The Wasatch-Cache Petroleum Showcase

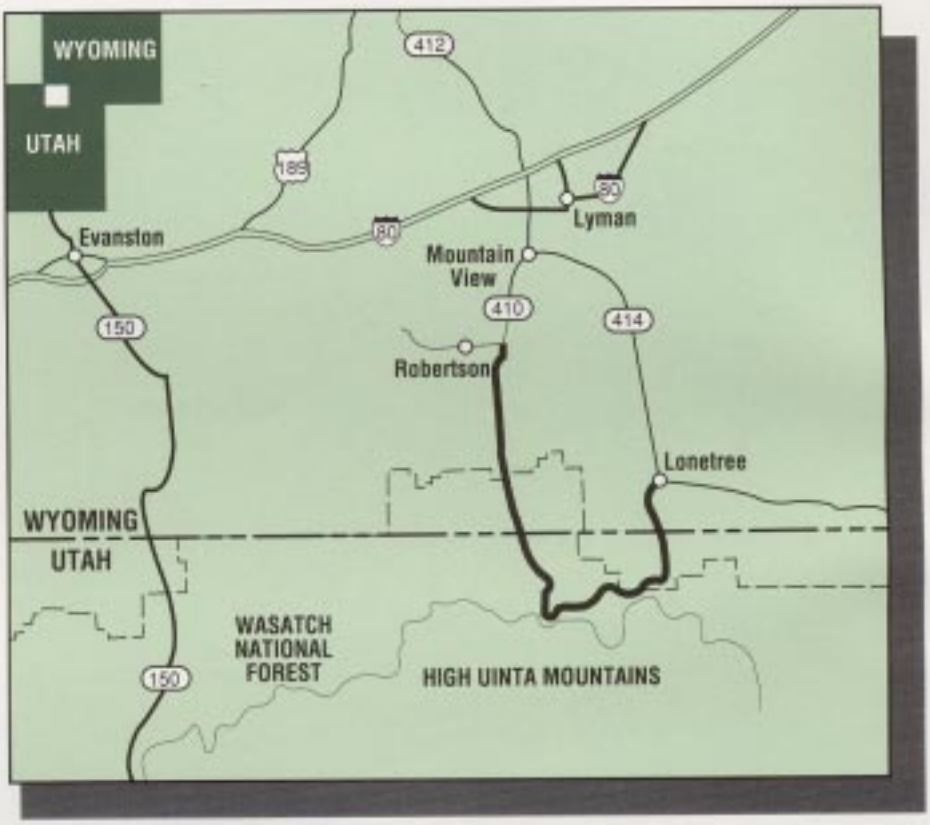
A cooperative venture between the U.S.D.A. Forest Service and Anadarko Petroleum, Texaco U.S.A., Phillips Petroleum and Oryx Energy to develop the nation's energy while maintaining its environmental integrity.

The Wasatch-Cache Petroleum Showcase lies in the southwesternmost corner of Wyoming, on the northern slope of the Uinta Mountains straddling the state lines of Wyoming and Utah.

As one of many multiple uses of the Wasatch-Cache National Forest, oil and gas production has been part of the local economy for years, ever since Phillips Petroleum discovered and developed the Bridger Lake field in the 1960s.

In 1985, renewed interest in the petroleum potential of the Rocky Mountain Overthrust spurred exploration efforts just north of the Wyoming border. When Oryx Energy brought in its Luckey Ditch discovery well in 1985, it was the largest onshore find in the Rockies that year. More development followed, and four units of acreage were combined for coordinated management and development.

Early in 1989, operators in the area were invited to enter into a partnership with the Forest Service to showcase their operations.



Anadarko Petroleum Corporation, Texaco U.S.A., Phillips Petroleum Company and Oryx Energy Company responded enthusiastically. Together with the Forest Service they are breaking new ground with the first oil and gas showcase in the nation.

The Showcase is an educational and demonstration tool for government, business, industry, environmental and civic organizations.

It is called the Showcase, but in fact it's an unseen story. It's what you *don't see* that counts! The oil developments are mostly screened from view by natural cover and the terrain. Every effort has been made to preserve and enhance environmental values for wildlife, habitat and watershed protection.

Oil and gas operations in the Showcase are sited to reduce stream crossings, thus minimizing the potential for erosion and siltation.

The Loop Road wraps around four oil fields developed by Showcase partners under the multiple-use concept.

