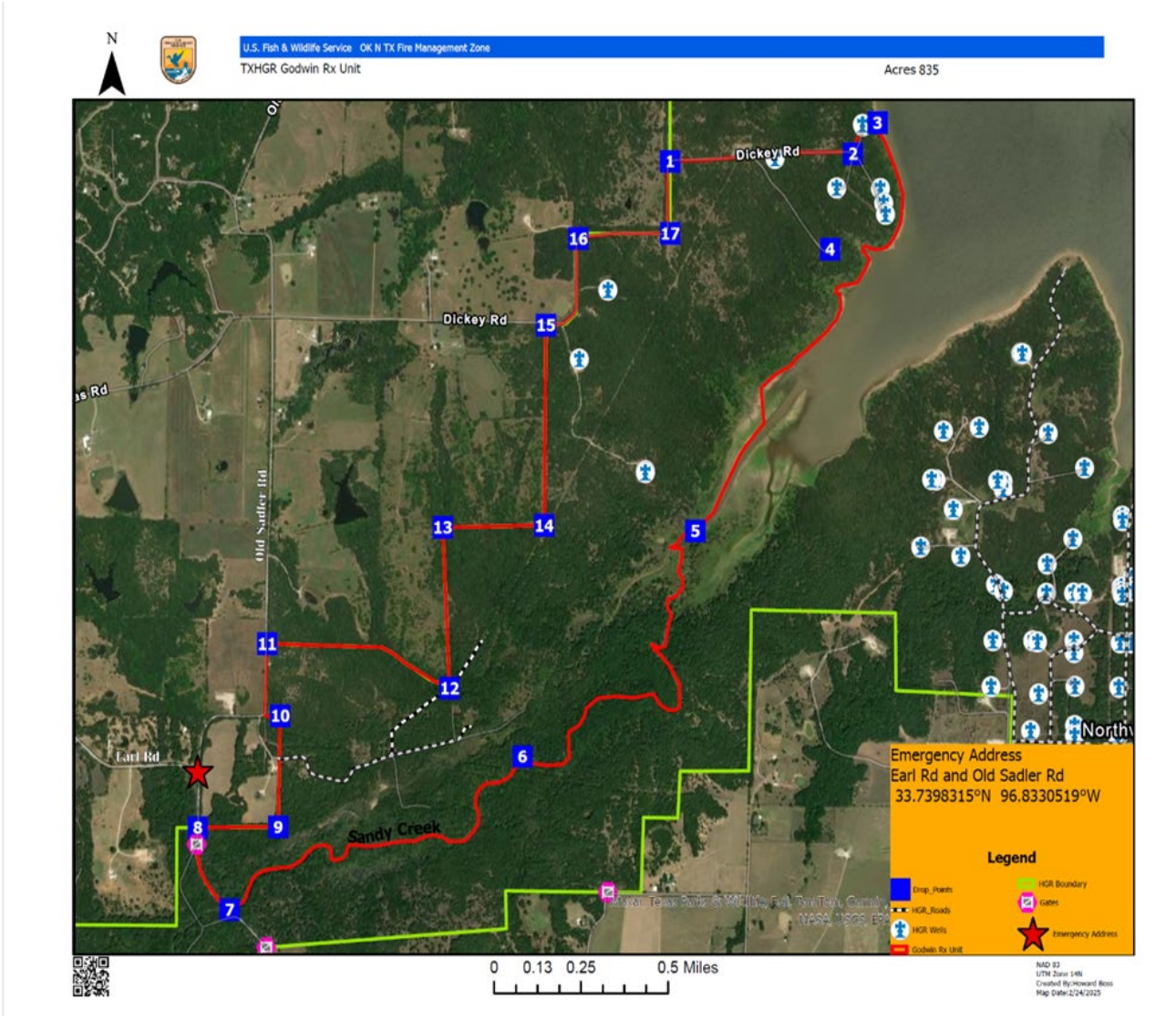
SUMMARY NARRATIVE

The Godwin unit prescribed fire was burned as two separate subunits. Implementation of the northern subunit was completed on the 28th of February when favorable conditions became available. Operations were successful even though a few spot fires were quickly identified and suppressed. On the 7th of March, the southern subunit of the Godwin unit was completed. Fire crews were on-site mopping up problem areas through March 9th until moisture arrived in the area. The Godwin prescribed fire received moisture from the 8th of March to the 9th, which amounted to 8/10th of an inch. Through the following week national wildlife refuge staff at Hagerman National Wildlife Refuge (NWR) checked the entire burn unit daily and relayed information back to the burn boss. Staff reported no holding issues for both units of the Godwin prescribed fire.

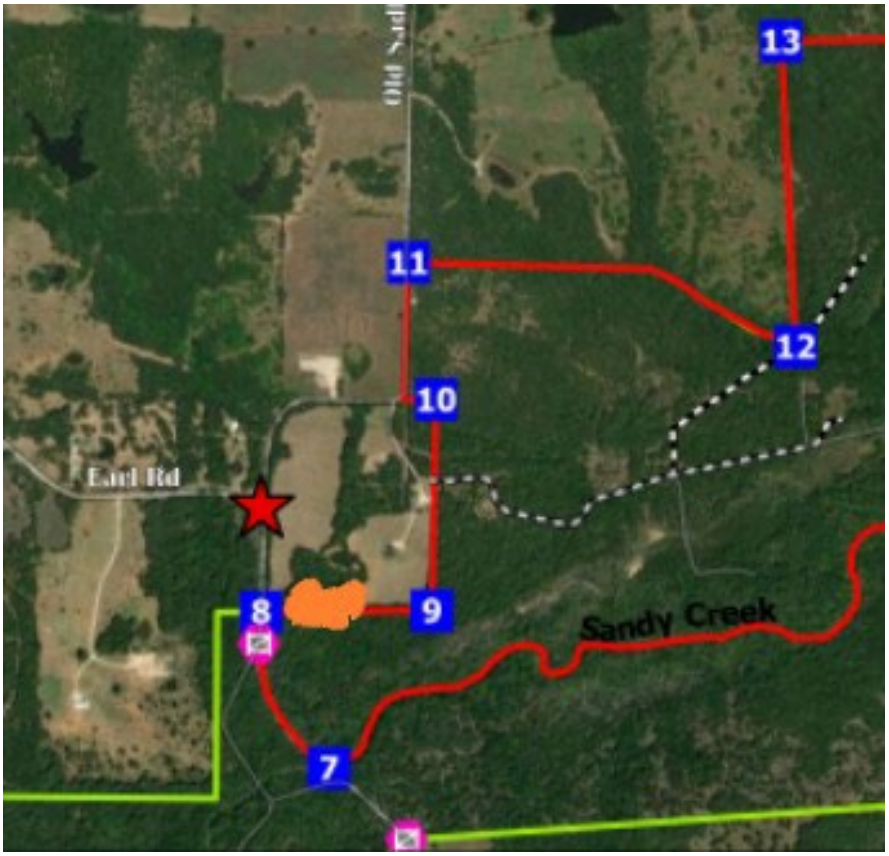
On March 14th, the zone mobilized resources throughout the area for initial attack coverage, including Hagerman NWR. A U.S. Fish and Wildlife Service (FWS) type 6 engine crew was placed at the refuge to patrol previously burned units and be available for any new fire starts in the area. At approximately 12:00 PM, the duty officer called the engine crew for assistance on a fire in eastern Oklahoma, at Sequoyah NWR (OK-SQR). The engine crew relayed to the duty officer that there were no concerns on the burn units at Hagerman NWR and started their travel to Oklahoma.

At approximately 5:50 PM the fire zone duty officer received a phone call from a Hagerman NWR (TX-HGR) maintenance employee that the private property adjacent to the Godwin unit was on fire. The employee was alerted to the fire when he received a phone call from the landowner indicating there was fire on his property that originated from the Godwin prescribed fire. The landowner also called 911 to report the fire.

