Nation's First Tar Sands Mine Stirs Water, Environmental Fears Out West

MOAB, UTAH—To the ancient Indians who roamed the Colorado Plateau in what is now eastern Utah, the black globs of sticky, smelly bitumen they picked up from the sandy soil mystified them so much they called the strange substance "rocks that burn."

Today, the bitumen that fascinated the Indians for its mysterious quality of combustion is the focal point of a battle over whether bitumen—a thick, tarry substance also known as tar sands oil—should be mined in Utah, which harbors the nation's largest oil sands deposits.

According to the Utah Geological Survey, about 25 billion barrels of bitumen are buried on state and federal land. If every drop of that oil was extracted, it would supply all the nation's current oil needs for a little more than three years.

Utah regulators already have issued permits to an up-start Canadian energy development company that hopes to mine nearly 6,000 acres. The Calgary-based company, U.S. Oil Sands Inc., has scooped open a two-acre test pit in its first step toward full-scale production. If it keeps to its timetable, the nation's first sizeable oil sands mine will be operating in this largely unspoiled wilderness by early 2014.

But even as U.S. Oil Sands is finalizing its plans and calling its operation "shovel ready," two environmental organizations have stepped up their efforts to keep oil sands mining out of Utah. They say that ripping open the land for bitumen is an imprudent and desperate attempt to slake the national thirst for oil—and that it threatens what little water there is in a vast yet delicate ecosystem. According to a letter written by the Utah Division of Oil, Gas and Mining, "It is expected that the mine will use 116 gallons of water per minute on a 24-hour basis."

"This is the time and place to stop it, stop the needless assault on our wilderness," said John Weisheit, a river guide who for the last decade has been the conservation director of Living Rivers, a Moab-based environmental organization.

Click here to view a slideshow of the U.S. Oil Sands test pit in eastern Utah
Living Rivers has joined with Western Resource Advocates, a nonprofit environmental law and policy organization, to appeal U.S. Oil Sands' mining permit. An administrative law judge in Salt Lake City is expected to rule soon on their argument that state regulators ignored threats to ground water when they granted the permit.

In a preface to a 2010 report on tar sands and oil shale, Western Resource Advocates President Karin P. Sheldon said oil sands mining offers too little energy in exchange for the water consumption and environmental destruction and expense it requires. According to the U.S. Energy Information Administration, at least 4,000 pounds of earth will be dug up for every 20 gallons of gasoline made from oil sands.

U.S. Oil Sands estimates that as much as two barrels of water will be used for each of the 2,000 barrels of bitumen it expects to produce each day. ( Converted into gallons, that means the company needs as much as 168,000 gallons of water to produce 84,000 gallons of bitumen.) Company officials say 85 percent of the water will be recycled, with the remainder lost to evaporation or returned to the pit as moisture in the leftover sand.

Weisheit points to damage done in Alberta, Canada, where oil sands have been mined for almost half a century, as an example of why this type of mining shouldn't be allowed in Utah. Gigantic strip-mining operations have destroyed large tracts of Alberta's forests, and the province is struggling with groundwater contamination and toxic wastewater that harms human health and kills wildlife.

But Alberta's booming tar sands industry also has given Canada a robust and growing source of jobs and revenue—and it is the lure of similar riches that has prompted Utah to open its arms to petroleum development companies. Already Utah has granted oil sands land leases to seven businesses, including one that since 2007 has operated a small mine that produces bitumen for local asphalt needs.

Regulatory oversight on state land is less stringent than on federal land in Utah and the political atmosphere is so supportive that in a January letter to the governor, U.S. Oil Sands executive Cameron Todd praised Utah as a "can do state" for petroleum production. He also urged the governor to quickly dispatch the "obstructionist" groups opposing his project.

Utah has even shied away from drawing up a master plan for developing the state's oil sands.
"What we need to assume is business knows their business better than the state," said Jeff Barrett, infrastructure and incentives manager for Utah's Office of Energy Development, which deals with economic matters. "Our role is to stay out of their business."

In an interview with InsideClimate News, Todd said the company is committed to proving Utah oil sands can be both economically viable and a new source of domestic energy—and that it can achieve those goals without leaving behind the environmental devastation seen in Canada.

