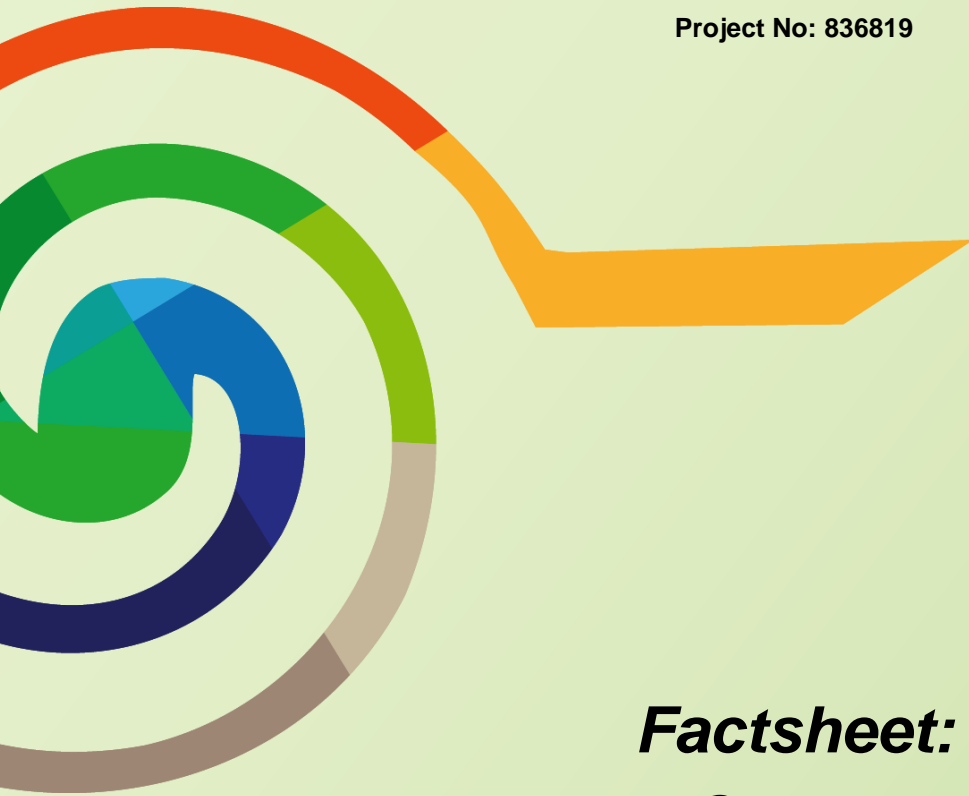


Project No: 836819



Factsheet:
***Urban Park – Closed mining areas
revitalization, Missouri, USA***

SEPTEMBER 2019



GET

Description

Bonne Terre mine was once the world's largest lead mine. Major lead mining operations from the 1870s included the Desloge Lead Company, St. Joseph Lead Company and Doe Run. The above-ground works were bounded approximately by present-day Division Street on the west, Benham Street on the south, Route 67 on the east, and the township line to the north¹.

The process of converting the mine site into a museum and later into a complex touristic attraction (by creating necessary accommodations and conditions for diving) took place in several stages:

- mine closure (basically the mine was abandoned in 1962);
- Bonne Terre Mine, former Mississippi River and Bonne Terre Railway Depot and former St. Joseph Lead Company Administration Building are included in the National Register of Historic Places (1973)²;
- the mine is cleared of debris and facilities for guided tours are established (as of January, 1973)²;
- some of the mining equipments are brought to surface and a thematic exhibition is arranged;
- in the 1980's, Doug and Catherine Goergens bought the mine and reopened it as a scuba-diving center³;
- the former Mississippi River and Bonne Terre Railway Depot and St. Joseph Lead Company Administration Building are transformed into accommodation facilities (1989);

1. **Location:** Bonne Terre, St. Francois County, Missouri, United States
2. **Type of action:** Conversion of a mining site into a museum and diving facility
3. **Actors:** St. Joseph Lead Company, Bonne Terre Mine Company, Doug and Catherine Goergens, West End Diving
4. **Financing conditions:** Private investment
5. **Fund(s):** as the investments were/are private there are no information available

After closure (1962), the property remains in the ownership of the St. Joseph Minerals Corporation, but the rights of occupancy have been leased to the Bonne Terre Mine Company. This nomination includes only that portion of the St. Joseph Lead Company mine at Bonne Terre which has been opened and maintained for tourist use as of January, 1973².