The fire on private property was quickly contained by the local Volunteer Fire Department (VFD). After containment, the zone fire management officer (FMO) traveled to the refuge and declared the spot fire a wildfire. The FWS engine previously dispatched to Sequoyah NWR also returned to the Godwin unit to assist that night. The resulting spot fire on was declared an escaped wildfire after it was determined to be on private property, burning ¾ of an acre in hardwood timber and leaf litter. The Godwin Rx unit remained a prescribed fire.



Map 1: Godwin prescribed fire unit map to include both north and south subunits. The Godwin unit was mechanically masticated along the western boundary, adjacent to private land, from drop point (DP) 1 south to DP 7.



Map 2: The orange area indicates the spot fire that occurred on private land between DP 8 and DP 9. The spot was contained by VFDs at ¾ of an acre. The star represents the emergency address, listed on the map, in the event of an “incident within an incident (IWI)”.

Resource Management and Prescribed Fire Plan objectives are listed as:

- Preserve and maintain a natural environmental process.
- Maintain a mosaic of plant communities’ representative of the ecosystem.
- Restore and maintain desired ecosystem characteristics (CONDITION CLASS 1).
- Reduce eastern red cedar trees.
- Reduce woody-stemmed plants (elm and locust) through top-killing.
- Provide for firefighter and public safety.
- Reduce hazardous fuel loading and the risk of unplanned and unnatural high intensity wildfires from damaging natural resources or public developments.
- Create an area around boundaries where wildfire starts can more easily be prevented from entering or leaving the refuge.
- Restrict woody encroachment in the grassland community.
- Reduce eastern red cedar trees in open grasslands by > 65%.
- Reduce one- and 10-hour fuel loading in open grassland by at least 85%, immediately postfire.
- Kill the tops of 40-90% of “woody” plants in the grasslands to reduce their growth.

Incident Timeline

2/28/2025 - Godwin North Rx Implementation

11:00 – Prescribed fire briefing at the Hagerman NWR shop building.

13:30 - Test fire started at the northeast corner of the unit adjacent to Lake Texoma.

13:45 - Test fire was completed and determined to meet burn plan objectives. Firefighting resources started ignitions on the lake edge moving south, along with fire resources on the north line moving west.

15:00 - North ignitions were moving at a slower pace due to piles in the unit. Several small spot fires ignited beyond the established fireline and were identified and suppressed.

15:30 - Lake edge ignition group made it to the southeast corner of the unit and held in place.

16:00 - North ignitions group made it to the northwest corner of the unit then started south.

1700 - Perimeter ignitions completed.

1800 – After action review (AAR).

3/7/2025 - Godwin 2 (South Rx) Implementation

09:30 – Prescribed fire briefing at the Hagerman NWR shop building.

10:30 - Test fire started in the northeast corner of the unit adjacent to Lake Texoma.

10:45 - Ignitions continue along the west holding line and the lake edge.

12:50 - Mulch layer causing cedar trees to torch within the unit. No holding concerns.

14:00 - West ignitions and lake edge ignitions have completed firing on half of the unit.

1610 - Perimeter ignitions complete. One spot of smoldering mulch was found and addressed in the mulch layer outside of the unit.

16:30 – Fire crews start patrolling and mopping up.

17:45 - Debrief and after-action review (AAR).

18:30 - Last check of the unit completed.

19:30 - Resources released.

3/8/2025

08:00 - Two staffed FWS wildland fire engines remained assigned to the Godwin unit to patrol and mop-up.

12:00 - The unit received moisture and one of the engines was released to travel back to their

home unit.

3/9/2025

08:00 - The remaining engine continued to patrol and mop up.

15:00 - With continued moisture in the area, the engine resource was subsequently released and returned to their home unit.