It will do that, he said, by relying on technology it has developed that uses a citrus-based solvent instead of the toxic chemicals used in Canada. He also promised there will be no toxic waste ponds and the company will restore the land to its native condition.

"This is one of the most environmentally responsible projects undertaken in oil sands development," Todd said. "It will use less water and less energy and has one of the smallest greenhouse gas footprints of any oil sands project."

The process is so revolutionary, Todd said, that he foresees U.S. Oil Sands eventually taking the company global, reaching as far as Africa, Russia and South America.

U.S. Oil Sands' first mine is located at a site called PR Spring, about a mile above a valley where water from an underground spring provides a year around flow of water for hikers and campers on the parched plateau. The test pit lays bare grey rocks that ooze a sticky, black substance and clumps of gray sand that look like kitty litter globbed together with used motor oil. A faint petroleum odor cloaks the pit like the persistent smell of a Jiffy Lube waiting room.

The initial 213-acre mine will be a small operation, about the size of Dodger Stadium in Los Angeles. But beyond its borders lie hundreds of thousands of acres of Utah oil sands deposits, ready to be mined if this first effort proves economically feasible.

**Utah is Nation's Second Driest State**

At the core of the debate over oil sands mining is Utah's water—or lack of water. The oil sands region gets only 10 to 12 inches of rain a year and Utah is the second driest state in the nation, behind only Nevada.
Living Rivers and Western Resource Advocates believe oil sands mining will threaten what little water there is on the semi-arid plateau and that solvents and petrochemicals in unlined waste pits will soak into the ground and ultimately aquifers when it rains and winter snow melts.

Todd said the water his company needs will come from aquifers deep beneath the earth, where the water is so stagnant and heavy with salts that it could never be used for drinking or agriculture. He said those deep aquifers are protected by rocks as thick as one-third of a mile and as solid as concrete.

What's left over from the extraction process and returned to the pits will be little more than damp sand with minute traces of oil and solvent that pose no danger, he said.

Todd also said the Colorado plateau has little or no surface water to pollute, a position supported by Utah regulators. Consequently, the state didn't require U.S. Oil Sands to obtain a water pollution permit or do any water monitoring.

"We maintain the ground water is very, very deep, and access by pollutants to that ground water was minimal," said Walt Baker, director of the Utah Division of Water Quality.

According to the U.S. Geological Survey, however, there hasn't been a significant study examining available water resources on the Colorado Plateau in at least 30 years, making it difficult to determine whether the plateau has enough water to sustain bitumen refining as well as the region's delicate ecology.

"One of the big concerns is where is the water coming from to support the mining and what will no longer be supported because that water is gone," said David Susong, the U.S. Geological Survey's supervising hydrologist in Utah.

Susong said the most contemporary and authoritative voice on water impacts from oil sands mining is a 2010 Government Accountability Office report that examined oil shale mining in Utah, Colorado and Wyoming. It was prepared in response to questions surrounding the need for water in oil shale production, which like bitumen production uses water-intensive techniques. But Susong said the GAO's findings are equally relevant to oil sands mining.

According to the report, enough water is probably available for the initial development of oil shale mining, but the growth of the industry may be limited by water demands from
municipal and industrial users, the potential of reduced water supplies from global warming, obligations under interstate water compacts to other users, and the need to provide additional water to protect threatened and endangered fish.

Mining on the plateau "... could have significant impacts on the quality and quantity of water resources" and could harm native plants and animals, the GAO concluded. It also warned that aquifers could be drained to critically low levels. The GAO qualified its concerns by pointing out that the scale of mining is uncertain and knowledge of current water conditions is limited.

U.S. Oil Sands' Todd said the GAO report is too general to be applicable to his operation and that the deep aquifers in the area meet his company's water needs.

"Water is in really short supply near the top 100 feet of the surface but it's not in short supply at 2000 feet. It is plentiful," Todd said.

But records on file with the Utah Division of Water Rights hint U.S. Oil Sands may be struggling to find the deep water. The company drilled three dry wells before finding water somewhere between 2,000 and 2,500 feet in a fourth well, according to Dennis Sorensen, with the Utah Division of Water Rights. In June the company requested a drilling permit for a fifth well.

"I'm not sure they got what they need from that one well," Sorensen said.

