GB-06S PRESCRIBED FIRE
AND
9 MILE DITCH WILDFIRE

DECLARED WILDFIRE REVIEW

FINAL REPORT

July 10, 2019

Prepared by: _____
Regional Fuels Specialist

Prepared by: _____
Deputy Chief Fire Management

Reviewed by: _____
Zone Fire Management Officer

Approved by: _____
Project Leader

INTRODUCTION

On May 22, 2019, personnel within the Gulf Coast National Wildlife Refuge Complex conducted a prescribed fire in the GB-06S unit of Grand Bay National Wildlife Refuge (NWR). Grand Bay NWR is one of three refuges in the Gulf Coast NWR Complex. The prescribed fire unit is 57 acres of refuge land and 30 acres of the Mississippi Department of Marine Resources (DMR) Grand Bay National Estuarine Research Reserve (NERR) for a total of 87 acres. The unit is primarily GS-4 High Load Humid Climate Grass-Shrub and GR-8 High Load Humid Climate Grass.

The western flank of the GB-06S prescribed fire was converted to the 9-mile Ditch wildfire when the prescribed fire spotted onto private land adjacent to the SW corner of the unit and burned a total of 60 acres on one private land owner. The remainder of the prescribed fire was completed with no further issues.

Grand Bay NWR is located in both Jackson County, Mississippi and Mobile County, Alabama; the burn was conducted in the MS portion of the Refuge. The boundary of the unit is defined by: plowed fire line on the south, compressed line (built with marsh master) or natural creek/drainage on the west, Bayou Heron Road (a paved county maintained road) on the east, and the NERR facilities and yard on the north. The unit is bounded by Refuge and DMR lands on the north and south and all but a small section of the east side owned by Pascagoula Shooting Club, and private lands on the west.

There is no fire history on the timbered portion of the unit, but part of the unit was masticated in fall of 2018. There is a Remote Automated Weather Station (RAWS) in the northern part of the unit that was previously burned in April 2018 as part of a prescribed fire around the NERR building and boardwalk area with the Interagency Prescribed Fire Training Center all-women module.

The Review Team consisted of the following:
Prescribed Fire and Fuels Specialist
Deputy Chief Fire Management

The following participated in the review and/or were involved in the prescribed fire:
Prescribed Fire Specialist
Fire Operations Specialist
Heavy Equipment Operator
Refuge Manager
Project Leader
Zone Fire Management Officer

SUMMARY NARRATIVE

0930	Burn Boss briefs resources on GB-06S plan.
1002	Test Fire ignited NERR building to DP-6
1015	Firing from DP-6 toward DP-5 and DP-1 toward DP-2
1127	Couple spots over the line at DP-5 from a snag.
1154	High tide at Bayou La Batre Bridge
1225-1325	A strong wind gust from the NE direction was recorded between 1225 and 1325 on the RAWS.
1345	Spots over the line at DP-4. D5N high track dozer enroute from staging area at NERR office.
1400	¼ acre spot off refuge converted to wildfire.
1420	Additional resources requested from Mississippi Forestry Commission
1430	Additional resources requested from Southeastern Louisiana Complex
1440	D5G a few minutes out. 650K enroute at an hour away.
1547	At 9 Mile Ditch not able to see if it has spotted over yet.
1617	Prescribed fire unit is completed.
1618	Southeastern Louisiana Complex (dozer and flextrac) resources arrive.
1639	Desoto National Forest dozer arrived NERR
1742	Helicopter arrives on fire from Bienville National Forest.
1808	Helicopter lands at MSC Fire Center to stay overnight
1820	Desoto National Forest tractor plow released
1904	Southeastern Louisiana Complex resources released
1920	Mississippi Forestry Commission 2 dozers released
1940	D5N high track dozer released to fire center

PRIMARY FINDINGS & RECOMMENDATIONS

- **Finding:** The crew from Mississippi Sandhill Crane NWR which conducted this prescribed fire is an experienced unit which functions well together. Other members of the crew are partners with varying levels of experience. Many of the contingency actions taken to control this escape were taken from experience and not from a written plan. This can lead to a friction point, especially for people who are new to firefighting, if the person with the experience and knowledge to implement the prescribed fire and in particular the contingency plan becomes incapacitated.

- **Finding:** A strong wind gust from the east-northeast (as depicted in the RAWS data) may have blown embers across the control line which started multiple spot fires which the crew was unable to effectively contain.

- **Recommendation:** Be prepared for the unexpected. Ensure that the experience is commensurate with the complexity of the prescribed fire including unforeseen events. Specifically, all required incident command system (ICS) positions to manage both an escape and the prescribed fire as multiple events.