3/14/2025 - The Day of the Escape

17:49 - A TX-HGR employee notified the RXB2 that a neighboring landowner called to report the Godwin 2 (South) prescribed fire crossed a containment line and was burning in the timber area of his land. The employee advised him to call 911.

17:53 - RXB2 notified TX-HGR refuge manager. The refuge manager said she would be en route to the fire on private property.

17:55 - RXB2 notified the zone FMO of the report. At that time, the zone FMO was driving to Dallas, TX. He replied he would stop and connect with the refuge manager and the neighboring landowner.

18:03 - Neighboring landowner contacted the RXB2 and indicated he was not concerned with the situation. He also stated that he delayed calling 911 because the fire was doing “good things” on his property.

18:24 - RXB2 contacted FWS E-2865 engine captain and advised him and his crew to return to TX-HGR from OK-SQR (three-hour drive).

19:08 - Refuge manager advised the zone duty officer the fire on the private landowner’s property was contained.

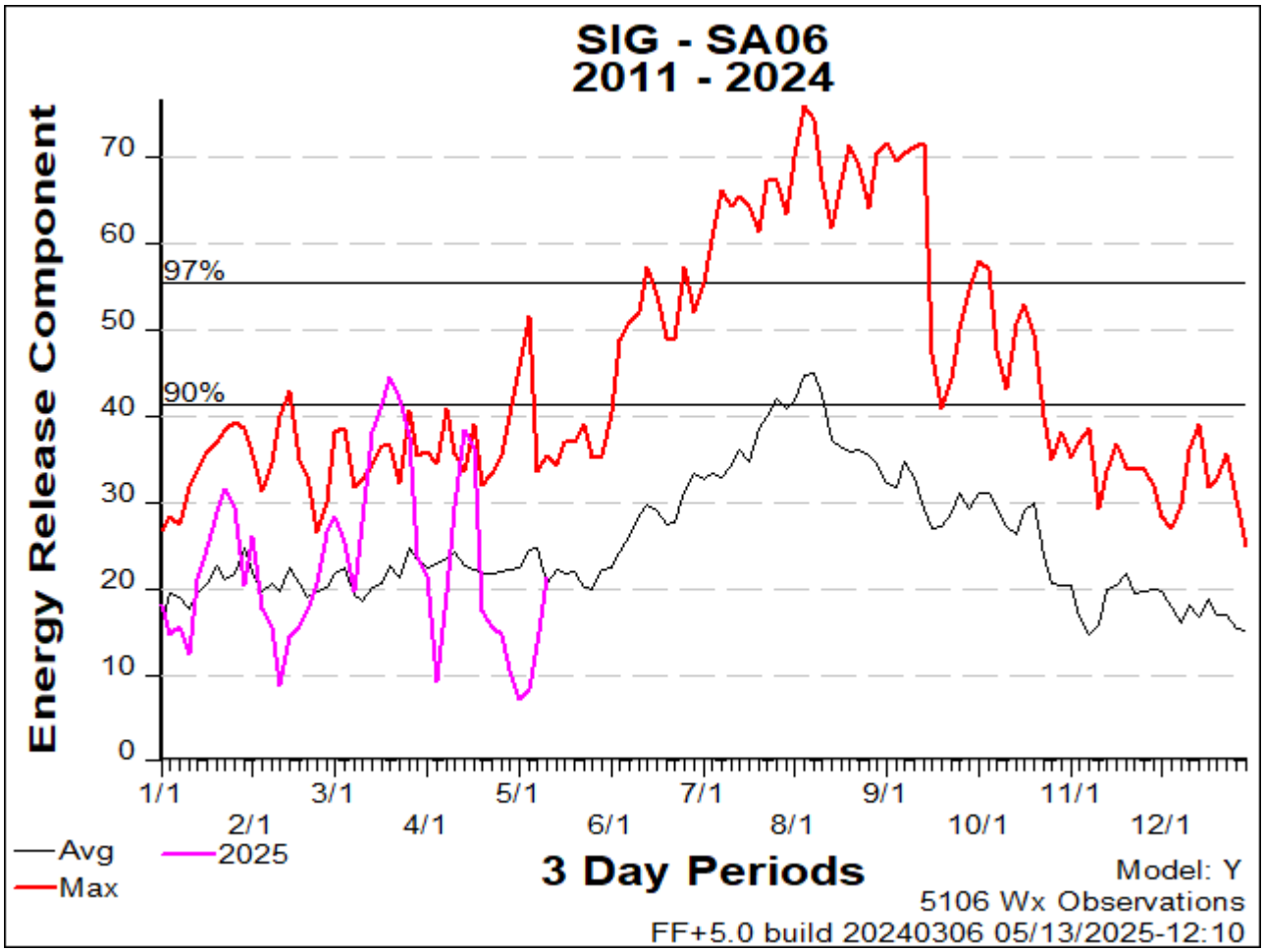
20:30 - Zone FMO advised the zone duty officer the fire was contained, and assistance from Engine-2865 was no longer needed that night.