Weisheit, with Living Rivers, said it's important to protect the little water that exists on the plateau, where hawks soar and antelope graze on wild Indian rice grass.

"It may not be a lot but look at what depends on it," he said, showing the vista to an InsideClimate news reporter.

At the small, roughhewn campground in PR Spring, built as an Eagle Scout project nearly a decade ago, Weisheit opened a spigot that tapped into the underground spring and let cold, clear water splash though his fingers.

"How can they say 'No water?'" he asked.

**Company Uses Citrus-Based Solvent for Mining**

The U.S. Oil Sands operation is built around an extraction process that uses d-Limonene
(pronounced de-lie-mo-neen) a liquid with a lemon-like smell made of oils pressed from the skins of oranges, lemons, limes and grapefruits. Small quantities of d-Limonene give cookies and candy a fruity taste. It's also used as an industrial solvent in removing asbestos shingles and cleaning concrete.

The U.S. Environmental Protection Agency has run limited tests on d-Limonene and includes the substance on its Generally Recognized as Safe List. But its report on d-Limonene says that determination was based on small quantities used to flavor foods. In large doses, laboratory rats got sick when exposed to the chemical.

Todd said U.S. Oil Sand's technology is proprietary and he declined to discuss d-Limonene or explain how it is used to process oil sands. In documents filed with Utah, the company said it will get its d-Limonene from Florachem Corp., a Jacksonville, Fla. company. A Florachem representative said he couldn't discuss the business relationship.

Florachem's website says d-Limonene presents no long-term effects to the environment and that "related chemicals are known to be biodegradable." At the same time, however, safety information U.S. Oil Sands filed with Utah mining regulators says d-Limonene shouldn't be discharged into surface waters and "may be toxic to aquatic organisms."

John Barnett is CEO of Bio-Concept, a Texas-based company that uses d-Limonene to clean oil-pumping sites. Although Barnett isn't familiar with U.S. Oil's specific process, he said when d-Limonene is mixed with tar sands it creates a chemical reaction that causes the oil to separate from the other material.

Barnett said the issue U.S. Oil Sands faces in using d-Limonene is that demand is high for the product and supplies are sometimes limited. Companies that produce d-Limonene compete with other, giant industries for citrus fruit, including Sunkist, which squeezes it for orange juice, and SC Johnson, which uses it in household cleaners.

"The problem is a limited amount of production in the world," Barnett said. "You are at the mercy of mother nature. If you have some bad growing years you are screwed."

Barnett estimated U.S. Oil Sands probably needs as much as 1,000 gallons of d-Limonene a day to meet its 2,000 barrels-per-day production schedule for bitumen.

U.S. Oil Sands officials said Barnett's estimate is wildly inaccurate, but declined to say how much of the chemical they would need.
Another concern about d-Limonene was raised by William Johnson, a geophysicist and professor at the University of Utah, whose testimony was submitted in the court case on Living Rivers' behalf. He said that during the extraction process d-Limonene can unlock carcinogens that are naturally found in bitumen and that those carcinogens might migrate into groundwater.

**Federal vs. State Regulations**

Utah's oil sands were formed 45 million years ago when organic deposits of driftwood, leaves, algae and animals settled to the bottom of a giant inland lake and were buried by sand and silt. The land was once part of the federal Office of Naval and Petroleum Oil Shale Reserves, which insured that the military had an emergency supply of oil. Eventually it was turned over to Utah's School and Institutional Trust Lands Administration, which helps fund the state's public schools, in exchange for land set aside for two national parks.

U.S. Oil Sands paid the Trust $3 million for 10-year renewable leases for 32,005 acres. It will also pay five percent in royalties, about $2 million a year.

Compared with Canadian oil sands real estate, the land is cheap. The company estimates it will pay about five cents in lease fees for every barrel of oil, compared to the $1 a barrel companies typically pay for oil sands land in Alberta, Canada.

Although the U.S. Oils Sands operation lies on state land, the vast majority of the Utah oil sands deposits are on land that is still controlled by the federal government, through the Bureau of Land Management.

Under the 2005 Energy Policy Act, the BLM was required to draw up a plan for developing oil sands and oil shale on federal lands. The goal was to reduce the nation's growing dependence on foreign oil.

The agency released its plan in the final months of the Bush administration and announced it would open 431,965 acres to oil sands mining. But the angry response from environmental organizations and the public forced the Obama Administration to reassess the plan.