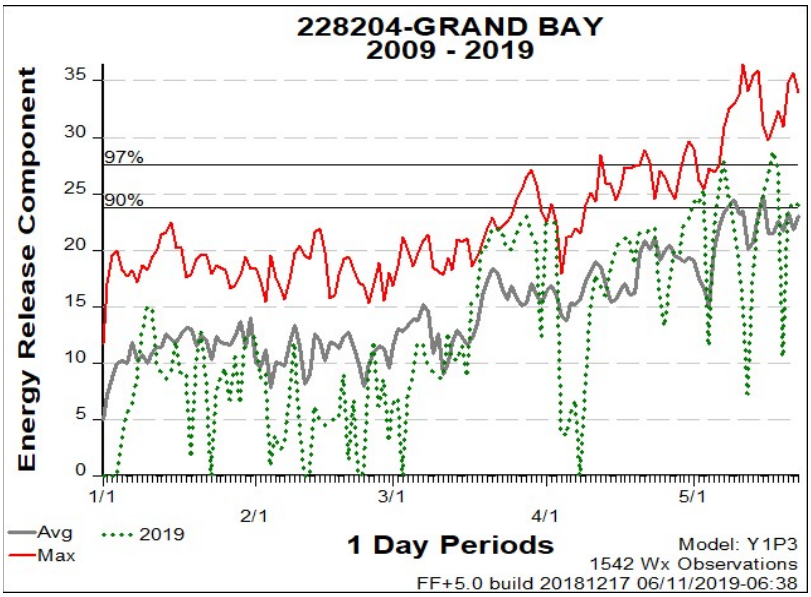
- **Recommendation:** Have strong, well thought out contingency plans documented in your prescribed fire plan. Ensure that contingency resources in the plan will be available to assist you if called upon during the implementation of the prescribed fire.

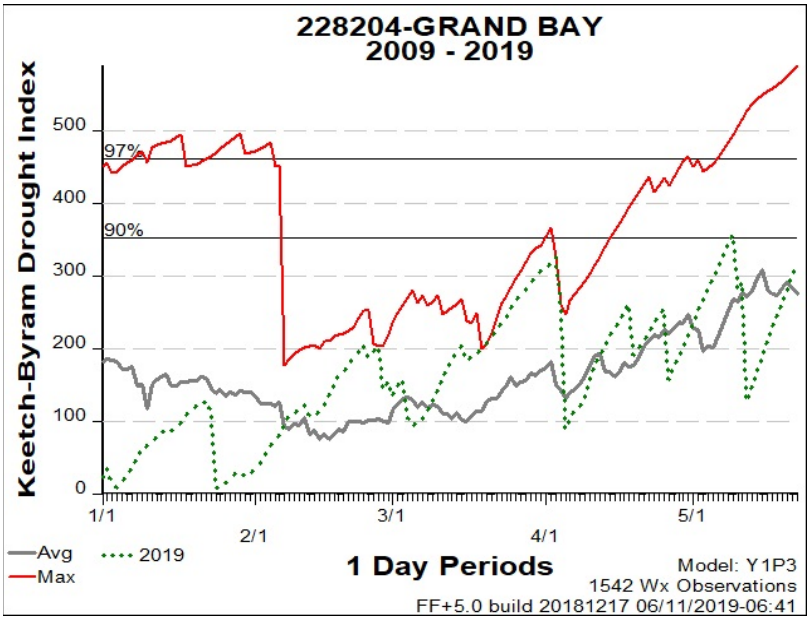
- **Recommendation:** Develop landowner agreements with neighbors and incorporate their lands into your plan as a contingency containment area.

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, RAWS data and National Fire Danger Rating System (NFDRS) data:

Energy Release Component (ERC) values were above average and climbing. Keetch-Byram Drought Index (KBDI) value was well within prescriptive range.

ERC was 25 and KBDI was 318.


228204-GRAND BAY
2009 - 2019
Energy Release Component
35
30
25
20
15
10
5
0
97%
90%
1/1
2/1
3/1
4/1
5/1
Avg
Max
2019
1 Day Periods
Model: Y1P3
1542 Wx Observations
FF+5.0 build 20181217 06/11/2019-06:38


228204-GRAND BAY
2009 - 2019
Keetch-Byram Drought Index
500
400
300
200
100
0
97%
90%
1/1
2/1
3/1
4/1
5/1
Avg
Max
2019
1 Day Periods
Model: Y1P3
1542 Wx Observations
FF+5.0 build 20181217 06/11/2019-06:41

Weather taken from the Grand Bay Remote Automated Weather Station (RAWS)
(Yellow highlighted line indicates time range the spot fires occurred.)