PRIMARY FINDINGS & RECOMMENDATIONS

An analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration. Include fire weather forecasts including any spot forecasts, Remote Automated Weather Station (RAWS) data and National Fire Danger Rating System (NFDRS) data:

Findings

- Spot weather forecast (Ft. Worth, TX Office) obtained the day of the Godwin 2 (southern subunit) prescribed fire indicated that all indices were within prescription.
- Keetch-Byram drought index (KBDI) was 107 the day of implementation, indicating the area was not in any level of drought. There were locations in central and southern Texas that were experiencing drought conditions; however, Hagerman NWR is in northern Texas.
- Hagerman NWR (TX-HGR) does not have a Remote Automated Weather Station (RAWS), nor is there a representative RAWS station nearby. The prescribed fire plan does not identify a method or resource to monitor fuel and weather conditions.
- From the corresponding predictive services area (SA06), energy release component (ERC) values rapidly increased from seasonal averages on March 8 to seasonal maximums on March 14.



- The perimeter, adjacent to private property of the Godwin prescribed fire unit, was mechanically masticated. Some areas that were treated had heavy concentrations of mulched woody material.
- The prescribed fire breaks were six feet wide and down to mineral soil.

Recommendations – For fire zone consideration of future Rx treatments

- Request a new spot weather forecast after a prescribed fire is declared an escape.
- Evaluate the need and benefit of adding a RAWS station at the refuge to monitor fuels and weather indices.
- Incorporate NFDRS thresholds to prescribed fire prescription or pre-burn considerations to develop a full understanding of existing and predicted fuels conditions.
- Use the Texas Fire Danger Operating Plan (FDOP) to evaluate fuels thresholds and parameters.
- Order additional firefighting resources to backfill those reassigned to support initial attack efforts elsewhere in the zone.
- Notify contingency resources, local dispatch, and local fire departments of zone fire resources staged for high fire danger events and reassignments.
- Complete additional burn unit preparation where control lines have been modified or impacted by adjacent mechanical fuels treatments.

An analysis of the actions taken leading up to the wildfire declaration for consistency with the prescribed fire plan. This will include whether it was adequate and whether it was followed:

Findings

- The TX-HGR Prescribed Fire Plan follows agency policy: “Prescribed fires burning off federal lands onto non-federal lands without an existing agreement with the landowner(s) must be declared a wildfire immediately”.
- Notification of the spot fire onto private land was relayed to the RXB2/FMO and upon verification of landownership, the prescribed fire was declared an escape.
- The agency administrator and regional office were notified of the escape within 30 minutes of the incident occurring.
- Fire department cooperators were notified through the 911 dispatch system and worked with refuge and fire zone staff to extinguish the escape fire at ¾ of an acre.

Recommendations

- Continue to communicate the notification process when declaring a prescribed fire an escape wildfire with the regional office, agency administrators, and line resources so everyone is familiar before an incident.