You are entering the Wasatch-Cache Petroleum Showcase. This forest "Loop Road" wraps around four oil fields developed in cooperation with the Forest Service under the multiple-use concept.

From the north and west, you enter the Loop Road in Uinta County, Wyoming. The little town of Lonetree, WY, is the gateway to the national forest from the east, through Summit County, Utah.

The million-dollar Loop Road upgrading project was undertaken and funded by the partners. It serves all users of this forest and provides multiple benefits:

- A safer road in summer and winter, by improving sight distance, passing lanes and realignment of sharp curves.

- Visual enhancement.

- Soil stability by proper backsloping and reseeding of vegetation.

- A dust-free road improves driving visibility and prevents dust from settling on plants beneficial to wildlife and livestock.

- Reduced road and vehicle maintenance cost.

- Efficient water drainage, resulting in less erosion and retention of clay and gravel on the road.

- Heavy truck traffic without damage to the road system.

Branching off the Loop Road, the Showcase road system runs northeast/southwest along the contours of the mountains. The roads are deliberately not connected to prevent further disturbance to wildlife. For every new mile of road installed, two miles of old road were reclaimed as part of the road density objectives. The effect is to allow more escape areas and to reduce the impact on wildlife.

While the road system is largely new, existing roads were used whenever possible.

Stop 1– Whiskey Springs #1 Road

Built by Texaco in 1988, this is an excellent example of how a road can "lay softly on the land." Notice how this 3-mile road meanders and curves to take advantage of the undulating terrain. Texaco paid special attention to long-term maintenance needs and built the road using higher than standard materials and practices. The sides of the road are gently sloped, then covered with a biodegradable matting to hold newly seeded soil. Culverts have large rocks stacked at inlets and outlets to reduce soil erosion from water. The gravel road surface allows for drainage, protects the built-up roadbed from effects of heavy truck use, and is easier to maintain over the long term.

Stop 2– Buck and Pole Fence

In order to preserve the character of the Old West, Texaco built a buck and pole fence which is uniquely suited to the landscape. Its purpose is to prevent access and damage by vehicular traffic to the meadow behind it and to permit safe game crossing. This fence crosses the site of an old road which has been restored. Before this area was reclaimed and reseeded, the roadbed was used to facilitate a pipeline.

Stop 3– Whiskey Springs #6 Stream Protection

Chosen over an original site 1/3 mile north, this drill pad site protects the most heavily used fishing streams in the Wyoming sector of the Wasatch-Cache National Forest. Texaco agreed that the Whiskey Springs #6 site could still meet its geology/engineering criteria while also protecting Swamp Creek and Sage Creek. By moving the site, an important moose winter range and elk calving area were preserved.

Stop 4– Graham Reservoir A-2 Groundwater Protection

Traditionally, when drilling an oil or gas well, a large earthen pit is dug near the well to hold drilling fluids and rock cuttings. Because the groundwater table is just six feet below the surface at the Graham Reservoir A-2 location, Anadarko used a "closed" mud system to drill this well. This means that all mud was contained and recycled, eliminating the need for an earthen pit, and thereby providing additional protection to the groundwater table. As the site is reclaimed, all topsoil will be replaced and planted with native plants. Note the close color match between the paint on the "Christmas tree" and the surrounding trees.