Station	Date	Time	Temp	RH	Wind Spd	Wind Dir	Gust Speed	Gust Dir
228204	5/22/2019	0:00	78	82	5	173	11	181
228204	5/22/2019	1:00	78	81	5	166	11	188
228204	5/22/2019	2:00	77	82	4	175	15	175
228204	5/22/2019	3:00	77	83	4	176	9	164
228204	5/22/2019	4:00	76	87	2	169	7	144
228204	5/22/2019	5:00	77	86	2	166	9	158
228204	5/22/2019	6:00	81	78	4	174	8	142
228204	5/22/2019	7:00	83	71	5	170	11	168
228204	5/22/2019	8:00	85	67	7	139	14	133
228204	5/22/2019	9:00	86	68	7	137	16	151
228204	5/22/2019	10:00	87	64	9	141	17	127
228204	5/22/2019	11:00	87	64	9	162	17	148
228204	5/22/2019	12:00	86	66	9	140	23	61
228204	5/22/2019	13:00	85	68	8	138	15	173
228204	5/22/2019	14:00	85	69	6	142	15	136
228204	5/22/2019	15:00	84	67	8	146	15	132
228204	5/22/2019	16:00	85	64	6	152	13	154
228204	5/22/2019	17:00	84	68	6	147	13	143
228204	5/22/2019	18:00	81	75	5	137	11	132
228204	5/22/2019	19:00	77	84	2	116	9	132
228204	5/22/2019	20:00	76	91	3	127	6	133
228204	5/22/2019	21:00	77	91	3	156	8	117

- **Finding:** When requesting the Spot Forecast for the prescribed fire area from National Weather Service New Orleans, the Burn Boss asked very good pointed questions of the NWS New Orleans regarding critical information about smoke, fog, and sea breezes. Please see attached Spot Weather Forecast to see refuge questions and NWS answers.

- **Finding:** The level of dryness present in the unit may not have been reflected well by the use of KBDI.

- **Finding:** Nighttime humidity recovery on the night prior to the ignition of the prescribed fire was poor, this led to additional drying of fuels.

- **Recommendation:** Add the tidal breeze influence to your pre-burn environmental conditions monitoring. Continue to be wary of the weather forecast near the Gulf Coast, there seems to still be an unpredictability in the coastal weather.

- **Recommendation:** Using KBDI as a NFDRS monitoring tool does not capture the impacts of humidity recovery at night and subsequent drops in dead fuel moisture values. Consider using Energy Release Component (ERC) or Burn Index (BI) as an NFDRS metric. These metrics capture the effects of wind/nighttime humidity recovery and hour to hour fluctuations in fire weather.

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:

- **Finding:** Contingency actions in the prescribed fire plan were not well defined.

- **Finding:** Contingency actions were implemented and were ultimately successful in containing the fire within a single burn period. The declaration to a wildfire was a result of the fire leaving USFWS land and moving onto private lands on which there was not an agreement.

- **Recommendation:** Develop clear contingency plans for each prescribed fire. Ensure contingency plans, to include leadership expectations, are shared, documented and understood by all personnel at briefing.

- **Recommendation:** Enter into landowner agreements with adjoining neighbors which would allow the USFWS to manage fire on their lands.

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

- **Finding:** The prescribed fire plan was not consistent with agency policy, since the Final Complexity Analysis was not signed by an Agency Administrator prior to implementation.

- **Finding:** Organization and equipment in Element 11 of the Prescribed Fire Plan was too vague.

- **Finding:** Element 17, the Contingency Plan, needs to be revisited. Management Action Points are general/vague and not specific to the Grand Bay Refuge.

- **Recommendation:** Ensure that the agency administrator is included in the planning process for prescribed fires and that the agency administrator reviews and signs the final complexity analysis when reviewing and approving the prescribed fire plan.

- **Recommendation:** Element 11 should list equipment and personnel including specific overhead positions required to conduct the prescribed fire. Update and revise Element 11 for Grand Bay NWR prescribed fire units.

- **Recommendation:** Revisit Element 17. Rework the current Management Action Points. Brainstorm, discuss and write specific Management Action Points for Grand Bay NWR prescribed fire units.

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

- **Finding:** All elements were within prescription throughout implementation of the prescribed fire.

- **Finding:** Some of the environmental parameters are not necessarily needed since the parameters span most of the range of the index. For example: KBDI 20 to 650.

- **Finding:** Wind Direction "Any" is vague and not all wind directions may be preferred for certain units for this prescribed fire plan or even for the multiple units the prescribed fire plan may cover.

- **Finding:** 9 Mile Ditch is a logistical issue with regard to crossing.

- **Finding:** Hard to hit radio repeater to talk to dispatch from handheld radios. Need to pass information to mobile to repeater to dispatch or use cell phones.

- **Recommendation**: Continue to utilize monitoring of fire effects as compared to objectives to adjust prescription parameters over time. Utilize NFDRS indices to capture the effects of long term drying on fuels.

- **Recommendation**: KBDI does not incorporate several key environmental elements which dry forest fuels, therefore the recommendation is to remove it from the environmental conditions of the prescribed fire plan. Consider utilizing a drought indicator which provides a better statistical correlation to the fire problem.

- **Recommendation:** Assess the range of environmental parameters to ensure that prescriptive values do not incorporate days which would push the Refuge into its highest preparedness levels for wildfire.

- **Recommendation:** Be specific about which wind direction is preferred, acceptable, not acceptable, not preferred. A table works well to show what works best for a specific unit or sub unit in a multiple unit prescribed fire plan.

