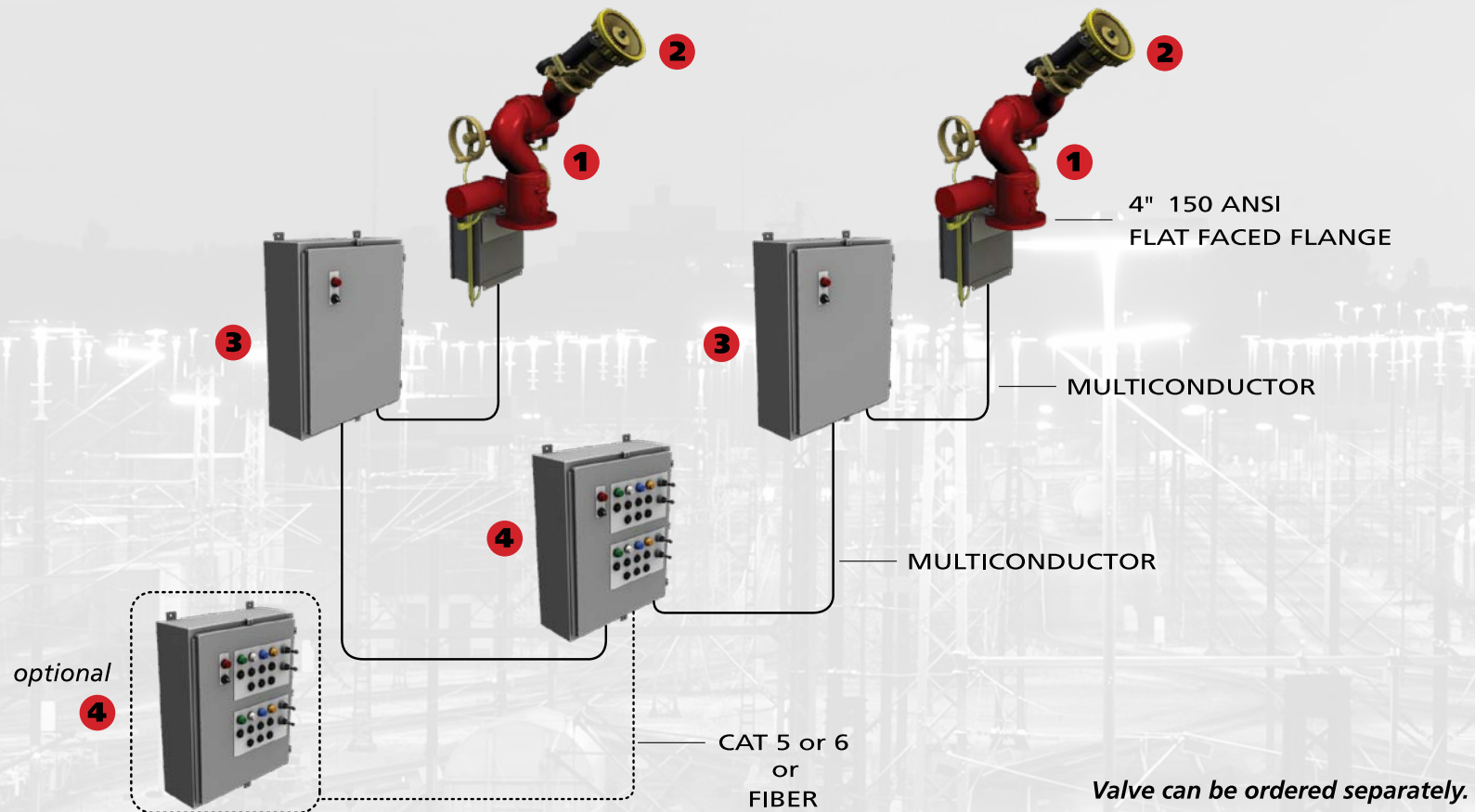


ELECTRIC REMOTE CONTROLLED MONITOR SYSTEMS

Elkhart's smart solutions
for industrial asset protection
in hazardous applications
and extreme environments

ELKHART  BRASS
Fire Fighting Equipment
Smart. Solutions.

