



Casper wonderland

In 1991, Casper Refinery closed its gates for the last time, facing difficult negotiations with the US Environmental Protection Agency. Fifteen years on, the site has won a prestigious award from the same agency, celebrating the collaborative efforts of community and industry to clean up the site. ALLISON CONTE reports





A top a hill overlooking Casper, Wyoming, two dozen antelope graze peacefully as the sun sets over the Rocky Mountain foothills. Ducks perch on gleaming chunks of ice, drifting downstream in the North Platte River. A pair of snow hares hop along on the riverbank, scouting for winter sustenance. A fox trots carelessly across a nearby field.

This pastoral view belies the area's industrial history. Not long ago, this hilltop overlooked a blighted brownfield – the abandoned remains of the Casper Refinery, shut down by Amoco (a BP heritage company) in 1991. The landscape was littered with oil tanks, underneath which lay hundreds of miles of buried pipe. The soil and groundwater were contaminated with petroleum products. And the river, strewn with dangerous chunks of concrete, was unusable by boaters and swimmers.

Today, the 1,620-hectare (4,000-acre) former refinery site is home to a championship golf course, a prime commercial office park, a light industrial park, a thrilling whitewater park, and a peaceful bird sanctuary. The river is known for some of the best fly-fishing in the nation. On summer weekends, the park is populated with golfers, kayakers, rafters and fishermen.

The transformation from wasteland to

wetland has been nothing short of miraculous.

“It’s a wonderful crown jewel,” says Marian Kingdon, chairman of the Amoco Reuse Agreement Joint Powers Board, the community group that took over the management of the site from BP in June 2005. “The community is very proud of it. To transform this site from a rusty refinery into a beautiful green space in just three years – it’s extraordinary.”

In its heyday in the 1920s and 1930s, the refinery was one of the world’s largest gasoline producers and Casper’s largest employer. It operated for 78 years, mostly during a time when the term environmental stewardship was an oxymoron. In the early 1900s, for example, crude oil was transported by horse and wagon from the Salt Creek oil field, 70 kilometres (45 miles) to the north. Spills were common and wastewater and sludges were openly dumped near the river or nearby Soda Lake.

Over the years, some 30 million gallons of crude oil and refined hydrocarbons were spilled and seeped into the shallow groundwater aquifer beneath the refinery.

When the refinery closed, Amoco kept the fence around the property, dismantled the equipment and prepared to spend the next two decades negotiating with the Environmental Protection Agency (EPA) over environmental clean-up requirements. Like most shuttered

industrial sites at the time, Casper was caught in a now-outdated paradigm in which businesses, communities, environmentalists and government agencies were pitted against each other in lengthy – and costly – negotiations, which often included litigation.

But Casper residents wanted a different outcome. They wanted to restore the site and use it for economic development. They were tired of looking at an eyesore in the middle of town and impatient with the wrangling between big oil and big government.

A defining moment came in 1998, when a federal judge decided against issuing a unilateral order and accepted a proposal from BP and the community to work collaboratively with regulators. Grateful that they had a chance to decide their own fate, a group of dedicated Casper residents formed the Joint Powers Board, rolled up their sleeves and went to work. The company entered into a consent decree with the Wyoming Department of Environmental Quality (WDEQ) and the Federal Court, and signed a reuse agreement with the city and county over future use of the site.

For three years, BP conducted an intensive investigation, risk assessment and selection of remediation technologies to clean the soil and groundwater. The community assisted in the remedy negotiations with the WDEQ and on 10th



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Home to roost: Casper now houses a bird sanctuary (left) and a whitewater park (top). Oil recovery continues at the site with nearly 40,000 gallons recovered and sold each month.

of January, 2002, BP entered into a remedy agreement with the state. The WDEQ agreed to accept a plan that included excavation of buried pipes and contaminated soil, plus a clean-up remedy for groundwater that would require 400 years to complete – making the redevelopment plan economically feasible. The contamination left in place to naturally degrade would be sealed off, posing no threat to human health or the environment.

“I’m an environmentalist at heart, so for me, the ultimate goal is to clean up the water to drinking-water standards,” says Vickie Meredith, programme supervisor in the Wyoming Department of Environmental Quality’s Solid and Hazardous Waste Division.

But Meredith also is a realist. “You have to find a balance. You have to clean up what you can without breaking the bank to the point where redevelopment is not an option,” she says. “In Casper, we struck that balance. The groundwater will be cleaned up eventually, and the property can be used now.”

For its part, BP agreed to assess the

contamination, decide on a remedy and clean up the site in just three years – a process that normally takes 10 – plus build the golf course and contribute \$28 million to the Joint Powers Board for redevelopment of the site. All told, BP spent substantially less on the remediation using the collaborative approach than it would have spent under the unilateral court order.