- **Recommendation:** Logistics for crossing 9 Mile Ditch need to be planned and prepared for future prescribed fires and noted in the prescribed fire plan for Holding Element or Contingency Element.

- **Recommendation:** Start conversation with Region about repeaters in the correct places or more repeaters.

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

- **Finding:** There are three qualified Fire Agency Administrators within the Gulf Coast Complex which help manage the fire program. All three are currently qualified and current with their respective qualifications. The Project Leader is the only Agency Administrator who has participated in the S-520 class as a line officer.
  The three line officers rotate/share duties as Agency Administrator as needed. All three are well engaged on a daily basis with the fire program. On each burn day, an Agency Administrator is designated and remains available to fire staff until the prescribed fire is considered out.

- **Recommendation:** Continue with the current work model. Maybe consider bringing in new or newer refuge managers to shadow line officers. Also consider bringing in experienced agency administrators for sharing knowledge and when a change in agency administrators happens on the complex.

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

- **Finding:** All FWS employees were qualified in the positions in which they served on the burn. All FWS employees were very experienced and a regular part of a crew which typically burns in excess of 5,000 acres each year.

- **Finding:** A few of the NERR employees are inexperienced with prescribed fire and wildfire. Therefore, having them be involved with as many prescribed fires as they can expand their experience and knowledge of fire.

- **Recommendation:** Addition of resources to the prescribed fire at varying levels of experience from inside and outside the zone, even outside the agency opens up opportunities for training, new experiences and sharing ideas and information.

- **Recommendation:** Continue with the current model. Utilize outside employees and trainees whenever possible to build experience base.

A summary of causal agents contributing to the wildfire declaration:

- **Finding:** Winds gusting above prescription parameters were a causal agent of this escape, this was likely a result of an un-forecast sea breeze. Although sustained winds were within prescription there were gusts that were stronger than forecasted. There were also winds which shifted for brief periods from un-forecast directions which is noted around the high tide mark (slack tide). The Burn Boss specifically requested information on potential sea breeze formation. NWS replied that a sea breeze was not likely.

- **Finding:** Because of the density of the forest and underbrush pre-burn, some snags were not seen during the implementation of the project. These snags produced spots across the line until taken down.

- **Recommendation:** Continue to work closely with the NWS New Orleans to fine tune forecasts. Provide feedback on forecasts. We suggest having a conversation about sea breezes, tidal breezes and river breezes and how they all interact with the general wind.

- **Recommendation:** Even though the unit was scouted the day or and days prior to the ignition, scouting it again the day of the burn with specific focus on snags or any plant that may cause spotting over the line. The use of Unmanned Aircraft and Systems (UAS) or some other method to assess firelines pre-burn to help determine where problems could occur.

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

- **Finding:** Notifications up the chain of command began quickly when the burn boss realized that the prescribed fire had exceeded the unit boundary and moved onto private land.

- **Finding:** Contingency plans in the prescribed fire plan are too generic and do not outline the process to declare an escaped prescribed fire a wildfire.

- **Recommendation:** Develop contingency plans for specific scenarios. "Fire escapes unit boundaries", "Aviation Accident", "Smoke impacts I-10", etc...

- **Recommendation:** Utilize a Fire Duty Officer to help make notifications as well as ordering contingency resources. See guidelines for Fire Duty Officer in the *Interagency Standards for Fire and Fire Aviation Operations* (Red Book) to understand the position.

Establish Accountability:

- **Finding:** The prescribed fire unit is a combined unit of refuge land and DMR NERR land. During the pre-burn briefing it was stated that the burn boss would change when the firing left FWS land to NERR land then change back again when the firing went from NERR land to FWS land. (See attached map of land ownership.)

- **Finding:** The prescribed fire plan was only prepared, reviewed and approved by FWS employees. The reviewers did not see a separate prescribed fire plan for the DMR NERR property.

- **Finding:** There is an agreement between FWS and DMR NERR.

- **Finding:** The Grand Bay NWR Refuge Manager was acting as the agency administrator for the prescribed fire. He was present at the morning briefing and signed the Go-No-Go documents after the briefing. No DMR NERR employee acted as the Agency Administrator for the prescribed fire on NERR land.

- **Finding:** During the escape prescribed fire, leadership structure and overhead personnel, including ICS functions, were not well defined.

- **Recommendation:** When including another agencies land into a burn unit, consider using a Burn Boss trainee from that agency for the entire burn, to include writing and being a signatory to the prescribed fire plan (switching burn bosses mid-burn leads to confusion).

- **Recommendation:** Consider adding an Agency Administrator from the DMR NERR in the approval of the prescribed fire plan and the Go-No-Go process for units that include both agencies lands.

- **Recommendation:** The USFWS recognizes a declared wildfire (escaped prescribed fire) and a prescribed fire as two events. When a prescribed fire is converted both the wildfire and prescribed fire must be managed by defined qualified overhead. Ensure that contingency plans consider resource requirements needed to manage two separate incidents.