ELECTRIC REMOTE CONTROLLED MONITOR SYSTEM



Base System Components:

- 1 • (2) 8394053 Spitfire Monitors
 - 2 • (2) X-Stream Master Stream Nozzles (1000, 1250 or 2000 GPM)
 - 3 • (2) 81471068 Monitor Motor Control Panels (MMCP)
 - 4 • Operator Control Panels (OCP):
 - 24359000 – 2 Monitor Control
 - 24359001 – 1 Monitor Control
- Manuals for each
 - Installation manual for system

Functions:

- Joystick control of nozzle pointing (Up, Down, Left, Right)
- Joystick control of stream pattern (straight stream to wide fog)
- Water valve (open/closed)
- Auxiliary function (on/off)
- Park
- Oscillate (on/off)

Single source solutions for any industrial fire protection situation

Take asset protection and team safety to a higher level with Elkhart's customized fire suppression systems.

Features:

DURABLE DESIGN – for years of dependable performance in extreme environments. Complete systems include proven Elkhart components designed for easy and effective plug-and-play operation

RATINGS & CERTIFICATIONS – components meet NFPA/NEC requirements for Class 1 Division 2 service

- NEMA 4X electrical panels UL labeled for Class 1 Division 2 service
- All motors UL recognized for Class 1 Division 2 service

COMMUNICATION PROTOCOL EXPERTISE & SELECTION – configurable network communication between control panels

- RJ 45 network cable connection for distances up to 300' (fiber recommended over 250')
- SC multi-mode fiber optic connection option included for long distance communication
- Network cabling infrastructure can be mixed between panels to provide flexibility of installation
- Ring, star or mixed

CONTROL CUSTOMIZATION OPTIONS – specifically provided to meet the unique needs of any application

- Control panels configurable for either local or remote installation
- Auxiliary inputs provided for emergency response controls to be added later
- Addition of more monitors and control panels possible for system expansion
- Ability to add portable RF or HMI consoles as desired

Applications:

- Refineries
- Chemical plants
- Offshore platforms
- Loading docks
- Nuclear plants
- Railroad yards
- Sports arenas and entertainment venues

For real world industrial fire suppression case studies from Elkhart Brass, just turn the page.



Industrial Solution: 1

Visual hierarchy of control

Installation Type:

Refinery

Location:

Western Europe

Client Objectives:

- Multiple points of control
- Control throughout clearly defined & visible hierarchy

- Large facility required numerous points of control

- Hierarchy of control structure essential to eliminate potential errors

Problem:

Large refinery requiring 10 remote-operated water cannons with 18 distinct control locations. Organizing and managing this large number of control points seamlessly without compromising response times or control at each point was a specific concern.

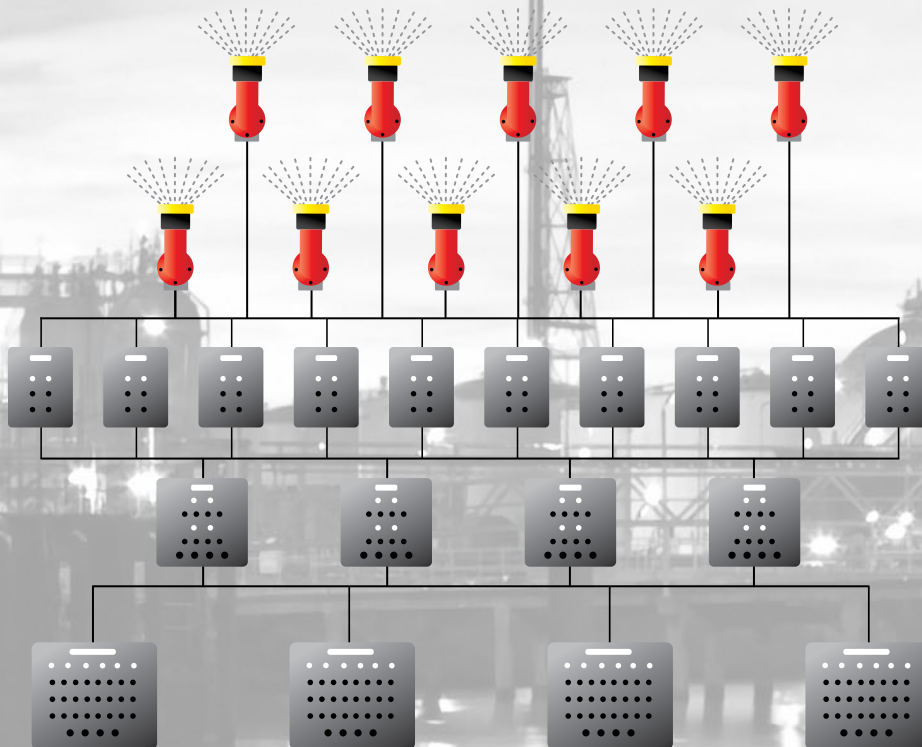
Elkhart Brass Solution:

Creation of visible hierarchy of control displayed at each control station, with switches and lights at each level to indicate intent and status at adjacent levels.

Elkhart Brass System:

- 10 industrial water cannons and nozzles
- 10 industrial valves
- 18 control stations
 - 4 master
 - 4 regional
 - 10 local

SYSTEM OVERVIEW



LOCAL CONTROL PANEL



INDUSTRIAL SPIT-FIRE WATER CANNON



Industrial Solution: 2
Specialized training mode

Installation Type:
Refinery – jetty

Location:
Northwest U.S.

Client Objectives:

- Provide training capability adjacent to protected waterway
- Avoid potential for accidental AFFF discharge

- Responders must be trained on fire suppression system

- Need to protect the environment from accidental AFFF discharge



Problem:

Needed to train crew frequently on fire protection system and exercise system components, including water flow, while protecting against accidental foam release (AFFF) into environmentally sensitive waterways.

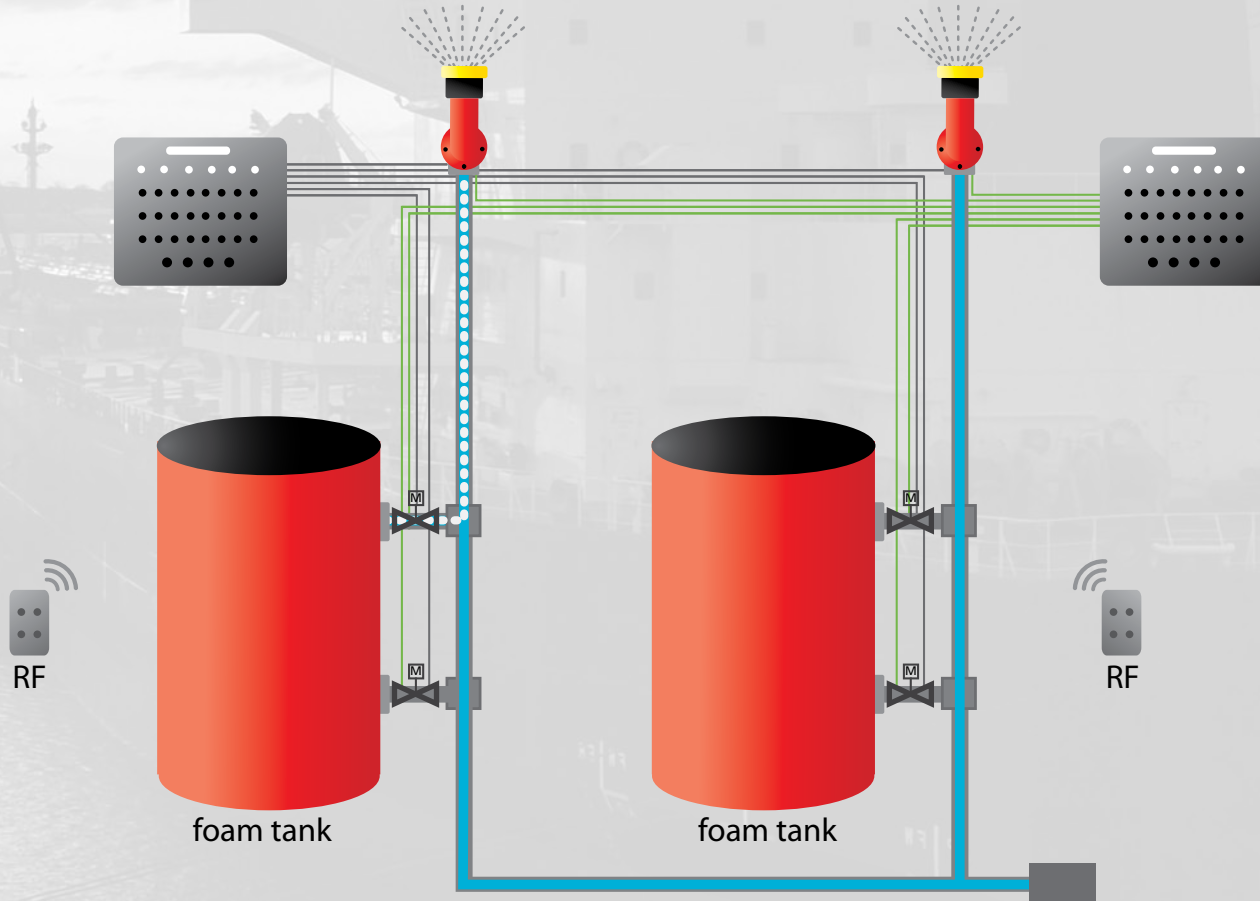
Elkhart Brass Solution:

Solution involved specialized control programming. The customized controls provided a fire protection system with training mode that effectively blocks AFFF discharge while allowing full access to all other components of system. Fire department can perform all necessary training exercises without harming environment or endangering wildlife.

Elkhart Brass System:

- 2 industrial water cannons and nozzles
- 4 foam valves
- Control system
 - 2 fixed
 - 2 portable

SYSTEM OVERVIEW



FOAM VALVE



INDUSTRIAL SPIT-FIRE WATER CANNON



Industrial Solution: 3

Custom display options for fire protection

Installation Type:

LNG unloading facility and processing units

Location:

Mexico

Client Objective:

System operation at sprawling facility where CCTV not available



- Two areas must be protected from one control

- Rugged terrain and distance create line of site and CCTV issues

Problem:

This sprawling facility is in a remote area with limited resources and infrastructure to support operations. Even CCTV was not a realistic option. Client was looking for creative solution to address needs.

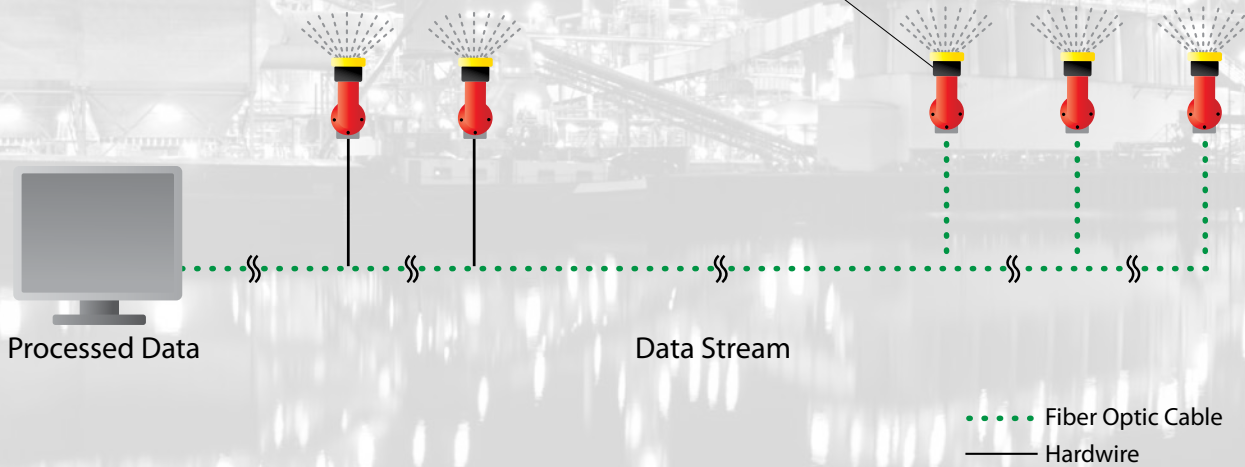
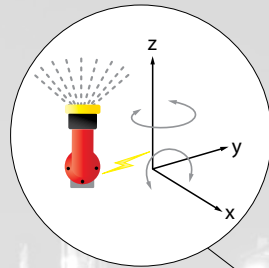
Elkhart Brass Solution:

Elkhart Brass engineers designed a system utilizing remote control. Water cannons provide absolute position feedback through a digital touch screen control display overlaid on an intuitive map of the facility.

Elkhart Brass System:

- 5 industrial water cannons and nozzles
- 5 industrial valves
- Digital touch screen control

SYSTEM OVERVIEW



INTUITIVE TECHNOLOGY



INDUSTRIAL SPIT-FIRE WATER CANNON



Industrial Solution: 4

First class protection on a budget

Installation Type:

Refinery processing units

Location:

Texas

Client Objective:

Replace obsolete hydraulic water cannons

- Needed gas vapor control

- Retrofit had budgetary restrictions

- Redundant controls, over 1/2 mile apart, required

Problem:

Existing hydraulic water cannons were unreliable and inadequate. Client needed to replace these non-working water cannons with a new system that provided redundancy of control on a limited budget, plus gas vapor control.

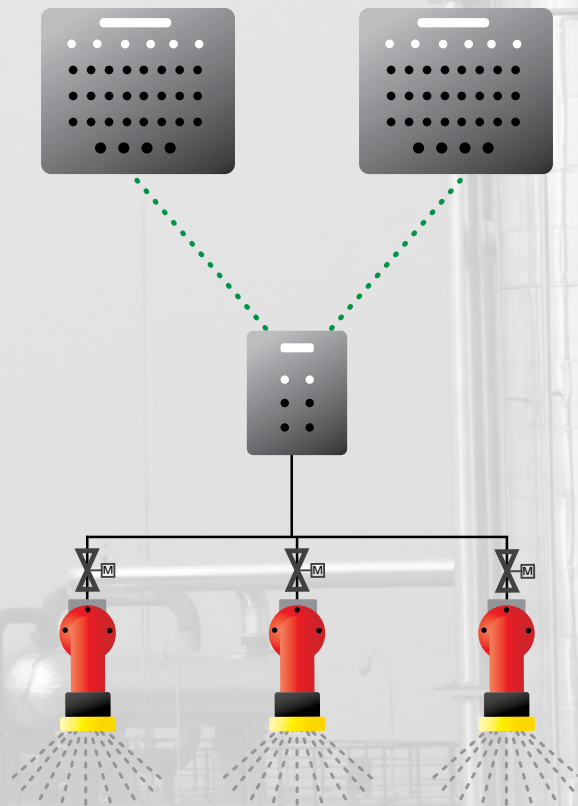
Elkhart Brass Solution:

Elkhart's analysis determined that the hazardous area classification did not require expensive hydraulic water cannons, thus an electric system was chosen. By using existing spare fiber optic cabling within the plant, water cannons could simply be updated to link a primary and secondary control area approximately 3,000 feet apart. The new system presented a less expensive, lower maintenance option for a hazardous location.

Elkhart Brass System:

- 3 industrial water cannons and nozzles
- 3 industrial valves
- 3 control stations
 - 2 master
 - 1 local
- Dual connections: fiber optic cable and hardwire

SYSTEM OVERVIEW



..... Fiber Optic Cable
—— Hardwire



INDUSTRIAL SPIT-FIRE WATER CANNON



X-STREAM® (GAS MITIGATION NOZZLE)



Industrial Solution: 5

Desert-tolerant equipment and reliable control communication

Installation Type:

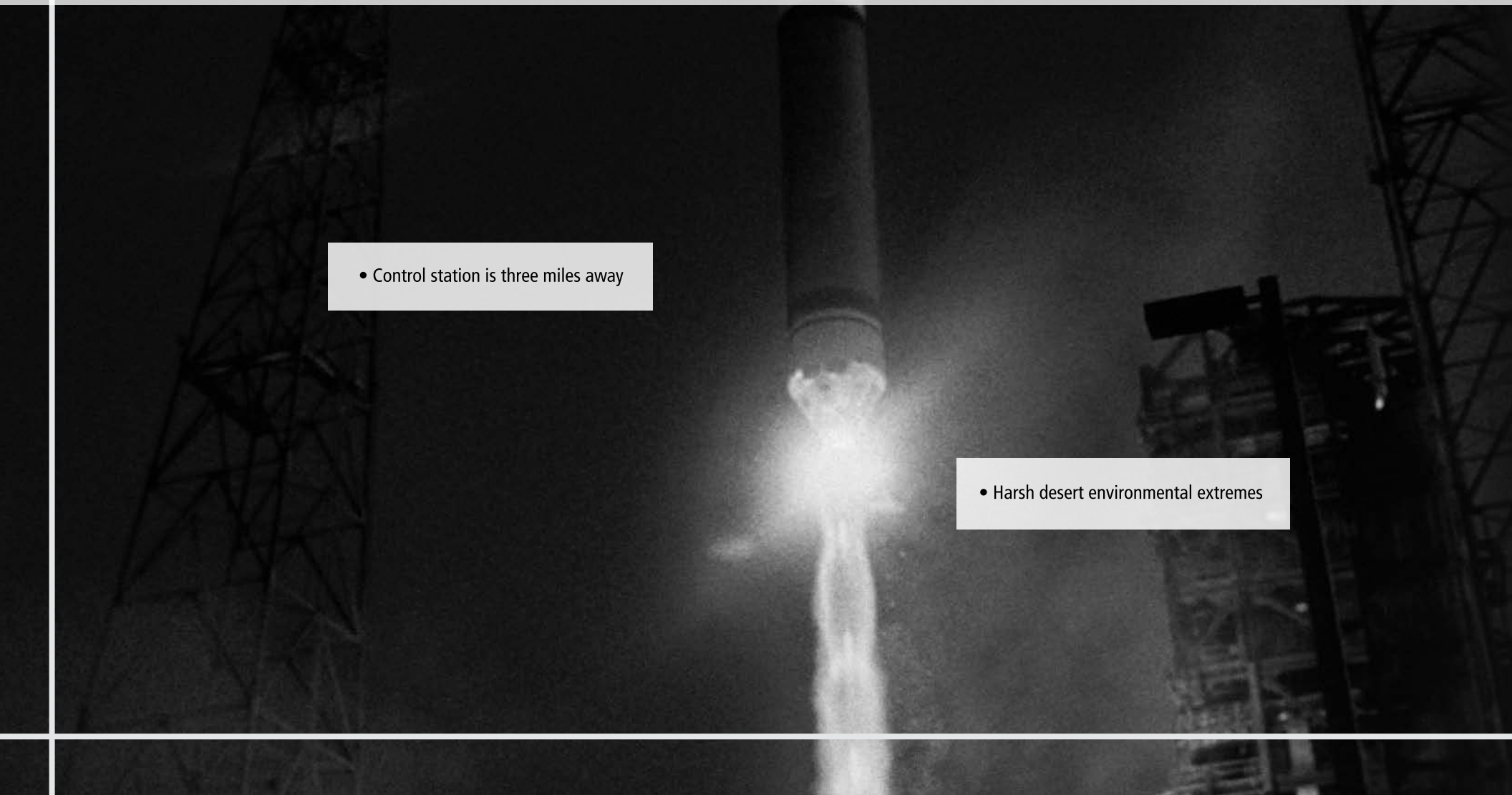
Space launch facility

Location:

Southwest U.S.

Client Objectives:

- System compatible with harsh desert environment
- Remote operation of fire equipment

- 
- Control station is three miles away

- Harsh desert environmental extremes

Problem:

The harsh desert environment with its extreme temperature fluctuations posed unique challenges for developing a fire protection system for this space launch facility. In addition, because of the nature of the facility, the system needed to operate reliably from a control room three miles away from the launch site.