An analysis of the prescribed fire plan for consistency with policy:

Findings

- The TX-HGR programmatic plan is current with all signatures and meets National Wildfire Coordinating Group (NWCG) standards.

- Technical review of the plan occurred within the zone fire program.
- The burn plan's fire behavior modeling and empirical documentation (Appendix E) is not formatted correctly, and it is hard to distinguish fire modeling values.
- The burn plan's maps (Appendix A) utilize Google Maps and/or Google Earth to identify the location of the refuge and burn unit boundaries.

Recommendations

- Continue to review prescribed fire plans and maintain an open line of communication with regional staff and agency administrators.
- Request technical review of the prescribed fire plan by personnel outside the wildland fire program. Consider a review by interagency partners in similar topography and/or fuel type.
- Update BEHAVE Fire Behavior Prediction and Fuel Modeling System (BEHAVE) and reformatting Appendix E in the burn plan to make tables more easily referenceable.
- Use the Interagency Fuels Treatment Decision Support System (IFTDSS) for fire behavior modeling.
- Update burn plan maps utilizing ArcGIS Pro. Consider using a standard layout template.

An analysis of the prescribed fire plan and associated environmental parameters:

Findings

- The prescribed fire was implemented within the written multi-unit Programmatic Prescribed Fire Plan.
- Staffing levels exceeded the recommended levels for seasonality and time of year.
- The lack of local RAWS near or on the local unit prevented accurate weather and fuel conditions readings.
- Extreme fire weather forecasted a week post ignition, coupled with residual heat due to mastication mulch layer extended the zone resource availability.

Recommendations

- Re-evaluate staffing levels post ignitions when unforeseen extreme fire danger weather forecasts are present.
- Work with regional office staff to evaluate and prioritize locations and funding needs for additional RAWS units across the zone.

A review of the approving line officer's qualifications, experience and involvement including adequate program oversight:

Findings

- The agency administrator (AA) has been qualified as AADM since 7/26/2024 and completed RT-300 on 9/25/2024. Also attended initial fire management leadership training in 2004.

Recommendations

- Continue to work closely with the AADM during refreshers and preseason planning and coordination, so implementation continues to run smoothly during prescribed fire season.

A review of the qualifications and experience of key personnel involved:

Findings

- All FWS personnel on the prescribed fire were qualified and current for the positions they functioned in during implementation.

Recommendations

- Continue tracking employee trainings and currency to avoid any unknown expirations.

A summary of causal agents contributing to the wildfire declaration:

Findings

- There was a dense layer of woody mulch from a mechanical treatment conducted last fall adjacent to the unit's control lines, which retains heat longer than lighter, more volatile fuels.
- The escape occurred one week after the unit was burned. The burn unit received over .8" of rain in the two days after the burn was completed. The unit was checked multiple times the week leading up to the escape and no issues were found. The burn unit was checked by a member of the OK/N. TX Fire Management Zone and a collateral firefighter the morning of the escape, who were then pulled to a new fire start within the zone in Oklahoma.
- While not a direct factor in the cause of the escape, there was not a memorandum of Understanding (MOU) in place for the adjacent private landowner. The private landowner was in favor of fire being introduced on his property after the escape occurred and supported fire as a tool to "clean-up" the timber understory on his property. A private landowner agreement could have been developed prior to the implementation of the prescribed burn. However, an agreement was not pursued due to the lengthy turnaround times once the agreement is sent to the regional office for approval.

Recommendations

- Reevaluate staffing needs for first entry units with mechanical mulching projects conducted on or near holding lines.
- Spend more time evaluating control lines for holding issues or concerns.
- Evaluate the prescription parameters and incorporate the most reflective fire danger indices available.

- Order additional engine modules to the zone during prescribed fire season when high or extreme fire danger weather is forecasted.
- Utilize the zone's three-year program of work to identify fuels treatments with adjacent landowners willing to establish an MOU with FWS and work with regional office staff to streamline the approval process.