Four years later, a development plan is still months away from being finalized. In its most recent recommendation, announced earlier this year, the BLM proposed that the amount
of federal land open for oil sands development be slashed by nearly 80 percent to 91,045 acres. At this point it hasn't leased any land for oil sands development, although a 2,206-acre lease is under consideration.

The BLM also proposes limiting the initial lease holders to research and development projects, meaning they'd have to demonstrate that full-scale production is economically and commercially practical before moving ahead with full scale development.

The BLM's cautious approach doesn't sit well in Utah, where the state has already leased more than a third of the 141,020 acres of the land it has open to oil sands mining.

County commissioners in rural Uintah County, where the largest percentage of oil sands and oil shale is located, have charged the Obama administration with ignoring Congress' earlier energy mandate, becoming cozy with environmentalists and developing policies "against energy development on Western public lands, according to a resolution signed by commission chairwoman Darlene Burns.

Utah Gov. Gary Herbert blasted the BLM earlier this year for its proposal to drastically reduce the lands available for oil sands and oil shale development.

"With no science and no data, and with a wave of their federal bureaucratic magic wand, they just take the bulk of the acreage off the market, stifle innovation, and demonstrate, yet again, that this administration is patently hostile toward even the possible development of much needed energy resources," Herbert said in a statement displayed on his website.

Utah also has set its environmental bar for mining operations much lower than the BLM.

If U.S. Oils Sands had tried to lease federal land, its application would have triggered a National Environmental Policy Act study, a comprehensive report that assesses a multitude of environmental issues and impacts, including climate change, air and water quality, water availability, wilderness protection and economic impacts.

In Utah, however, mining companies submit their own environmental analysis—"a general narrative description identifying potential surface and/or subsurface impacts," according to the Utah Administrative code that sets regulations for large mining operations. The self-generated report must touch on such issues as air quality, endangered species and impacts to surface and groundwater systems.
Paul Baker, mineral programs manager for the Utah Division of Oil, Gas and Mining, acknowledged that Utah's environmental review is less stringent than the BLM's, but said his staff has enough experience in mining operations and environmental review to evaluate the technical data that applicants supply. (Paul Baker is not related to Walt Baker in the water quality division.)

"We don't go in blindly and just automatically accept what we're told," he said.

The company that U.S. Oil Sands hired to address water issues—JBR Environmental Consultants, Inc.—prepared a 31-page report that U.S. Oil Sands submitted with its permit application. It said there wasn't enough ground water to worry about and "the operation is not expected to generate contaminants in quantities that would present a threat to human health or the environment."

Baker's division found dozens of faults in its initial review of U.S. Oils Sands' plan, including how it proposed to restore the damaged landscape once the mining was complete, a lack of specific answers about existing water sources, vague details about the pits and mining plan, and the potential for runoff from rain and snow to collect in the pits. But all those issues were resolved to the agency's satisfaction, and U.S. Oil Sands was awarded a mining permit in 2010, after a two-year review.

**What Happens Next?**

The immediate future of the nation's first significant oil sands project now rests with Sandra Allen, a state administrative law judge in Salt Lake City. In May, Allen heard two days of testimony on Living River's contention that state regulators didn't thoroughly consider water implications when they gave U.S. Oil Sands a permit.

Meanwhile, U.S. Oil sands continues preparing for full-scale mining in 2014. Earlier this month it issued a news release saying its search for water is continuing, plans are being finalized for constructing a maintenance facility and administration building, and mapping is underway to identify the most abundant oil sands deposits.

*Clarification: This story has been changed to emphasize that Jeff Barrett, infrastructure and incentives manager for Utah's Office of Energy Development, deals with economic issues, not regulatory matters.*
Nuclear Power Proposal in Utah Reignites a Century-Old Water War

For more than 100 years and maybe back to the days of outlaw Butch Cassidy, water from the Green River has nourished fields of sweet watermelons near the tiny town of Green River, Utah.

But now a part of that water may be siphoned off for another use: cooling the twin reactors of a nuclear power plant that would tower above the town and its melons.

The nuclear facility is the concept of Blue Castle Holdings, a Utah-based and politically connected upstart nuclear development company that has been working on the project for more than three years.

