Montgomery County Fire and Rescue Service

POST INCIDENT ANALYSIS

Inland Water/Ice Emergency
Diamondback Drive and Reprise Drive
Rockville, Maryland

Incident Date: January 13, 2014

Submitted by
Division Chief Alan Hinde
Battalion Chief Douglas Hinkle
On February 9, 2014

Incident Overview

Note: This post incident analysis (PIA) is based upon the review of the incident audio tape, interviews with crews who operated at the emergency scene and the completion and review of PIA Unit Fact Sheets.

On January 13, 2014, at 1617 hours, Montgomery County Fire Rescue Service (MCFRS) units responded to the intersection of Diamondback Drive and Reprise Drive for an inland water rescue with a report of three children stuck in a pond, mud and ice. Weather conditions were calm and partly cloudy with a temperature around 50 degrees Fahrenheit.

MCFRS units arrived on the scene to find one boy out of the pond, one boy on the ice and the third boy had just gone under the water surface. The first arriving crews quickly donned dry suits and entered the water to begin search operations. As additional crews arrived, more personnel were assigned to the search operation and a stand by team was set up at the entry point. At approximately 1646 hours, the patient was located by search crews and removed to the waiting medic unit. The medic unit transported the child to the hospital. Despite the efforts of all personnel involved, the patient did not survive the incident.

Site Layout

- The actual location of the incident was at the southeast corner of Diamondback Drive at the intersection of Ellington Blvd.
- It took place at a sediment pond adjacent to a construction site of new town homes.
    - The shoreline for two thirds of the distance around the pond was composed of mud and grass with a slight slope to the water. A twenty foot retaining wall made up the remaining third.
    - The sediment pond was only two to three feet deep in the area next to the retaining wall. From there, the pond depth increased with distance to approximately seven to eight feet.
- Picture 1 is an over site picture prior to the incident and Picture 2 is from the time of the incident.

Picture 1

Picture 2

Communications

- The incident was dispatched on 7-Alpha and assigned to the 7-Golf talk group.
- Battalion Chief 703 arrived on the scene and established Command. He passed Command to Volunteer Chief 700 on his arrival. 7-Hotel was used to coordinate the emergency medical services (EMS) operations.
- A few of the EMS units that switched to Golf were on the 72 zone which did not allow them to hear the initial on scene operation.
- During the incident the Specialty Resources were staffed with personnel from other apparatus which at times both the Specialty Resource and the apparatus would be called to accomplish different tasks but were actually the same personnel
- A dive team was requested. There was initial confusion by Montgomery Communications about dive resource availability which they then quickly clarified.
    - The Frederick County Maryland Dive Team was dispatched.

On Scene Operations

- Battalion Chief 703 was the first unit to arrive on the scene and reported one boy out of the water, one boy crawling on top of the ice toward the shore and one boy under the water.
- Battalion Chief 703 spotted an opening in the ice where the civilians were pointing as the last known location of the boy who was under the water.
- Command was passed to Volunteer Chief 700.
- The Incident Command Post was established in Battalion Chief 703's vehicle which was positioned adjacent to the incident on Diamondback Drive.
- Battalion Chief 703 began to triangulate the location of the boy from the top of the retaining wall using the Montgomery County Police Department (MCPD) officer who was posted at the shoreline.
- The crew from Rescue Squad 703 donned dry suits to begin water search operations.
- Two of the personnel from Rescue Squad 703 proceeded to the last known location of the submerged child and began to perform a search of the area. The search was directed by Battalion Chief 703 from the top of the wall overlooking the pond area.
- Paramedic Engine 731, Boat 729, Boat 731, Medic 729 and Medic 731 arrived and prepared personnel in personal protective envelopes (PPE) to enter the pond. A jon boat from Boat Support 731 was also simultaneously prepared for entry.
- A twenty-four foot extension ladder was lowered by Operations Chief 700 and Technical Rescue 700 Driver from the wall to an area close to the rescuers to provide a second means of egress.
    - The railing of the fence was removed at that time to allow better access for this ladder.

- Paramedic Engine 731's Officer and Firefighter along with the Driver of Medic 731 entered the pond with the jon boat to assist with the search and to relieve the two personnel from Rescue Squad 703.
- Medic 731 Officer positioned himself on the hard road just above the anticipated exit point and ensured his unit was in position for an immediate exit. He set up all of the necessary equipment to receive a patient.
- Rescue Squad 703 personnel were directed to exit via the ladder which was the closest exit. Then the personnel were sent for rehabilitation.
- Boat 729 personnel entered the water with additional tag lines and assisted with the search.
- Medic 729 personnel donned PPE and became the tenders and the Rapid Intervention Crew (RIC) at the shoreline for the crews.
- Rehabilitation was set up in Medic 729 with Paramedic Engine 703 staffing the function.
- Strike Team 730 arrived with three personnel who were sent to relieve Paramedic Engine 731 personnel in the pond.
- The search area was expanding as additional rescuers arrived and more ice was broken. With the prompt of the Strike Team Leader, the message was relayed to keep any additional ice breakage to a minimum until the Dive Team's arrival.
- Medic 731 Driver located the patient with his foot and brought him to the surface. Personnel in the immediate area placed the patient in the jon boat. Strike Team 730 Leader entered the boat as well.
- The jon boat was moved to the shoreline and the patient was placed in a stokes basket for movement to Medic 731, 29 minutes after dispatch.
- Medic 731, along with additional advanced life support providers, treated the patient while transporting him to the hospital.
- During the patient removal, crews began to exit the pond. The last Fire/Rescue personnel cleared the pond 31 minutes after dispatch.
- Command conducted a Personnel Accountability Report.
- All personnel who required it were sent to Rehabilitation.
- A Hot Wash was held with the command officers and the unit officers.
- Critical Incident Stress Management team members debriefed all personnel involved by meeting with them in their stations.

