

Elemental Gazette

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Your source for the latest news from Elemental Effects

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I-10 TO YUMA



OK, so the I-10 doesn't actually go to Yuma but it does make up to majority of the trip from our shop in Orlando to the Yuma Fun Factory in Yuma, Arizona. Besides, I couldn't pass up the movie reference.

Yuma Fun Factory is an entertainment center with go-carts, bumper boats, restaurants, bars, arcades, a stage for live shows and two 18 hole adventure golf courses. The facility has something for all ages.

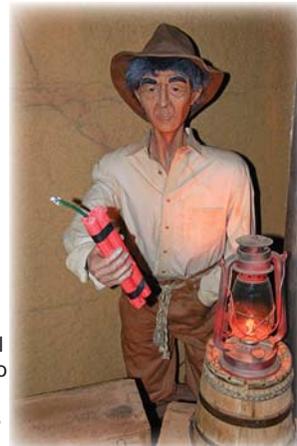
The theme for the facility is one that we can easily say we have never seen before; think Waterworld meets the old west. One of the two golf courses has an old Yuma theme (circa 1875) with a Spanish mission, gold mine, Yuma Prison, a saloon and an old west street scene. The rest of the facility has a post apocalyptic industrial feel and offers one vision of what would occur if California slid into the ocean and turned Yuma into beach front property.

Castle Golf designed and built the golf course and bumper boat area with SceneWorks of Arkansas providing the scenic elements for the course. Our task list included audio, animations, water cannons, cool zones and water fog effects.



Miner Animation

As the guests enter the cave which contains the 7th hole of the Old Yuma course they notice a gated passage that continues deep into the hillside. Lit by lanterns the guest can see shovels, picks, buckets and crates of TNT, the tools of a miner. Soon they begin to hear the sounds of tools striking stone wall. Somebody is still in this mine. Just then the old miner appears and makes it clear who lays claim to this hole in the ground. After returning to his digging he decides to break out the dynamite, he appears with a bundle of lit TNT and warns everyone to stand back. Disappearing again we hear the familiar call "FIRE IN THE HOLE!!!" then an explosion, flash and a plume of dust rolling from the mine.

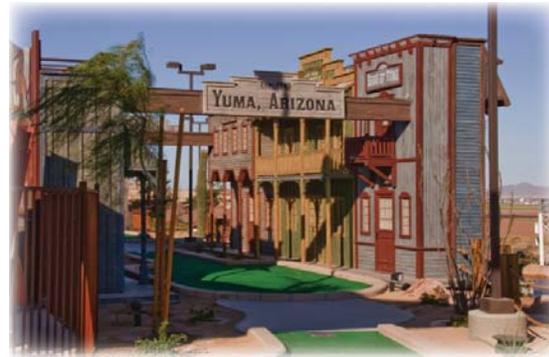


For this element, Castle provided the basic cave space for us to install our animation and scenic elements. The Miner animation has three motion components: a traveler, pivot and a moving arm. The fuse on the bundle of dynamite contains fiber optics to make the fuse sparkle when lit. Lighting for the mine space was provided by custom LED elements programmed via a multi-channel flicker generator. A kerosene lantern was modified with one of the LED modules to provide key light for the miner while other LED units were install out of the guests sight to provide fill light for the balance of the scene. Audio and water fog "smoke" round out the effects used to create this scene. The sequence is activated as the guests approach the steel gate that separates the mine from the playing surface.

Street Scene

The 17th hole on the Old Yuma course plays down the center of the town's main street, complete with mercantile, tavern, bank, hotel, barber, gunsmith and livery. When the guests begin the play the hole the street comes alive with sounds of everyday life and even a few out of the ordinary occurrences.

The street utilizes a four channel audio track to give depth to the sound effects and allow for a sense of movement. Ambient sounds include horses, blacksmith, people walking on the wooded sidewalks, an old piano from the tavern and everyday conversations in the various businesses.



The street scene also includes two pop-up characters, one of either end of the street. These characters make direct comments to the guests as well as carry on conversations about what they see out there windows.

The final component of the street scene are the major events which include an old fashioned bar fight in the tavern, horse escaping the livery and a bank robbery that turns into a town wide gun battle.