If the $16 billion facility is built, it would generate 3,000 megawatts of electricity, enough to power 3 million households.

It also would be a further drain on the Green River, one of the most robust tributaries of the shrinking Colorado River, which serves 30 million people and Mexico along with irrigating 3.5 million acres of cropland. The river that once flowed freely 1,450 miles from its headwaters in the Rocky Mountains of Colorado and into the Gulf of California has been used so ruthlessly that it now slows to a dribble 50 miles short of the sea.

The plant would consume about 53,000 acre feet of water annually to cool its reactors and generate steam to power its turbines. That's enough to supply 200,000 people—roughly the population of Little Rock, Ark., or Tacoma, Wash.—for a year.

Blue Castle's proposal reignited a long-standing debate over how much more water can be drained from the Colorado River system before the river can no longer sustain the cities, farms and industries that have grown up around it. The Colorado's water has been divvied up, wrangled and fought over for more than a century, resulting in a tangled web of water rights that allot specific amounts of water to seven western states and hundreds of local water districts.

Still, Utah's state engineer, the ultimate arbitrator on how water is used in Utah, has already given approval for the project to proceed using the Green River water. With that authorization in hand, Blue Castle can move on to the next phase—the laborious process of seeking consent from the Nuclear Regulatory Commission.
Utah's approval came with an ominous caveat, however, which was included in a news release issued by the state's Department of Natural Resources: "Approval of the application does not guarantee sufficient water will always be available from the river to operate the plant."

The news release added that Blue Castle would have to have contingency plans if, for some reason, less water is available. The company plans to solve that problem by building an onsite reservoir that would hold a 30-day supply of water.

Blue Castle's chief executive officer is Aaron Tilton, who sat on the legislature's utilities committee, where he was an outspoken proponent of nuclear energy. While he was still in office, Tilton formed a nuclear energy development company, a forerunner to Blue Castle. When he testified about the project before the utilities subcommittee, on which he served as vice chairman, he attracted a storm of unfavorable publicity.

Blue Castle's management team includes a past NRC chairman, former nuclear industry executives and a former general manager of Intermountain Power Agency, one of largest power producers in the Western United States.

In an interview with InsideClimate News, Tilton acknowledged that "water is everything" in the West. But he also pointed out that the nuclear facility will use less than one percent of Utah's water allotment while increasing the state's electricity production by 50 percent.

"This is Utah's water to use as it sees fit," he said. "We're not taking water away from anyone."

In fact, Tilton says that by leasing the water, his project will help Utah preserve its water rights for future generations.

"Then in 60 years, at the end of the generator's life, the water will be returned to the state for drinking or agricultural use when it may be needed for those purposes," he said.

Tilton also argued that nuclear power generators use far less water than other thermal generating facilities, especially the coal-fired plants that have dominated western power generation for decades.

"If we are talking about water conservation, the most efficient use of water is thermal nuclear generation," he said.
Opponents of the Blue Castle project are trying to stop it before it goes any further. More than 200 environmental groups, residents, business owners and the U.S. Bureau of Reclamation filed protests when the state engineer, Kent Jones, was considering Blue Castle's application. The opponents were on edge about the disposition of radioactive fuel rods and the consequences of a nuclear meltdown. But water use was their primary worry.

"The stark reality is we are going dry," said John Weisheit, conservation director for Living Rivers, a Moab, Utah-based environmental organization. "This project has a complete lack of water consciousness."

Weisheit also complains that the power the plant would produce wouldn't be used in Utah, but in California and surrounding states. A study by the Western Electricity Coordinating Council predicts the region's power needs will grow 1 and a half percent per year over the next decade.

"The people living here ask why do we have to take all of the risks but not get any of the benefits," Weisheit said.

Neither the Bureau of Reclamation nor any other federal agency has authority over how water from the Colorado River system is used. But the bureau did have two concerns about the project—that endangered fish in the Green River be protected and that the water rights of Utah's residents would supersede the water rights of the nuclear facility. Both those concerns have been satisfied, and the bureau hasn't taken an official position on the project.

However, Wayne Pullan, a deputy manager for the bureau's Utah office, said new demands on the water must be carefully considered.

"Regardless of what the public thinks about the generating facility, the public needs to think about the water footprint of this plant," Pullan said. "Whether the public is in favor of this plant or not, the public must ask if the use of water for this purpose is the most beneficial use of the water."

