

The Western US Oil Sands Technology Transfer Meeting

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LOCAL ISSUES FOR UTAH OIL SANDS

Tar Sand History in Uintah County

Early Years on Asphalt
Ridge

50's and 60's

70's and 80's

90's and 2000's

Other Deposits

Today

Impacts and Needs



Early Years

- 1924-Vernal paved streets with raw tar sand from Asphalt Ridge.
- 1930's-First known extraction plant built using a hot water extraction process.
- 1943-Uintah County signs agreement with Pope Development Company for a supply of raw sands for paving using a cold process w/water.
- Inland Hydrocarbon and Raven Mining also involved in various operations at this time.
- Uintah Co & Vernal City accumulate rights and access to many deposits through tax sales.

1950's and 1960's

- 1951-Knickerbocker Investment Company and W.M. Barnes Engineering Co. acquire Asphalt Ridge interests from Pope Development and others.
- Pilot plant built in California and sands shipped there from Vernal to test process.
- 1956-Sohio Petroleum Company acquired interest in the tar sands at Asphalt Ridge and conducted an extensive coring program to evaluate the area.

1950's and 1960's

- Sohio's resource analysis reported proven and "probable" reserves at 1.1 billion barrels. Sohio also recovered petroleum in an experimental "steam-soak" in 1959-1960 at Asphalt Ridge Northwest.
- Various technologies were tested including the "Clarke" hot water process and Barnes's own process using kerosene as the initial solvent.

1950's and 1960's

- In addition, other substantial core drilling, mapping and exploratory activities were done by the major oil companies.
- Texaco and Phillips drilled in the central part of the ridge and later in the 60's, Shell Oil, Cities Service and Gulf all did some testing.

1970's and 1980's

- Early 1970's-Major Oil Company obtained agreement with Sohio to mine, extract, process (hot water/solvent) and truck to the Roosevelt refinery.
- Other companies such as Sun Oil, Texaco, Shell and Phillips continue exploratory work.
- At some point in early 1973 a dispute arose between Sohio and Barnes over funding and other contractual agreements.

1970's and 1980's

- 1975-Larry Allred buys out his father in law who had been paving within the county for 27 years
- By 1980 he perfects a hot mix heating the raw tar sand with a crushed virgin aggregate in Las Vegas and brings the plant back to Vernal.
- 1982-1985-Staker Paving joins with Allred, experimenting with different blends.

1970's and 1980's

- During that time frame, Uintah Engineering working with Wade Betenson of UDOT, wrote specifications for using the hot mix on state highways.
- L.A. Young Construction was awarded a contract to pave the Bonanza highway to the Green River and LeGrand Johnson Construction was contracted to pave the Randlett highway using Allred's process.

1970's and 1980's

- *1975 to 1978-LERC* conducted a pair of successful reverse-combustion heavy oil recovery experiments in oil saturated rimrock sandstone (Mesaverde Formation) at NW Asphalt Ridge. Despite numerous technical problems with the test, recovery was 25% of OOIP.

1970's and 1980's

- *1979 to 1982-LERC* conducted a series of small-scale, short-term steam flood tests, including a 5-month 9-spot pilot, which demonstrated the feasibility of this thermal recovery method and predicted recovery of 40% of OOIP.

1980's

- 1983-*U.S. Bureau of Land Management* issues a Final Environmental Impact Statement on the Uintah Basin Synfuels Development. The report lists *Sohio Shale Oil Company* as applying for an open pit tar sand development using a counter current solvent extraction process. Anticipated full production date is 1989 with a 20 year project life.

1980' s

- 1983-*Utah Energy Office* prepares a Status Report on Utah Tar Sand Development dated December 28, 1983. A canvassing survey of eleven companies by the Energy Office identifies that *Sohio Shale Oil Company* is performing process testing in anticipation of using a combined hot water/solvent extraction process. The company is undergoing pilot plant construction at test facilities in Warren, Ohio.