That portion of the mine included in this nomination is approximately 122 m below the ground surface at the lowest point, but at certain points the ceiling of the mine is merely a few meters below the ground level. The major access today is through the "mule entrance" where raw ore was removed from the mine by mule-drawn carts. The Bonne Terre Mine Company has improved this entrance shaft and today it provides the only access for tourists. Upon entering the Bonne Terre Mine through a series of concrete stairways in the "mule entrance," the visitor descends to the upper mining level, 17 m below the surface. This is the oldest level of mining activity and was solid rock before mining commenced. Rock pillars were allowed to remain at regular intervals in the mine to provide support for the ceiling. Passageways to lower mining levels occur at various places².

A visit to the mine is very different from the cave tours. The mine's tunnels are wide, built to accommodate mule-drawn ore carts. There are no geologic wonders to compare to a natural cave's. Instead, visitors see the first shaft the miners dug with pick and shovel in 1864, remnants of the once-extensive rail system, and other gear left behind by the long-vanished employees of the St. Joseph Lead Company³.

The walking tour ends at the dock on the 27.5-km-long underground. Stone columns rise out of the water more than 17 m to support the mine's ceiling. Floodlights both above and below

the water provide eerie lighting. There are usually scuba divers on the dock, struggling into their wetsuits, hoods, and gloves, and you can watch, with envy or horror depending on your predilections, as they jump into the 14°C water³.

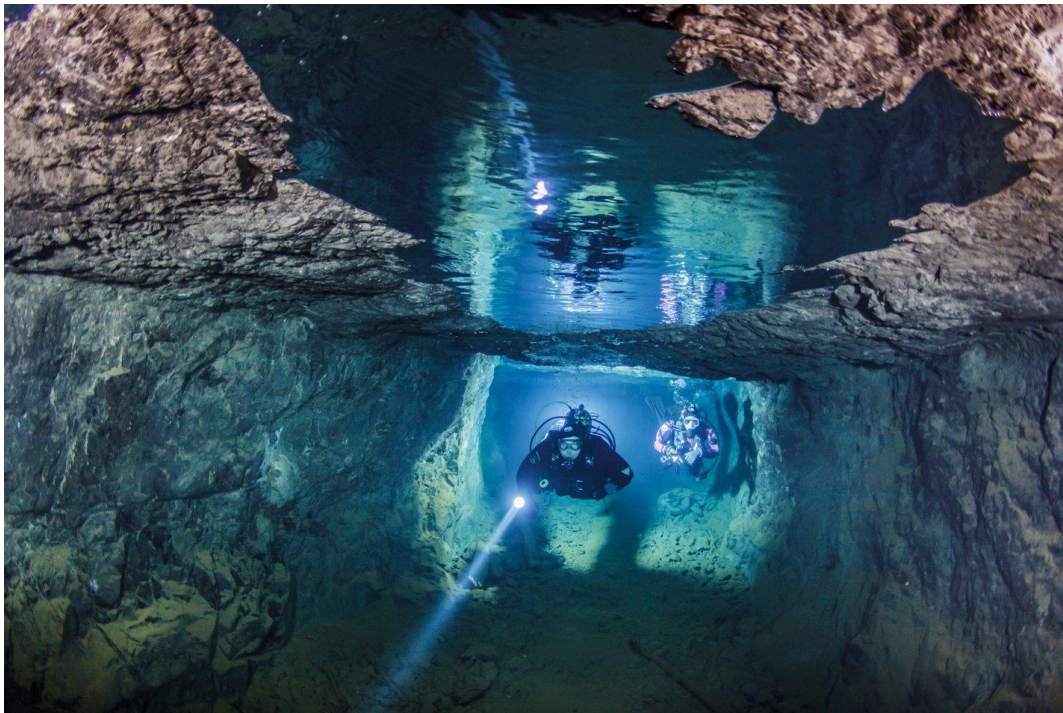


Figure 1: Bonne Terre Mine

(source: <https://www.bonneterremine.com/gallery>)