Stop 5–The Scenic Overlook

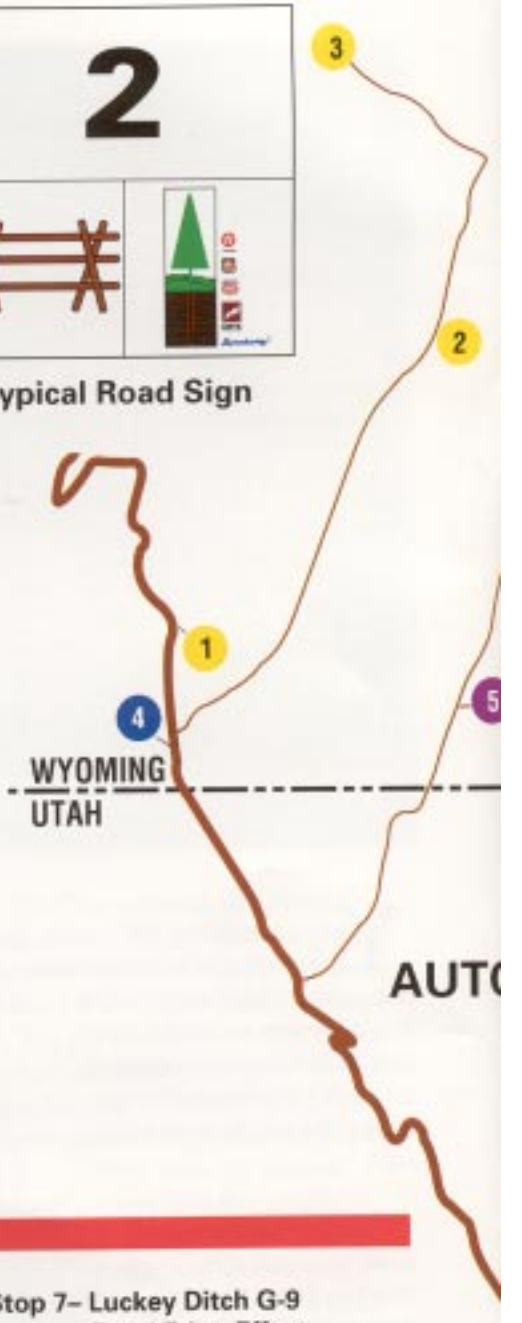
It's what you *don't see* that counts! Can you spot the oil and gas facilities from here? There are 16 well locations, a pipeline, tank battery, production facility and numerous roads serving them. These operations are conducted with respect for other forest users, including wildlife and their habitats.

Some 6,000 barrels of oil are produced daily in this national forest. This oil annually yields enough gasoline to fuel 86,000 cars, diesel to fuel 2,600 trucks, and fuel oil to heat 2,700 homes. All the oil is refined in the Salt Lake City area and the products sold to customers in the intermountain west. The public also benefits from royalties and taxes paid by the producing companies to the U.S. government and the states of Wyoming and Utah.

Stop 6– Whiskey Springs #2 Protection of Fisheries

The proposed location for this well was below the ridge to the west. That location would have required an extensive road system on steep slopes or a crossing at Sage Creek. Texaco agreed to drill in this location, at additional cost, to prevent soil erosion and to ensure that Colorado River Cutthroat trout would not be harmed.

Typical Road Sign



Stop 7– Luckey Ditch G-9 Road Edge Effect

The road was placed in the middle of this opening to protect the edges of the timber on each side. Had the road been placed next to the timber on one side or the other, one of the edge areas would have been lost. The edges are important to big game, providing an escape area where they can hide quickly if threatened.

Oryx laid its pipeline along the side of this roadway, instead of in a direct route, to reduce clearing and soil disturbances, adding considerably to length and expense.

Stop 8– Pig Launcher

Because of the accumulation of paraffin on the walls of a flowline, a "pig" (a round, solid rubber ball) is forced by pressure through the system daily to remove the paraffin and eliminate obstructions in the pipeline. Phillips' pig launcher area consists of two six-inch receivers and one ten-inch launcher. The launcher and receiver piping have been painted a non-contrasting color. Drip pans have been installed to catch any fluids spilled while retrieving the "pig." The fluids are removed by vacuum truck. The entire area has been reseeded and a rock barrier installed to reduce traffic. A small turnaround was installed to allow company vehicles access, eliminating traffic problems on the main road.

Stop 9– Edge Effect, Winter Range and Elk Calving

Unlike the previous stop, where the road was placed in the middle of an opening, the placement of this road is along the edge of the timber. The opening is too narrow for the road to be in the middle, since both edges would be lost. By placing the travel way here, only one side was impacted.

To the north, the open slopes and ridge tops provide important winter range for elk. The winds keep the snow off the slopes, exposing the forage.

Stop 10– Uinta Greenthread

The Uinta Greenthread *(Thelesperma Pubescens)* is a plant unique to the Showcase area and extraordinary efforts have been made to preserve this species.

Consideration for the potential impact of its wellsite on the Uinta Greenthread soils and elk habitat prompted Anadarko to select this location for its Federal A-2 well. Extensive discussions among Anadarko, the U.S. Forest Service and the Nature Conservancy produced five possible drill sites, four of which would have allowed Anadarko to drill a less costly straight hole. The producer instead selected the fifth site and offset the borehole between 400-500 feet from the preferred downhole location. Anadarko had to drill a more expensive, high-risk directional well.