SYNOPIS OF LESSONS LEARNED

Communication is a key to success. Continue strong communication with the National Weather Service, continue providing them feedback they need to help refine SPOT forecasts for the Gulf Coast Complex.

Develop strong and effective contingency plans as a part of the prescribed fire plan. It is essential that these plans are communicated, not only to the resources identified as contingency resources but also to your personnel implementing the prescribed fire.

Communicate with your neighbors and let them know why you are conducting the prescribed fire adjacent to them and what you plan to do should the fire escape your land and begin to impact theirs. Form landowner agreements which strengthen partnerships with neighbors so that if an escape occurs you can utilize their land as a contingency containment area for the escape. Be inclusive of the land owners when building the prescribed fire plan and recognize if they would be a reviewer on the prescribed plan.

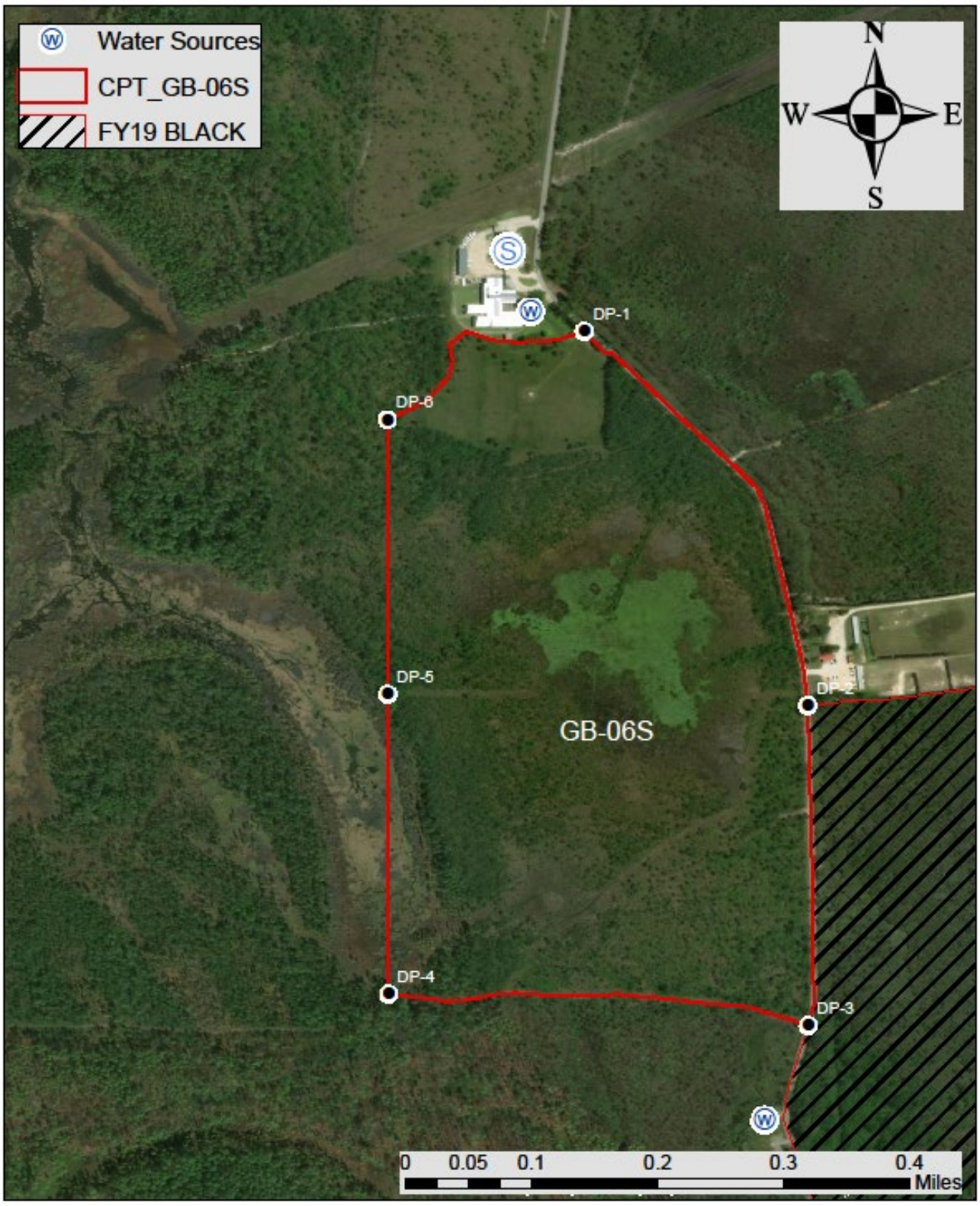
Practice and utilize "what if" scenarios as a part of your training regime so that when an escape occurs everyone falls into the role in which they were intended to fill, be that leadership, equipment operation, or firefighter.