1970's and 1980's

- In the later 1970's and into the early 1980's, DOE funded and operated an in-situ experimental process at the north end of Asphalt Ridge (LERC)
- Early 1980's-Illinois Institute of Technology also tests an in-situ process using a radio-frequency technique
- 1982 Barnes Company changes name to Wembco

1970's and 1980's

- 1986 Sohio and Wembco settle dispute and split lands and leases.
- Sohio principally ends up owning the entire southern portion of Asphalt Ridge which was later sold to Samuel Arentz, Sr. of Native Asphalt Corporation.
- By the mid 1980's the bust had come and oil prices declined offering little incentive to pursue tar sand development

1990's and 2000's

- 1991-Buena Ventura Resources (Later Crown Energy and Crown Asphalt Ridge, LLC(CAR)) obtains several leases from Wembco
- 1997-Crown Energy and Michigan Power (MCN) commence to build an extraction plant based on Dr. Guymon's surfactant technology.
- 1999-Process fails during testing

1990's and 2000's

- 1999 to 2000-MCN retains Canadian Western Research Centre (CANMET) to conduct test to develop an alternative bitumen extraction process. MCN and CANMET built and operated a modified hot water extraction pilot plant at the site for 14 months, processing nearly 15,000 ton of sands.
- MCN Energy was acquired by Detroit Edison (DTE) in 2001.

1990's and 2000's

- 2003-DTE acquires full ownership of Asphalt Ridge leases, plant and other assets as a result of legal actions between Crown and DTE.
- 2003-DTE puts plant up for sale
- 2005-Wembco negotiates settlement agreement with DTE and acquires all assets of CAR on it's property at Asphalt Ridge

Other Deposits-Whiterocks

- 1961 & 1982-Appraisal core drilling adjacent to Whiterocks Canyon by *White Rocks Oil Properties* and the *Rocky Mountain Exploration Company* demonstrate the presence of a quality heavy oil deposit.
- 1980's-Core drilling and evaluative work (pilot plant construction by *Major Oil Co.* in the early 1970's) conducted by mining companies including *Enercor* and *Commodore Resources*.

Whiterocks

- 1983-*Utah Energy Office* prepares a Status Report on Utah Tar Sand Development, final report dated December 28, 1983. A canvassing survey of eleven companies by the Energy Office identifies that the White Rocks Tar Sands Project involving hot water extraction is currently on hold.

Whiterocks

- 1998-*Robert J. Fausett* receives small mining minerals exploration permit for tar sand (asphalt) mining.
- 2002-present-Surface mining of oil-impregnated Navajo Sandstone along west wall of the canyon by *Duchesne County Road Department* for use as road paving material.

PR Spring-Hill Creek

- 1981-1982-Various evaluations including core drilling, mining, and pilot plant construction conducted by *Enercor, Big Horn Oil, Inc., M and E Company,* and *C and A Company.*
- 1983-BL M issues a Final EIS the Uintah Basin Synfuels Development. It lists *Enercor-Mono Power* as applying for an open pit mine project using a hot water extraction process. Anticipated full production date is 1990 with a 20 year project life.

PR Spring-Hill Creek

- 1983-In the Utah Energy Report, the survey of eleven companies identifies conceptual tar sand development plans by *Enercor/Solv-Ex Corp.* to use solvent extraction technology – companies have submitted application for federal R&D assistance. *C&A Companies/MRL* consider solvent extraction, but the project is on hold pending oil price increases. *Mobile Oil Corporation* is also performing resource characterization and resource exploration activities.

Today

- Uintah County and local contractors continue to pave using “native” asphalt.
- Numerous companies, two of which you will hear from today, are in the R and D stages of development for new processes.
- Native Asphalt has been laid in Utah, Colorado, Wyoming, Idaho, Nevada, California, Washington, Ohio and even Japan!

Impacts and Needs

- Equitable share in Federal and State Revenues returned to the local area of impact
- Planning now for the infrastructure development for anticipated growth
- Water - White River Dam project revitalized.
- Roads – Seep Ridge project revitalized, Hwy 40 widened to 4 lane to Salt Lake

More Needs

- Railroad – Required for support of industry and diversification of economy
- Utilities – Power, fuel, municipal.
- Workforce Recruitment and Training – trades, research, technology, business and education.
- Workforce Housing (affordable housing)

And Yet More!

- Additional social programs and increased health, safety, law enforcement, fire and medical facilities and staff.
- Improved regional airport with commercial service that meets the needs of the Basin
- Plan, Plan, Plan!! And.....
- Learn from Alberta's experiences

What Can You Expect Out Here?



Uintah County Lifestyle

- Vibrant economy with many opportunities
- High-energy community spirit
- Progressive-minded government
- Strong business community
- Compassionate faith and non-profit sector
- Natural environmental attractions
- Creative approach to all development

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Questions??