Drop Holes

Several of the holes have what are commonly called 'drop holes' where the player putts into a pipe or shoot which directs their ball onto another playing surface. Drop holes present a perfect opportunity for us to add ball sensors which trigger events for the players benefit.

At the Fun Factory there are two drop holes on each course. On the Old Yuma course there is the Spanish Mission and Yuma Prison. On the ocean front course there is the rubbled Mission and the Mine Shack. Each of these structures were fitted with ball sensors and speakers for audio playback. The Spanish Mission is also fitted with an animated brass bell which rings to signal a player achieving the skill shot for that hole.



Earthquake sequence

Having been formed by a massive earthquake that dropped California into the sea, the Ocean Front continues to experience tremors and aftershocks.

We used audio and several visual elements to simulate earthquake events on the Ocean Front course. The visual elements include the water tower and three large holding tank features scattered across the course.



The water tower has a series of water jets installed to simulate the tank rupturing during an event. The water was pumped out of the ponds and the larger nozzles were aimed to return the bulk of the water to the pond. Audio was also installed in the water tower to create the sounds of metal creaking and breaking.

Each of the three holding tank scenes is fitted with clusters of water fog nozzles to simulate steam breaks from these elements.

Comments from the occupants of the Sail Boat, Rubbled Mission and Mine Shack are also used to enhance the earthquake sequences.

18th Holes

The 18th holes at Yuma Fun Factory use Castle Golf's skee ball style final shot challenge. The guest face a series of three rings with the center ring being considered a hole-in-one and awarding the player a prize, in this case a ticket which entitles them to a free game. Shots outside of the center hole are considered losing shots. While many of our final hole systems simply provide audio playback for winners or losers, for this application we were able to add animated characters to heckle or congratulate the guests.

The 18th holes are built into the Saloon buildings on both courses. Our animation consisted of three pop-up characters in each building. Upon a shot by the player one of the three characters appears in a window and comments on the quality of the shot. The characters include a cowboy, the town fool and the old miner. Each character has ten different sayings creating 30 possible responses to the guests shot and helping to ensuring a unique experience even for repeat customers.



Water Cannon

To add a bit of excitement to the bumper boat pond, we have added a three barreled water cannon that fires plumes of water approximately 30ft over the pond area. Each of the three barrels is individually controlled and programmed in a pattern that appears random to the guests. The effect sequence is activated by the operations staff at the beginning of the timed ride, allowing the staff to disable the effect for some guests.

The water cannons unit is themed to blend into the industrial backdrop that surrounds the bumper boat pond.

Cool Zones and Atmospheric Fog

Along with the control water fog elements used for the earthquake sequence and mine explosion, we also installed water fog zones for constant run atmospheric and cooling applications.

The cool zones include both Ocean-to-Ocean Highway Bridge replicas, Mine cave, Yuma Street scene and Sail Boat.





Show Control

As with most of our installations, the control system for this project was based on industrial Programmable Logic Controllers (PLC). Being originally designed for industrial automation, PLCs provide great system flexibility and unsurpassed reliability.

The Show Control also integrates lighting and audio components to provide complete control of the special effects systems.

All of our control systems meet or exceed UL508a Industrial Control Panel Standard.

Show Audio

All of the audio elements for the golf courses and bumper boat pond are handled by a centralized audio system. The system consists of a 32 channel digital audio playback unit, digital signal processing and 28 channels of amplification. Speakers include 5 sub-woofers, 30 full range speakers and 30 in-ground speakers.

Background audio is used throughout the venue to create ambiance. On the Old Yuma course the sounds of horses, coyotes and occasional dust storms are used to enhance to old west feel of the area. For the Ocean Front course we used sounds of surf and sea birds to create atmosphere. In the bumper boat area there is a combination of sea sounds and sounds of machinery coming from the industrial backdrop.

Sub-woofers provide extra low frequency power for the Ocean Front earthquake sequence as well as the mine explosion on the Old Yuma course.

To protect the audio equipment from thermal and environmental damage, all of the components were mounted in a sealed cabinet with an industrial cooling unit which maintained the internal temperature at no more than 80 degrees. This system allows the audio components to work through the 120 degree plus temperatures experienced in Yuma during the summer months.