A boat tour begins from this dock. As the boat winds slowly around the massive columns, passengers can see ore carts under the water and spindly catwalks far above it. The boat also passes the framework of one of the elevators used to raise ore from the depths of the mine³.

At one point, the guide directs tourists to peer up into the darkness overhead, and a spot of dim light can be seen - a hole through to the surface³.

Achievements

Bonne Terre Mine, a national historic site, is the world's largest fresh water dive resort. Water conditions remain constant with over 30 m visibility, Sights include: mammoth architecture, guaranteed year round diving conditions. Cal falls, oar carts, scaffolding, grating, staircases, pillars, slurry pipes, the famed elevator shaft, and much more. Bonne Terre Mine is without a doubt one of the most unusual, beautiful, and relaxing full service dive resorts anywhere⁴.

The Billion Gallon Lake is illuminated with over 500,000 watts of lighting, a total of twenty-four dive trails have been laid out in the lake, taking the diver through mammoth archways, past beautiful calcium falls, around gargantuan pillars and to the many abandoned mining artefacts. Depths of the dive tours average between 12 to 18 m. Divers are toured through the mine in groups of ten by two specially trained dive guides. Super 2.25 cubic m aluminium tanks are provided for each diver. Dive lights are not permitted in the lake, because they detract from the natural beauty of the illuminated surroundings. Power inflators are required on all BC's. Our Billion Gallon Lake is 14°C and not affected by outside temperatures, there are no thermo clines. Air temperature is 16.5°C year round. Lighting on the rock formations is spectacular. One can descend to 7 m and look up to see divers silhouetted against a rainbow. Man carved pillars grace the entire Billion Gallon Lake. The 18 m solid-rock pillar rising from depths and mining artefacts on the walls and floor make for spectacular underwater photography⁴.

Diving Bonne Terre Mine

National Geographic Adventure named the diving at Bonne Terre Mine in Missouri one of the top 10 adventures in America, and it's easy to see why. Back in the day, the mine's deepest reaches were not underwater. A massive pump system stemmed the flow of encroaching groundwater as the miners pushed ever deeper. But when this, the world's largest lead mine, was all mined out, the pumps were turned off and the water trickled in to fill the void⁵.

The dive deck hovers on the water's surface, 45 m from terra firma. Underwater pillars, shafts, archways, walls and ceilings stretch for miles in all directions, a sprawling maze beneath the town. Artefacts like shovels, drills, ladders, and ore carts lay everywhere. You'll also be struck by the electric-blue water, the result of 500,000 watts of high-powered stadium lighting installed by the owners. There are 2 more that 50 planned trails open to the public and the experience is accessible to most divers. Every group of divers is assigned a guide and a safety diver and the divers dive the trails in a preset sequence. The dives become more advanced with additional swim-throughs and archways to navigate as the numbers get larger. Under special circumstances, exploratory dives are possible here as well. Dubbed "Bear Trails", these more advanced, guided dives delve into the unlit and underexplored sections of the mine. Bear Trails are only for divers who prove they've got the skills and the air consumption to make these dives⁵.

Underground boat & walking tour

A guided tour by boat, of the Billion Gallon Lake (worlds largest subterranean lake) with its crystal clear water, and spectacular view of the largest parts of the mine (the no. 1 elevator, submerged ore carts, wrapped pillars, and ancient abandoned overhead wooden cat walks suspended 15 – 30 m above the lake⁶.