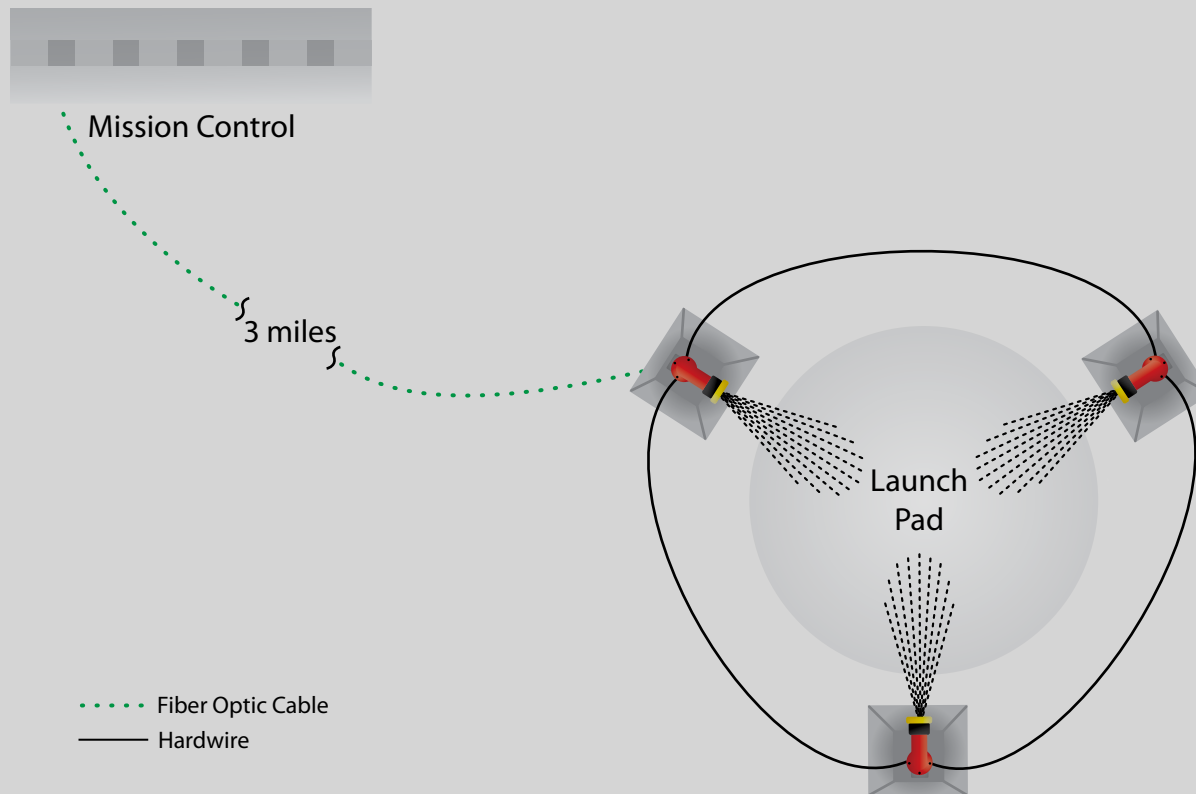
Elkhart Brass Solution:

Elkhart's Spit-Fire water cannon was an ideal match for the project. Its 100% sealed motors and gear boxes can survive the extreme temperatures and dry, sandy desert environment. The Spit-Fire, when coupled with Elkhart's X-Stream series nozzles, delivers maximum reach with a controllable pattern. The entire system is connected via fiber optics to the distant control station.