Plan and be ready for the unexpected to occur. Winds shift, burning embers fly across firelines, equipment breaks down, and people become incapacitated. Continue to build resilience into your organization so that you will be prepared when the unexpected happens.

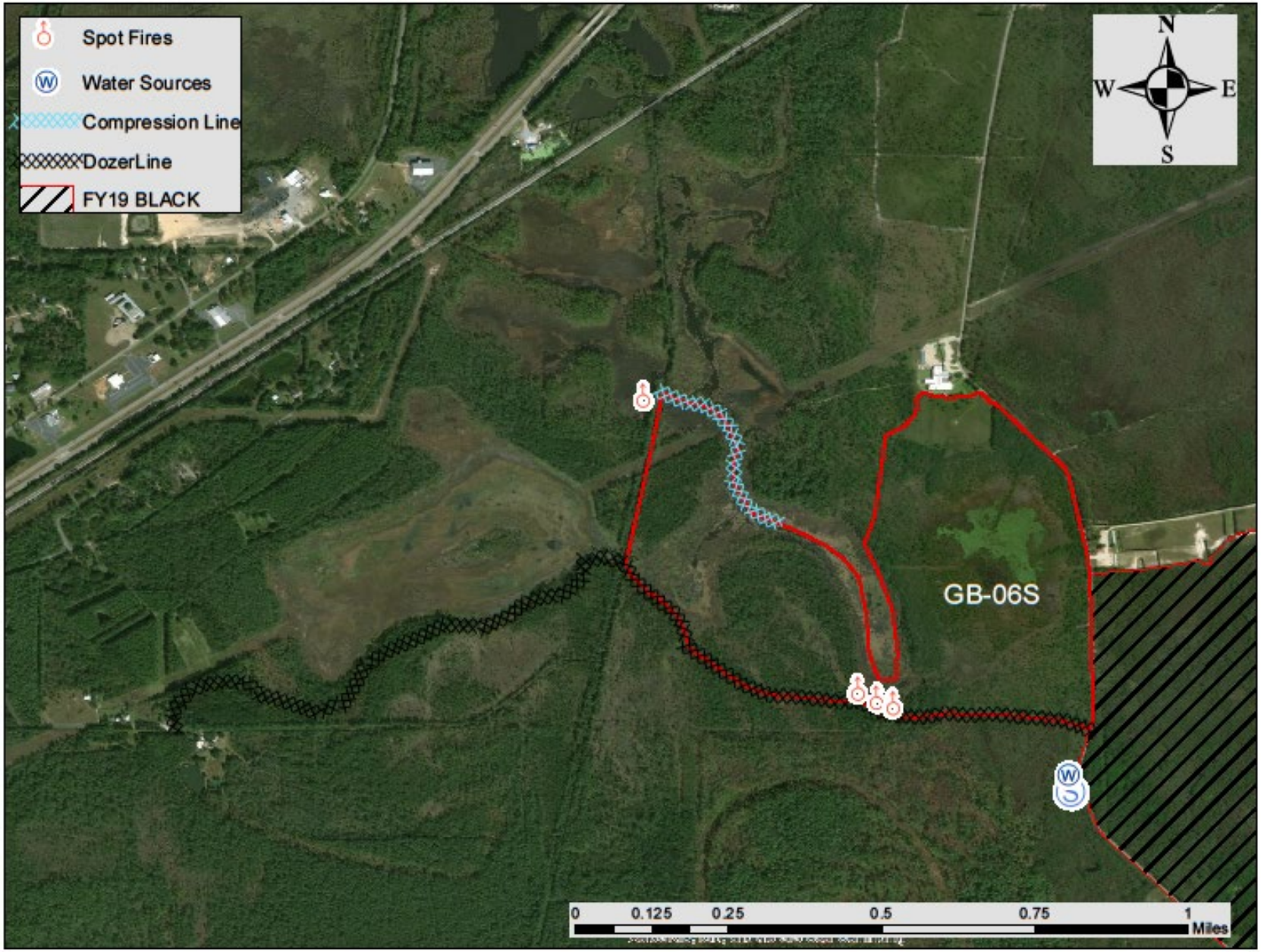
ATTACHMENTS

Map of GB-06S (prescribed fire unit) used in the IAP and briefing
Map of the 9 Mile Ditch Fire with locations of Spot Fires
Map of the Ownership GB-06 Prescribed Fire Unit and 9 Mile Ditch Wildfire area
Spot Weather Forecast from National Weather Service