Among those monitoring the project is Brad Udall, director of the National Oceanic and Atmospheric Administration Western Water Assessment Earth Research laboratory at the University of Colorado in Boulder.
In the scheme of things, Udall says withdrawing another 53,000 acre feet of water from the Colorado may not seem like a big deal. But he said every new use must be carefully considered because the river is taxed almost to its limit. Climate change is taking a toll, too. Research done by Udall’s laboratory shows it could cut the river's flow by 20 percent in the next 40 years.

"This is a very fragile balance," Udall said. "If there isn't a shift in priorities for the river, the demands on the river will become far greater than the available supply."

**Water Rights: Counties to Reap Windfall**

The 1,700-acre site for the Blue Castle facility is five miles northwest of Green River city. Almost 4.4 million acre-feet of water flow by the town every year, but to tap into it Blue Castle had to secure the appropriate water rights, a commodity hoarded like gold in the West.

The company found two local water districts, one in San Juan County and the other in Kane County, which had water rights to the Colorado River system but weren't using their full allotment. Both districts say they won't need the water for decades and will reap a financial windfall—$800,00 for San Juan County and $1 million for Kane County annually —by selling the water instead of letting it flow down the river.

The executive director of the Kane County district was Mike Noel, who served with Tilton in the Utah legislature. When Tilton was vice-chair of the legislature's Public Utilities and Technology Committee, Noel was the chair.

Once the water rights were secure, Blue Castle turned to Jones, the state engineer, for permission to use the water for the nuclear plant.

Under Utah law, applications for water rights must be approved if the applicant can demonstrate that a number of requirements have been met, including securing a water source and demonstrating that existing water rights won't be impaired and that the project is financially feasible.

After Jones approved Blue Castle's application in January, the project's opponents filed an appeal. Jones rejected the appeal in March.

"That amount of water is not a lot on the Green River," Jones said in a prepared statement
released at the time of his decision. But he also acknowledged that the Blue Castle water is "a significant portion of the water Utah has left to develop on the Colorado River and a significant new diversion from the Green River."

The project's opponents filed a lawsuit in Utah district court on March 27, asking that Jones's decision be overturned. They are attacking the project on a number of fronts, including its financial stability, its harmful impact on the river, the detrimental effect on current water users and the river's diminishing capacity.

"The state engineer had an obligation take a close look at the withdrawal of so much water for such a risky plan," said Sarah Fields with Moab-based Uranium Watch, one of the plaintiffs. "He didn't do it."

Tilton is confident the lawsuit will fail. He said his critics "are simply wrong and have no credibility."

**Project Stuck in a Financial Mire**

Money, not water, may be Blue Castle's Achilles' heel.

In June 2010, the company issued a news release announcing that LeadDog Capital, a New York-based hedge fund, was a major financial backer and had pledged up to $30 million toward the project in exchange for stock options.

But five months later, the Securities and Exchange Commission charged LeadDog with scamming investors, and Blue Castle distanced itself from the hedge fund.

Blue Castle now maintains it never received any backing or funding from LeadDog and says the company had merely expressed an interest in the nuclear project, like a number of other potential investors. Tilton wouldn't release the names of its current roster of investors but said they are all viable financial partners.

But Matt Pacenza, policy director for HEAL Utah, a group that opposes nuclear power and favors clean energy and is one of the plaintiffs in the lawsuit, doesn't think Blue Castle has the financial wherewithal to pull it off.

A review of the NRC's website shows that the pending requests for plant construction come from billion-dollar utilities, including the Tennessee Valley Authority, Detroit Edison Company and Duke Energy.
"If you look at the American Nuclear industry proposals, they come from giant utilities who can contemplate multi-billion dollar projects," Pacenza said. "... It makes no sense to award so much of our state's precious water to a project with such a shaky financial foundation."

Ellen Vancko, a nuclear engineer and climate change project manager for the Union of Concerned Scientists, also doubts that the project is viable.

"It looks like this is a project in search of a customer, a project in search of a final plan," she said. "What I see is only a project on paper." The Union of Concerned Scientists is a national nonprofit that monitors environmental issues and nuclear power.