A 45 minute guided walking tour through the first and second levels of the mine along the "Old Mule Trail", shows where miners dug with a pick and shovel in the 1800's. The earliest shaft was dug in 1864. Along this tour, you will see huge pillar rooms, Grand Canyon, Billion Gallon Lake, Trout Pond, underground flower gardens, beautiful calcite falls, and ancient abandoned mining tools and rail systems⁶.

Bonne Terre bed & breakfast

Complete diving & accommodation packages are available at our Inn and Depot Bed & Breakfast (Home of the Deep Earth Divers and Park & Allen Divers Lodge). The Bonne Terre Depot features Bed & Breakfast having 4 guest rooms and 2 detached train car suites and the nostalgic Whistle Stop Saloon. The national historic depot was constructed in 1909 by St. Joseph Lead as the hallmark of the MR & BT railroad. The depot was completely restored by Doug & Cathy Goergens in 1989. Offering full banquet facilities for over 200 guests located on the main floor⁷.

For a more casual atmosphere, the Divers Lodge, located at the Mine, offers an alternative.

Challenges

In order to maintain the top two levels of the mine dry, the water level is controlled by electric pumps. The water level is maintained constant, thus providing divers with access to the unique underwater vision of the owners (Doug and Catherine Goergens).

It is necessary to permanently check the safety pillars, as an important part of the Bonne Terre city rests on a thin crust of earth over this vast hollow.

One of the most common challenges in former mining areas is the one related to the demography of the region. Usually, with the closure of the mines, there is a sharp decrease of the residents and an increase in the unemployment rate in the region.

From this point of view the city of Bonne Terre developed (it went in the opposite direction), the population increasing from 3,219 inhabitants in 1960 (the mine closed in 1962) to an estimated population of 7,063 inhabitants in 2018⁸ (more than double).

These figures show that the conversion of mining regions into tourist destinations can bring prosperity and lead to the development of communities.

It has to be mentioned that all visitors and scuba divers to Bonne Terre Mine must stop and register at the office each day. Scuba divers must show their C-cards or must be accompanied by a certified dive instructor. All scuba divers must sign the liability waiver and release form which is good for the entire year⁵.

Enabling conditions

Since we talk about a private investment (made at first by Bonne Terre Mine Company and later by Doug and Catherine Goergens) there is no question of accessing special funds for this purpose.

Maintaining the museum and diving site in operation is done with the amounts collected from visitors (including accommodations and events) and from donations or sponsorships.

The park owners must comply with The US regulations regarding National Historic Places and those regarding the safety of tourists.

References and further links

1. https://en.wikipedia.org/wiki/Bonne_Terre,_Missouri
2. Stephen J. Raiche (April 1973). "National Register of Historic Places Inventory Nomination Form: Bonne Terre Mine" (PDF). Missouri Department of Natural Resources. <https://dnr.mo.gov/shpo/nps-nr/74002281.pdf>
3. https://sites.rootsweb.com/~mostfran/mine_history/bonneterre_mine2003.htm
4. <https://www.bonneterremine.com/about>
5. <https://www.bonneterremine.com/diving>
6. <https://www.bonneterremine.com/newpage>
7. <https://www.bonneterremine.com/lodging>
8. <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>



www.tracer-h2020.eu

Author

Florin Faur, Asociația Institutul Social Valea Jiului (AISVJ), Romania

Editors

Rita Mergner, WIP Renewable Energies, Germany
Rainer Janssen, WIP Renewable Energies, Germany
Christian Doczekal, Güssing Energy Technologies, Austria

Contact

Asociația Institutul Social Valea Jiului (AISVJ)
Sabina Irimie
Email: sabina.irimie@gmail.com, Tel: +40 723718829
Str. Universității, no.20,
332006, Petroșani Județul Hunedoara, Romania
<http://www.institutulsocialvj.ro>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 836819. The sole responsibility for the content of this report lies with the authors.