GB-06S
87 Acres



9 Mile Ditch Fire
5/22/2019 @ 2134

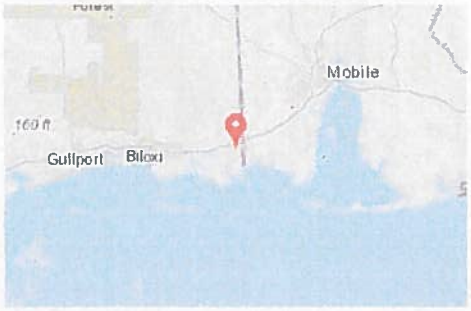


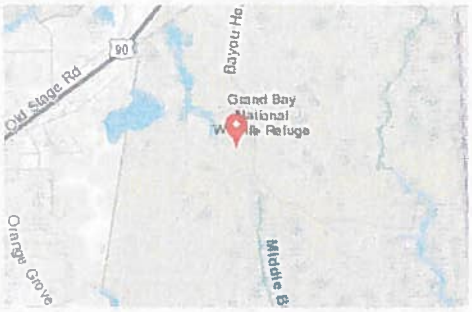
CPT GB-06S

Prescribed Fire

Forecast Start Time:2019-05-22 7:00 AM CDT
Request Time: 2019-05-22 5:44 AM CDT
Deliver Time: 2019-05-22 5:44 AM CDT
Forecast Complete At: 2019-05-22 5:58 AM CDT

Requested By: U.S. Fish and Wildlife Service
Contact:
Phone:
Fax:





Location Legal:
Lat/Lon: 30.4209 / -88.4266
Quad:
Calculated: 30.4209 / -88.4266

Elevation: 1 - 55
Drainage: Bayou Heron
Aspect: Flat
Size: 100
Fuel Type: GrassShrubTimber (partial)

Observations

Site	Date	Elev	Wind	Temp	WB	RH	Td	Sky	Wx Rmks
GRBM6	05/22/19 0530	5	S 2	76	73	87	72		Peak wind 7 mph. Station is one-half mile N of burn site.
SHCM6	05/22/19 0445	25	VBL 0	75	74	93	73		Station is 14 miles WNW of burn site.
TS629	05/22/19 0445	125	VBL 0	68	68	100	68		Station is 21 miles NW of burn site.
SHCM6	05/21/19 1445	25	S 8	85	75	64	71	Ptly Cldy	Gust 17 mph. Station is 14 miles WNW of burn site.
TS629	05/21/19 1445	125	SE 5	87	76	62	72		Gust 13 mph. Sheltered location. Station is 21 miles NW of burn site.
GRBM6	05/21/19 1430	7	SSE 8	84	76	70	73		Gust 17 mph. Station is one-half mile N of burn site.

Submit New Observation

Requested Parameters

```
X X X   Sky/Weather
X X X   Temperature
X X X   Humidity
X X X   Chance of Precipitation
X X X   Rainfall Amount
X X X   Heat Index
X X X   Wind (20 FT)
. . .   Mixing Height
. . .   Transport Winds
X X X   LVORI
X X X   Dewpoint
X X X   Mixing Height (km or m)
X X X   Transport Winds (m/s)
```

Remarks

```
QUESTIONS: ..... 1. Please include a Fog Potential Statement
for tonight and tomorrow morning, specifying Intensity of Fog, Areal
Coverage, and timeframes in which fog is likely. ..... 2.
What are the chances of a seabreeze occurring today, and if so, what
impact will it have on wind speed and direction at our location?
..... 3. We noticed that overnight RH was well below forecast,
and remained below 88% all night. Please explain why RH was lower than
expected, and what are the chances of full recovery for tonight?
..... 4. According to the current Area Forecast Discussion,
there is a chance for some light sprinkles early this morning, and
current radar shows does some activity moving onshore. What are the
chances of this activity affecting our burn site, and if so, how much
rain may occur?
```

Forecast:

```
Spot Forecast for CPT GB-06S...U.S. Fish and Wildlife Service
National Weather Service New Orleans LA
558 AM CDT Wed May 22 2019

If conditions become unrepresentative...contact the National Weather
Service.
```

We can be reached at (985) 649-0357 if you have questions or concerns with this forecast.

.DISCUSSION...High pressure will remain in firm control of the area today.

1. Fog is currently not expected to develop tonight into tomorrow morning.

2. A seabreeze is not expected to develop. Southeast winds will increase with daytime heating as stronger winds aloft mix down to the surface.

3. Temperatures did not cool as much as expected and this kept the relative humidity values lower. As long temperatures cool into the lower 70s tonight as forecast, the RH values will exceed 90%. If temperatures once again remain elevated in the middle 70s, relative humidity values will be lower.

4. Not expecting any sprinkles over your burn area. If some sprinkles happened, no accumulation of rain would be expected and zero impact would occur at your burn.

.REST OF TODAY...

Sky/weather.....Sunny (20-30 percent).
Chance of pcpn.....10 percent.
Max temperature.....Around 86.
Min humidity.....68 percent.
Dewpoint.....72.
Heat index.....94.
Wind (20 ft).....Southeast winds 5 to 12 mph.
Mixing height (m)...274-732 meters AGL increasing to 884-975 meters AGL in the afternoon.
Transport winds m/s.South 4 to 7 meters/second.
LVORI.....4.
Rainfall amount.....0.00 inches.