“I knew in my heart that it was the right thing to do,” says Joe Deschamp, BP environmental business manager. “Working with the community and the regulators allowed us to evaluate and prepare the site for redevelopment in less than seven years. To accomplish this, we worked on the remediation and the redevelopment simultaneously – which is not normally done.”

Such powerful collaboration would not have happened if BP hadn’t taken a collaborative approach, community members and regulators agree.

“Until then, we were at a standstill,” explains Bill McDowell, a local businessman and member of the Joint Powers Board. “The relationships were a mess; there was no trust. The turning point was when Joe walked into the room and sat down next to – not across from – the regulators.”

Felix Flechas, project manager in the EPA’s solid and hazardous waste programme, agrees. “BP’s philosophy and attitude led it to see things from other perspectives and seek middle ground,” he says. “They were willing to work with us. And their words were not hollow; they followed through on their commitment with action and with money.”

The cleanup began in August 2001, when BP began pulling up more than 320 kilometres (200 miles) of buried pipe. Next, the company excavated over 460,000 cubic metres (600,000 cubic yards) of sludges and impacted soil from the former refinery and tank farm areas.

To keep the contaminated groundwater from leaking into the river, BP constructed a nearly impermeable underground steel sheet pile wall which runs for a mile and a

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half along the river; oil recovery wells located inside and along the wall maintain the water level in the refinery site lower than the river. A clever design in the whitewater park keeps the river level higher, reducing the amount of pumping needed to ensure that any water that does permeate the wall actually flows from the river into the refinery site, rather than the other way around.

As part of the golf course, BP installed a state-of-the-art wetlands water treatment system that processes 1,000 gallons per minute of contaminated groundwater. Using 100 groundwater and oil recovery wells located throughout the site, the system recovers nearly 40,000 gallons of oil per month; after the oil and water are separated, the oil is sold. The groundwater is then pumped to the wetlands treatment system located on the golf course, where any residual hydrocarbons are biologically removed. The treated groundwater is then pumped to Soda Lake to maintain this important waterfowl habitat. Another groundwater clean-up technology installed on the eastern portion of the site uses a combination of air and microbes to naturally remove any hydrocarbon contamination.

BP plans to operate this water treatment system for another 80 years, after which natural biological processes will take over. It’s estimated that the process may take 400 years to restore the groundwater to a pristine state.

The last of the soil cleanup effort is occurring at Soda Lake, where the disposal of refinery waste water deposited a layer of impacted sediment in the inlet basin part of the lake. This waste removal will continue through early 2006. By the end of the year, the inlet basin will be completely dredged and the entire lake refilled with fresh water. The lake is home to many species of ducks, geese and other waterfowl and shorebirds. To improve the wildlife habitat, BP constructed osprey nesting poles, islands, nesting boxes for ducks and geese and wave breaks designed to encourage vegetation growth along the shorelines.

Also by the end of the year, BP will put the final cap on a Corrective Action Management Unit (CAMU), located on the hilltop overlooking Soda Lake. Some 610,000 cubic metres (800,000 cubic yards) of contaminated soil and sludge fill the CAMU, which is lined with a high-density polyethylene liner to prevent contaminants from seeping out. Once full, it will be covered with clean topsoil and native grass, to blend in with the natural landscape.

What was once the industrial centre of Casper is now the town’s centre for recreation and commerce. ➔

The Three Crowns golf course, designed by the renowned Robert Trent Jones, is one of the most challenging courses in Wyoming. Golfers from all over the state travel to Casper to test their game on its rolling contours, plentiful water features and gorgeous white sand traps.

"The golfers have no idea what's going on under their feet," says Dick Bratton, a local entrepreneur who served on the Joint Powers Board. "It's a brilliant design. The water features on the west half of the course are actually part of the water treatment system."

The Casper Whitewater Park draws people from afar, as well. Created by Colorado-based designer Gary Lacy, the park opened three years ago to wide acclaim and is a favourite on the amateur and professional 'Kayak Rodeo' circuits.

Three commercial parks – the 10-hectare (25-acre) and 3-hectare (7-acre) Platte River Commons parks, situated on the former refinery site, and the 100-hectare (245-acre) Salt Creek Heights Business Park, located a mile away on the former tank farm site – are already attracting attention from local businesses. The Wyoming Oil and Gas Conservation Commission built its headquarters here, and the city of Casper hopes to construct a civic auditorium on the 10-hectare (25-acre) parcel.

Platte River Commons is "the nicest land in town," Bratton smiles. Several partners and he are investing \$4 million to build the first of two office buildings that they plan to lease to professionals and small businesses, beginning in 2007.