Elkhart Brass System:

- 3 industrial water cannons and nozzles
- 3 industrial valves
- 2 control stations
 - 1 master, linked via fiber optics
 - 1 local, hardwired
- Remote valve control interface

SYSTEM OVERVIEW





Industrial Solution: 6
Spectator and structure safety

Installation Type:
Indoor arena

Location:
United States

Client Objectives:

- Fully-operational fire system compatible with structure
- Spectator safety

- Bystanders may be present during a fire incident

- Need to train on system without damage to the facility

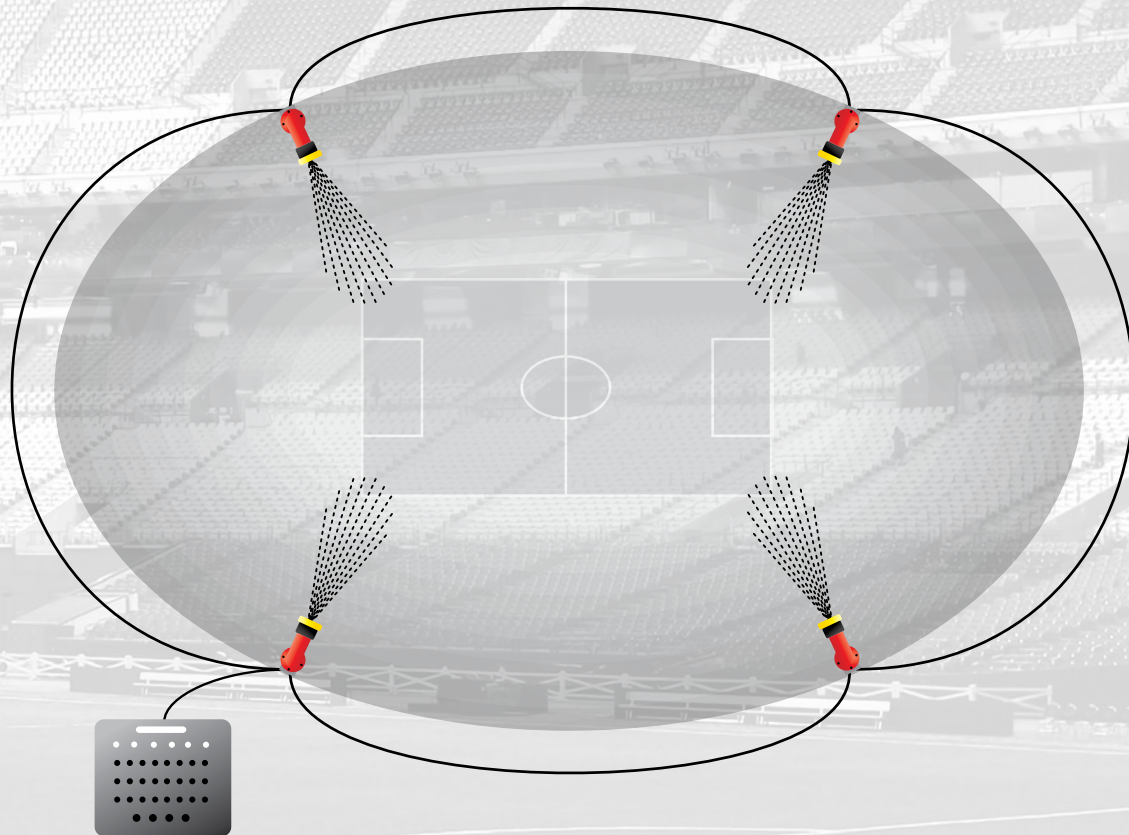
Problem:

Indoor, mixed use recreational facility posed a unique challenge. It needed to provide full fire coverage without posing a hazard to spectators. First responders also needed to be trained on system operation without the possibility of damage to the structure itself.

Elkhart Brass Solution:

Two key components provide a safe and testable operation. The water cannon system is pre-programmed to open in a deployed mode with the water nozzles set to deliver a protective fog pattern allowing spectators to safely exit the facility. As an additional safety measure, a locked security enclosure for the controls was installed to prevent accidental activation. A single water cannon outdoor system allows for first responder training.

SYSTEM OVERVIEW



Elkhart Brass System:

- 4 industrial water cannons and nozzles
- 4 industrial valves
- 1 master controller



X-STREAM® NOZZLE



INDUSTRIAL SPIT-FIRE WATER CANNON

PERFORMANCE | EASE-OF-USE | SATISFACTION



Smart. Solutions.

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