Tilton defended the project, saying that the state engineer had examined and approved the company's finances. He said Blue Castle is financially strong enough to pay for the NRC's initial Early Site Permit review, which he hopes will begin within a year. Once the NRC has signed off and development begins, Tilton said a number of utility companies are prepared to jump in with billions in financial backing. He envisions the utilities owning up to 90 percent of the completed project.

Tilton said more than a dozen utilities from throughout the west are already interested in buying power from the Blue Castle facility. He declined to identify them because he said they want to remain anonymous at this point.

"The demand for this power is there," he said. "There is such a level of uncertainty on the future availability of power generated by other means that we offer a solution."

But Vancko of the Union of Concerned Scientists said nuclear power isn't an economical solution.

"When you compare nuclear power with other sources, especially natural gas and renewable energy sources like wind, nuclear is vastly uneconomical," she said. "So the question is who would want to buy this expensive power."

**Plant Proposal Divides a Town**

In tiny Green River city, passion runs high both for and against the Blue Castle project.

Bob Quist is second-generation owner of Moki Mac River Expeditions, a whitewater river running company started by his father in 1947. He fears the nuclear plant will scare
tourists away and overwhelm the little town, which has no stop lights on its main street and just 15 seniors in the high school's class of 2012.

People don't want to float though one of the most pristine settings in the west only to be confronted by a steam belching behemoth, said Quist, who hopes to pass his rafting company on to his children.

"It just doesn’t make sense," he said. "There are so many things wrong with the idea ... Green River would be overwhelmed."

Green River Mayor Pat Brady, who teaches math and coaches track at the high school, disagrees. The plant would bring in thousands of construction workers and then leave behind hundreds of permanent jobs. For a town whose median income and housing values rank well below the state average, Brady said the new prosperity leaves nothing to apologize for.

Already the city is making plans to accommodate the influx by developing new zoning laws and preparing strategies for upgraded city services.

"If we are to survive, we need Blue Castle," Brady said.

The town is behind the idea. In the November election Brady said pro-nuclear candidates were pitted against anti-nuclear candidates for three of the five city council seats—and all the pro-nuclear candidates came out on top.

"We do understand the concerns that have been raised about the water and environment," the mayor said. "But we really feel that the economic benefit to the community is much more important.

"I am placing my faith in Blue Castle and what they are telling us."
Oil Sands Mining in Utah Clears Major Hurdle

Two environmental organizations say they will continue fighting first large project in the U.S.

By David Hasemyer, InsideClimate News

Aug 29, 2012

(This story has been updated to add comments by Walt Baker, director of the Utah Division of Water Quality.)

An administrative law judge in Salt Lake City has ruled against two environmental
organizations that are trying to block a Canadian company's plan to open the first large-scale oil sands mine in the United States.

Judge Sandra Allen sided with U.S. Oil Sands and Utah's Division of Water Quality in deciding that the state rightfully granted the Calgary-based company permission to mine and process oils sands without requiring a pollution permit or water monitoring at the PR Spring mining site in eastern Utah.

The judge agreed with the Water Quality Division's opinion that there is so little ground water within 1,500 feet of the surface of the proposed mine that additional safeguards weren't needed.

"Substantial evidence . . . supports a finding that ground water has not been located and may be assumed absent in the project area except for a deep regional aquifer," Allen said in her 40-page recommendation released Tuesday afternoon.

"The PR Spring facility and operations will have no more than a de minimis (minimal) actual or potential effect on ground water quality."

In 2010 U.S. Oil sands won permits from Utah's mining regulators to develop nearly 6,000 acres of state-owned land on the semi-arid Colorado Plateau. The company has already scooped open a two-acre test pit and plans to mine an initial 213-acre site to extract bitumen for refining into oil beginning in 2014.

The judge's recommendation will be forwarded to Utah's Water Quality Board, an advisory panel to the Division of Water Quality. The board will review the judge's findings and make a final decision--perhaps at its October meeting--on the plea to overturn the permit. The board can accept or reject the judge's recommendation, or it can send it back to the judge for clarification or additional fact finding.

Cameron Todd, U.S. Oil Sands' chief executive officer, hailed the ruling, saying it vindicated not only the company's contention that there is no water to contaminate but also that its
entire mining process is environmentally friendly.