"The redevelopment has been a huge success," Bratton adds. "A lot of people said it was impossible. They thought it would never happen, or someone would get ripped off, or the river would be polluted. But we stuck through it and we're very happy with the results."

The Casper Refinery project has attracted attention from other industrial companies interested in following BP's example. And in 2005, the site won the Environmental Protection Agency's Region VIII Phoenix Award, which recognizes outstanding brownfield redevelopment projects.

Casper is a shining example of an emerging new paradigm; the positive outcome demonstrates that collaborative clean-up and redevelopment is not only more desirable than antagonistic remediation – it's more successful, too.

So the question is not can it happen, but how? Those who played important roles in the project say it all comes down to one word: Trust.

"Some people say that collaboration is just a fancy word for negotiation," explains

Meredith. "But I don't see it that way. In a typical negotiation, we sit on opposite sides of the table and hold our cards very tightly to our chests.

"On this project though," Meredith continues, "we threw all the cards on the table and made the best hand we could make together. Everybody won."

Bill McDowell, a Casper businessman who served on the redevelopment committee, adds: "With BP, integrity starts at the top, with group chief executive Lord Browne. It's all about trust and good intentions. And it's not just lip service."

Working collaboratively in this way is a hallmark of BP's approach to environmental remediation.

"Brownfield redevelopment is really land recycling," says Steve Elbert, the head of BP's Remediation Management Group. "It builds on BP's sustainability values and is part of our social responsibility as a great company.

"When environmental laws and regulations don't meet our basic standards of doing business, our responsibility takes us beyond compliance," Elbert adds.

"Redevelopment is not part of BP's core business but in the case of brownfields, we can make a dramatic difference by using our skills and knowledge to facilitate sustainable redevelopment opportunities for the communities where we once operated."



BP's environmental remediation team comprises 200 employees and 2,000 contractors worldwide. Reporting directly to group chief financial officer Byron Grote, the group spends about \$400 million each year to manage a portfolio of more than 4,000 properties that carry \$2.5 billion in environmental liabilities.

As the environmental risks are reduced to appropriate levels, BP is working to ensure that these properties re-enter the mainstream of economic redevelopment. In Cleveland, Ohio, for example, what was once part of John D. Rockefeller's first oil refinery is now being transformed into a new 16-hectare (40-acre) containerised truck cargo facility.

In Paulsboro, New Jersey, BP has signed a 90-year lease with the Borough of Paulsboro, which will work with the South Jersey Port Authority to create a new port facility. This will include \$100 million in public sector funding and generate \$2 million in tax revenue for the borough. Importantly, the development will be integrated with BP's remediation efforts to maximise overall cost savings.

And in the UK, BP is working with external stakeholders to offer its former 257-hectare (1,000-acre) Llandarcy Refinery in South Wales to the redevelopment market for what will be one of the largest brownfield regeneration

opportunities in Europe. The Coed D'Arcy project will ultimately be a 25-30 year mixed use Urban Village that will help satisfy the future housing needs for the surrounding area.

Not all of BP's remediation work is development oriented, however. The company is currently finalising a donation to the Nature Conservancy of 257 hectares (637 acres) of former refinery lands in York County, Virginia, including valuable forested wetland habitat. BP is also working with the Conservation Fund and Audubon Society to look at possible donations for several other sites in Delaware and California where important ecological habitats exist.

Since every site is different, the team looks for innovative, creative clean-up solutions that make sense for the company and for the community. Or, as Elbert puts it, "we look for the highest and best use of the property."

Finding it is easier said than done, however. Sites located in rural areas are more difficult to redevelop than those in densely populated areas because they carry less real estate value. And remediated properties can be used only for limited purposes – in the Casper example, for recreational use or commercial and light industry – so

matching the right reuse plan with the right developer is a challenge.

"Our project managers start with the end in mind and integrate the environmental work with land reuse planning to achieve a result that is sustainable and protective of human health and the environment," explains Chris Olson, manager of real estate reuse. "It's a fantastic challenge to balance what the environmental regulations demand, what the site risks allow and what the market will bear."

When all the pieces fall into place, a company liability becomes a community asset.

"Our past is someone else's future," Elbert concludes. "That's why we're committed to finding win-win, sustainable redevelopment solutions."

In Casper, where antelope outnumber people, an old refinery's highest and best use has found its home on the range. **BPM**

● *Allison Conte is a Cleveland-based writer and organisation consultant specialising in corporate responsibility, sustainability and leadership development.*

Winning ways: The former refinery site is popular with wildlife and the local community alike. Further afield, avid golfers travel from across the state to play on the Robert Trent Jones-designed golf course.