Stop 11– Proposed Site Moved To Protect a Drainage

The proposed location for this pad was on the ridge. This site was selected over the proposed location to eliminate the harmful effects to wildlife in Sage Creek and to reduce visual impacts. Any chance spill would be confined to a single drainage.

Stop 12– Reclaimed Site

Oryx rehabilitated this site after drilling. All topsoil was stockpiled across the road in the fenced area to the west. After drilling was completed, the topsoil was spread over the disturbed area to its original contours, seeded with native plant seed, and mulched with weed-free straw. The seed was chosen to provide soil protection and forage for wildlife and livestock. When this well plays out, the access to the wellhead will be seeded.

Fences protect the new plants from cattle. The fences will be removed after the vegetation becomes well established. Newly planted areas are generally protected for a five-year period.

Stop 13– Bridger Lake Gas Plant and Picnic Area

Phillips built the facility in the foreground in 1969 to separate liquids from natural gas recovered along with oil. In 1988, Phillips formed a joint venture with Texaco and Anadarko, expanding the plant to a maximum capacity of 50 million cubic feet of gas per day to process all three companies' production. That's enough natural gas to heat 80,000 homes. The processed liquids provide enough energy annually to fuel 38,000 cars. Phillips' share of residue gas is reinjected into the formation to stimulate oil production.

The facilities are painted green to blend with the forest. The storage tanks have special flow-control devices and berms to prevent spills into Henry's Fork, an important fishing stream.

Stop 14– Water Injection Well

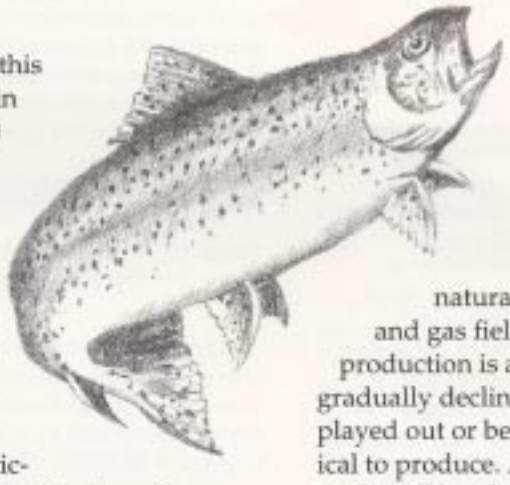
This site was a dry hole which has been converted to a water injection well 15,800 feet below the ground surface. Water produced from other wells is trucked to the site and discharged into this well. The water must meet state standards.

Water often occurs in the same rock formations as oil and gas, and is produced through the same wellbore. It is separated and treated at well sites or production facilities before being brought here.

Reflecting the character of the Old West, this buck and pole fence crosses the site of an old logging road.

Oil and gas in the Showcase area occur almost three miles under the surface, locked into rock formations more than 15,000 feet deep. These were deposited in the ancient upheavals that layered the complex geology known as the Overthrust.

Drilling in this difficult terrain takes up to 90 days for one well. The rig is then dismantled and removed from the area. In the most restrictive situation, drilling is only permitted during a four and one-half month summer "window," so as not to interfere with migration or calving seasons and the winter range of big game.



Horsehead pumping units usually associated with oil production are rarely found in the Showcase. Almost all oil and gas is extracted through use of submersible pumps, minimizing environmental intrusion.