"Our operation has focused on what we consider the best practices in oil sand extraction and mining that exist," Todd said in an interview after the judge's ruling. "This simply corroborates our position that our operation is of minimal impact to the state of Utah environmentally."

Two environmental groups—Living Rivers and Western Resource Advocates—sought the review as part of their effort to prevent the oil industry from getting a toehold that could lead to much bigger operations in the largely unspoiled region. Bitumen is a thick, tarry substance also known as tar sands oil. In Alberta, Canada, where it has been mined for almost half a century, gigantic strip-mining operations have destroyed large tracts of forests.

Rob Dubuc, a staff attorney for Western Resource Advocates, said his organization and Living Rivers raised valid concerns about protecting precious water resources and the ecosystem that depends on them. (John Weisheit, Living Rivers' conservation director, wasn't available for comment.)

Clearly there is water in the area, Dubuc said, because flora and fauna exist on the plateau.

"The recommendation kind of implied those resources are not deserving of protection," he said.

Dubuc said Western Resource Advocates and Living Rivers will take their case to the Utah courts if the Water Quality Board adopts the judge's recommendation and validates the U.S. Oil Sands permit. John Weisheit, Living Rivers' conservation director, wasn't available for comment.

"We live in Utah. It's a state that is very supportive of energy development, so it is not shocking to us that this ruling came down the way it did," he said.

Walt Baker, director of the Utah Division of Water Quality, said the judge's recommendation validates the state's decision to
grant the permit without the additional requirements. He stressed that the Division of Water Quality takes seriously its mandate to protect Utah’s water while at the same time not imposing unreasonable burdens on development.

“There is no question in my mind that we are protecting Utah’s ground water,” he said. "If the impact to the ground water will be (minimal) in our opinion, then to require significant ground water monitoring would not be a good use of our resources or private resources. If there is not going to be an impact, we should not require increased bureaucracy."

Baker said the division will periodically review the U.S. Oil Sands operation and could add the monitoring requirements if needed.

“We are not walking away from this,” he said. “If there is any evidence that raises our concern about the water quality it will warrant us stepping back in to reassess the situation.”

Living Rivers and Western Resource Advocates argued that oil sands mining will leave solvents and petrochemicals in unlined waste pits to soak into the ground and ultimately the aquifers when it rains and winter snow melts.

But state water regulators testified that the mining operation won't pollute groundwater because it is in an arid region called the Book Cliff with no groundwater except at extreme depths. The only water U.S. Oil Sands has discovered is from a well more than 2,000 feet deep, whose water the company will use in the bitumen refining process. Deeper aquifers in the area contain stagnant water heavy with salts and minerals, making it unsuitable for drinking.

Judge Allen said a number of factors persuaded her to recommend in favor of the water quality division and U.S. Oil Sands, including evidence that the company had drilled 180 holes as deep as 305 feet to locate oil sands deposits and that none of the holes revealed water.

The judge also cited a number of factors in U.S. Oil Sands’
mining process that support the state's decision not to require water monitoring or a pollution permit. The company maintains that its extraction process, which uses a citrus-based chemical called d-Limonene, will be environmentally responsible. **D-Limonene** is listed on the U.S. Environmental Protection Agency's "Generally Recognized as Safe" list, though the agency's determination was based on small quantities that are sometimes used to give foods a citrus flavor.

The judge said she was convinced d-Limonene is generally non-toxic and that most of it would be recycled in the extraction process. She also cited U.S. Oil Sands' promise that there will no tailings ponds of chemicals and liquids to leach into the soil.

The appeal and resulting delay had angered U.S. Oil Sands executives, who wrote a letter to Utah Gov. Gary Herbert in January rebuking the company's opponents as "obstructionists" to energy development in the state and asking the governor's help in thwarting future challenges.

The appeal has put the U.S. Oil sands project behind schedule by nearly two years, costing both the state and the company millions of dollars, according to the letter signed by Todd, the chief executive officer.

"These delays threaten not only the economic viability of our project, but other projects to follow," Todd wrote.

To prevent what Todd called "frivolous" challenges, he urged the state to adopt a number of policies that would restrict appeals, impose sanctions on organization whose appeals fail, and streamline reviews.

"We firmly believe that through a diligent and co-operative approach we can solve the most intractable of challenges," Todd told the governor.

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