Incident scene from the shore line

Incident scene from overhead

Obstacles Encountered

- There were many civilians at both the shoreline entry point and on top of the wall.
    - MCPD officers on the scene had to be repeatedly requested to assist with scene security because of their desire to assist with other scene operations.
- The movement of personnel and equipment was hampered by the extreme mud created by the construction in the immediate area and the rise in temperature.
- The high wall on the side of the water's edge limited access to the pond.
- MCFRS and MCPD vehicles created a traffic flow issue impeding access and egress.

Lessons Learned

- All personnel need to understand the capabilities of the ice rescue equipment to include the need for thermal liner use with dry suits.
- All reserve apparatus needs to have some type of markings to allow for quick identification on incidents.
- Personnel need to have appropriate tools to complete the task an example is that personnel who are entering the search need to have a long pole or long hook with them to assist with the search.
- Supervisors need to build out responsibilities when the operation dictates the need.
    - A Search Supervisor should have been established as the span of the operation was too large to be coordinated by the Rescue Operations Supervisor alone.
    - A Water Entry Control Officer needs to be established.
- Maintaining the original hole in the ice is imperative to allow the dive team a definitive starting point for a grid search. If the original hole can not be kept intact the location needs to be marked with a dive type of marker
- Examine the need for equipment to mark the last known location.
- Currently the County does not have a certification for personnel to wear a dry suit or Gumby suit.
    - The exception to this is the Swiftwater Team who does complete an in-house check out.
- One rescuer tore his suit at the foot while donning, prior to entry but continued with entering the environment. This suit should have replaced prior to entry.
- Lack of equipment hindered efficient operations.
    - Pierce Rescue Squads currently have dry suits but do not have the thermal, foot or hand protections needed for cold water.
    - Small inflatable boats should be added to the inventory of rescue squads.

    - Sheppard's Hooks or similar hooks should be added to the inventory for all boats and rescue squads.
- Personnel should not be allowed to exit via a ladder when another option such as the exiting via the shore line is available.
- Both the dry suits and Gumby suits need to have maintenance performed multiple times a year.
- Command Officers need to be in a supervisory role and not be involved in tasks.
- All personnel need to maintain positional discipline.
    - Any Chief arriving on the scene must report to Command for assignment.
    - Personnel on the scene must not give direction to personnel in the water contrary to the Rescue Supervisor's direction.
    - Crews must maintain crew integrity and assignment discipline.
- Rehabilitation should be established more quickly. This area should have limited entry of personnel not assigned to be in Rehabilitation.
- EMS must be prepared to receive the submerged patient.
    - More than one paramedic should be assigned to this task.
    - The unit driver should remain with the crew and not assist in search operations.
    - Identify personnel who will be assisting with patient care.
        - Too many personnel in the unit during transport did hamper patient care. A total of four Advanced Life Support providers in the unit providing patient care but no coordination was taking place since the Paramedic in Charge was not the ranking individual in the unit.

Units on the Incident

Initial Dispatch

Ambulance 732	Strike Team 730	Battalion Chief 703
Medic 703	Boat 731	Truck 731
Rescue Squad 703	Boat 729	(Crew of Boat 731)

Additional Units

Paramedic Engine 731	Paramedic Rescue Squad 729
Paramedic Engine 703	(Crew of Boat 729)
Medic 731	Operations Battalion Chief 700
Medic 729	Executive Battalion Chief 700
(Crew of Boat 729)	Operations Chief 700
Safety 700	Chief 700
Rescue Squad 717	Helicopter Trooper 3
Volunteer Chief 700	Canteen 708
Strike Team 710	Medical Ambulance Bus 726
Emergency Medical Service 703	Frederick County Dive Team
Duty Chief 700	

Recommendations

1. Personnel need to train on and review the use of all of the seldom used equipment and tools carried on the apparatus at their assigned stations.
2. Purchase and install a placard system on all MCFRS apparatus to allow for immediate identification of each unit on the emergency incident.
    a. An example would be the current system being utilized at Bethesda Chevy Chase Rescue Squad.
3. A dedicated unit for rehabilitation should be dispatched on all cold water events where the outside temperature is below 50 degrees Fahrenheit.
4. Equipment enhancements are needed.
    a. A small inflatable boat should be added to each rescue squad's equipment.
    b. All dry suits need to have gloves, boots and thermal liners.
    c. A Sheppard's Hook or similar hook should be added to all boat and rescue squad inventories.
5. Crews that are cross staffing Specialty Resources need to designate themselves as that resource when on an incident. They must answer as that resource when contacted during the incident and not as the apparatus that they typically are assigned to during daily operations.
6. Develop and implement a water response policy that includes a section for Ice Rescue Operations
7. If the dispatched aerial apparatus is used as part of a specialty resources staffing that apparatus need to be replaced to allow for the ability of both the aerial and equipment carried.

Conclusions

The risk versus the victory was appropriately applied for this incident. These rare high risk low frequency events continuously challenge our abilities as well as our capabilities. Every incident of this type provides a unique opportunity in real time to evaluate the application of our training and physical resources to bring the incident to the best case outcome.

In this incident the patient was removed from the body of water in 29 minutes and delivered to the hospital within 45 minutes. All personnel should be commended for affecting the rescue and delivering the patient in this time frame.