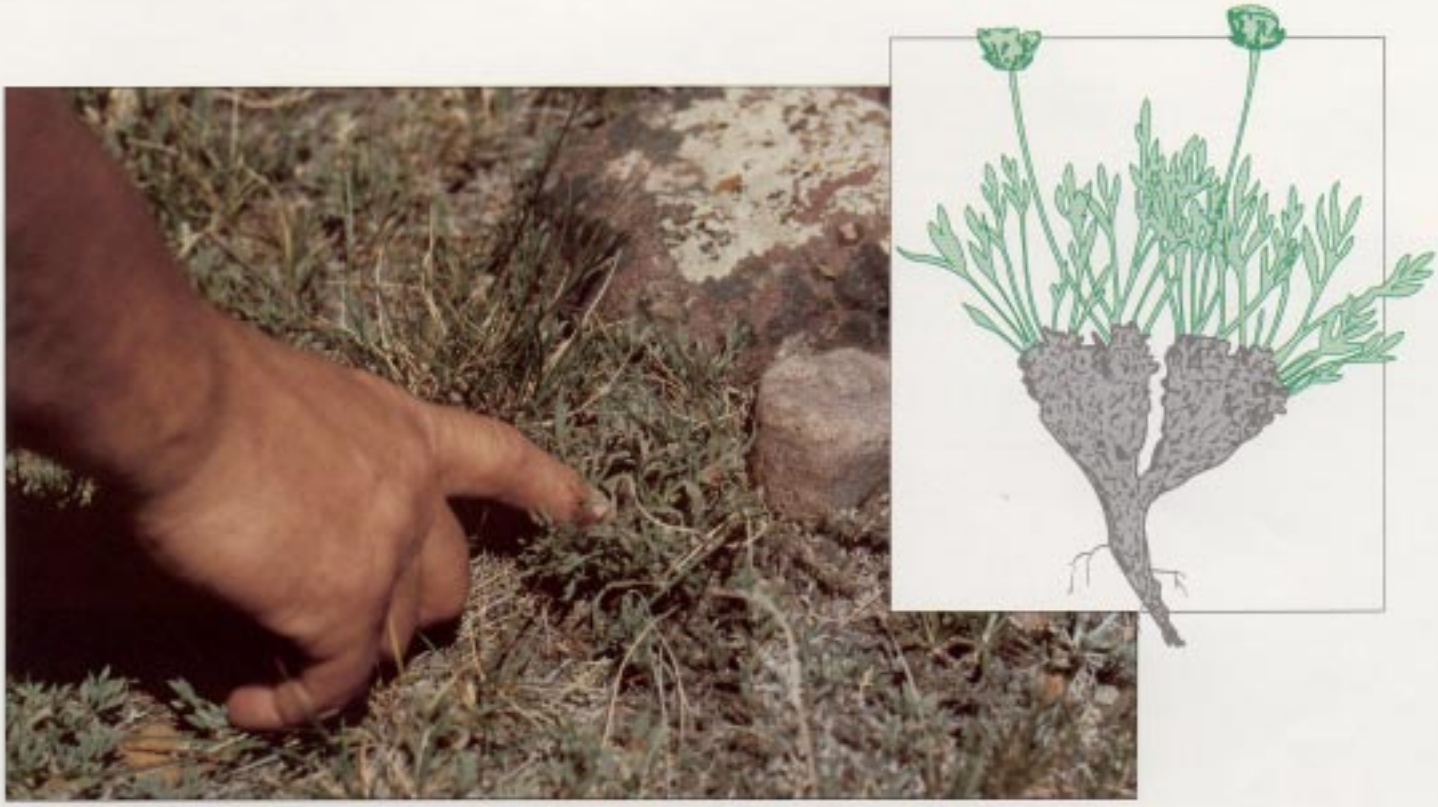
Sometimes the produced gas is reinjected into the reservoir to maintain pressure down hole.

There is a natural life cycle for oil and gas fields. Once peak production is achieved, output gradually declines until the field is played out or becomes uneconomical to produce. At that point, the wells will be plugged and abandoned, and all required measures will be taken to assure the forest returns to its natural state.

Oil and gas production is a temporary activity in the forest, just one of many compatible uses.

Petroleum Industry Benefits to Public and Communities

- Royalties to state and federal treasuries
- Improved access for sports, hunting, recreation and Christmas tree harvests
- Tax revenues for communities
- Local employment
- Fuel supplies for homes and transportation



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Oil and gas operations are limited to certain times of the year to provide maximum protection during wildlife migration and calving/fawning.

WILDLIFE STIPULATIONS

TIME RESTRICTIONS

- Elk critical winter range
  November 15 to April 30
- Elk calving areas
  May 1 to June 30
- Moose critical winter range
  November 15 to April 30
- Deer critical winter range
  November 15 to April 30
- Sage Grouse leks
  March 1 to June 30

DISTANCE RESTRICTIONS

- Golden Eagle nests (within 1/2 mile)
  February 1 to July 15
- Osprey nests (within 1/2 mile)
  April 15 to August 15
- Prairie Falcon nests (within 1/2 mile)
  March 15 to August 1
- Brown and Brook Trout (stream crossings)
  September 1 to November 1
- Cutthroat Trout
  April 15 to July 10

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