TIME (CDT)	7AM	8AM	9AM	10A	11A	12P	1PM	2PM	3PM	4PM	5PM
Sky (%)	37	34	35	36	32	26	20	17	13	8	9
Weather cov											
Weather type											
Tstm cov											
Chc of pcpn (%)	10	10	10	10	10	10	0	0	0	0	0
Temp	75	75	76	78	80	82	83	84	85	86	86
Dewpoint	71	71	72	73	73	74	74	74	74	74	74
RH	87	87	87	85	79	77	74	72	70	68	68
Heat index (F)	75	75	75	78	84	88	90	91	93	94	94
20 FT wind dir.	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE
20 FT wind spd.	5	6	7	9	9	10	10	11	10	10	9
20 FT wind gust.	6	10	10	13	13	14	14	16	14	14	13
Mix hgt (km)	0.3	0.3	0.3	0.7	0.7	0.7	1.0	1.0	1.0	0.9	0.9
Trans wind dir.	S	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE
Trans spd (m/s)	4	4	4	6	6	6	7	7	7	6	6
LVORI	6	6	5	4	3	3	3	2	2	2	2

.TONIGHT...

Sky/weather.....Partly cloudy (25-35 percent).
Chance of pcpn.....0 percent.

```
Min temperature.....Around 70.
Max humidity........100 percent.
Dewpoint............71.
Heat index..........92.
Wind (20 ft)........Southeast winds 5 to 8 mph in the evening
                    becoming light.
Mixing height (m)...518-884 meters AGL decreasing to 152-274 meters
                    AGL in the late evening and overnight.
Transport winds m/s.Southeast 4 to 6 meters/second.
LVORI...............5.
Rainfall amount.....0.00 inches.

TIME (CDT)      6PM 7PM 8PM 9PM 10P 11P MID 1AM 2AM 3AM 4AM 5AM
Sky (%).........11  12  16  20  24  28  31  37  36  37  41  45
Weather cov.....
Weather type....
Tstm cov........
Chc of pcpn (%).0   0   0   0   0   0   0   0   0   0   0   0
Temp............85  84  82  78  77  75  74  73  73  72  71  70
Dewpoint........73  73  73  72  72  72  71  71  71  71  71  70
RH..............67  70  74  82  85  90  90  93  93  97  100 100
Heat index (F)..92  90  87  78  77  75  74  73  73  72  71  70
20 FT wind dir..SSE SSE SSE SSE SE  SSE SSE SSE SE  SSE SE  SE
20 FT wind spd..8   7   6   6   5   5   5   4   4   4   3   4
20 FT wind gust.12  10  10  7   6   6   6   6   6   6   4   6
Mix hgt (km)....0.9 0.5 0.5 0.5 0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.2
Trans wind dir..SSE SSE SSE SSE SSE SSE SSE SSE SSE SSE SE  SE
Trans spd (m/s).6   5   5   5   5   5   5   4   4   4   4   4
LVORI...........2   3   3   4   4   5   6   6   6   6   8   8

.THURSDAY...

Sky/weather.........Mostly sunny (35-45 percent).
Chance of pcpn......0 percent.
Max temperature.....Around 88.
Min humidity........57 percent.
Dewpoint............71.
Heat index..........94.
Wind (20 ft)........Light winds becoming southeast 5 to 8 mph early
                    in the morning.
Mixing height (m)...152-244 meters AGL increasing to 762-1158
                    meters AGL in the late morning and afternoon.
Transport winds m/s.Southeast 4 to 6 meters/second.
LVORI...............5.
Rainfall amount.....0.00 inches.

TIME (CDT)      6AM 7AM 8AM 9AM 10A 11A 12P 1PM 2PM 3PM 4PM 5PM
Sky (%).........49  53  68  55  28  15  14  14  14  14  14  17
Weather cov.....
Weather type....
Tstm cov........
Chc of pcpn (%).0   0   0   0   0   0   0   0   0   0   0   0
Temp............70  70  72  75  78  81  83  84  86  87  88  88
Dewpoint........70  70  71  72  72  72  71  71  71  71  71  71
RH..............100 100 97  90  82  74  67  65  61  59  57  57
Heat index (F)..70  70  72  75  78  85  88  89  91  93  94  94
20 FT wind dir..ESE E   ESE ESE ESE ESE SE  SE  SE  SE  SSE SSE
20 FT wind spd..4   4   5   6   6   7   7   8   8   8   8   7
20 FT wind gust.6   6   6   7   10  10  10  12  12  12  12  10
Mix hgt (km)....0.2 0.2 0.2 0.2 0.8 0.8 0.8 1.2 1.2 1.2 1.0 1.0
Trans wind dir..SE  SE  SE  SE  SE  SE  SE  SE  SE  SE  SE  SE
```

```
Trans spd (m/s).4   4   4   6   6   6   6   6   6   6   6
LVORI..........8   6   6   5   3   3   3   2   1   1   1   1

$$
```

[redacted]

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GB-06 RX & 9 MILE DITCH OWNERSHIP