Determine the level of awareness and understanding of procedures and guidance of the personnel involved:

Findings

- All personnel on scene made the proper notifications and followed the chain of command when declaring the incident a wildfire.

Recommendations

- Continue dialog on escaped prescribed fire notifications and procedures with AADMs and line resources.
- Continue to identify contingency resources and their availability.

Establish accountability:

Findings

- The burn plan did not account for the recent mechanical treatment (mastication) of woody fuels adjacent to the burn unit and the modified fuel characteristics this created.
- The fire zone is heavily reliant on local refuge support and the agency administrator to complete burn unit and control line preparations before primary fire personnel arrive for implementation.
- There is not a representative RAWS identified in the prescribed fire plan.

Recommendations

- The prescribed fire complexity rating should be reevaluated with changes to the fuel environment within or adjacent to the burn unit.
- When fuels have been heavily modified by other treatments, the burn plan should be reevaluated and changes communicated between the preparer and/or burn boss, and agency administrator.
- The designated burn boss and appropriate fire leadership should consider the current NFDRS indices, current fuel conditions, and information generated by the closest representative RAWS for planning purposes.

Synopsis of Lessons Learned

Historically, prescribed burns at Hagerman National Wildlife Refuge pose little to no threat one week after ignition, particularly once the unit receives measurable moisture. However, with additional funding sources - such as the Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law – enabling large-scale mechanical treatments, fire management personnel are encountering new challenges when conducting prescribed fires.

These challenges arise particularly along control lines with significant mastication layers, which can retain heat for several days to weeks depending on conditions. While moisture forecasted immediately after implementation helps suppress fire activity in the mastication layer, it often does not fully extinguish it. As a result, increased monitoring, patrol, and mop-up efforts are necessary to ensure fire containment and safety.

Due to forecasted weather and increased fire danger potential following recent prescribed burns, the zone was staffed with local resources and detailers. However, additional support was needed for the incident at Sequoyah NWR in Oklahoma, all available personnel were deployed there, leaving Hagerman NWR temporarily unstaffed. Before the reassignment, the units at Hagerman NWR showed no signs of concern. After discussions, it was agreed that although conditions at Hagerman NWR were stable at the time, the urgent need to support the active incident at Sequoyah NWR justified mobilizing resources away from Hagerman NWR.

Appendix 1: Prescribed Burn Plan Prescription Parameters

B1. PRESCRIPTION PARAMETERS			
	LOW	**PREFERRED**	**HIGH**
AIR TEMPERATURE	25°f	40-60°f	105°f
WIND SPEED, (20')	5 mph	8 to 12 mph	25 mph
1-HR FUEL MOISTURE (1- HR, 10-HR, and 100-HR fuel moistures are directly correlated.)	6%	8 to 12%	20%
KEETCH-BYRAM DROUGHT INDEX	0	200-500	650
RELATIVE HUMIDITY	**MINIMUM**	**PREFERRED**	**MAXIMUM**
	18%	30-50%	80%
WIND DIRECTION See Element 19 for further details	1) Goode RX Unit – Any winds allowable, north, or east wind preferred. Individual sub-units may need winds away from private property. 2) Meyer Branch RX Unit – Any winds allowable east wind preferred. Individual sub-units may need winds away from private property. 3) Harris Creek RX Unit – Any winds allowable, south wind preferred. Individual sub-units will need winds away from private property. 4) Big Mineral Arm RX Unit – Any winds allowable south preferred. Individual sub-units may need winds away from private property. 5) Sandy RX Unit – Any winds allowable, south to west winds preferred. Individual sub-units may use any winds away from private property. 6) Godwin RX Unit – Any winds allowable, west wind preferred. Individual sub-units may need winds away from private property. 7) Nocona RX Unit – Any winds, north preferred		
CLOUD COVER	MAXIMUM CLOUD COVER OF 80%.		