

The Oscar Miller Asphalt Plant: Issues and Concerns

Douglas N. Rader, PhD · First Approximation, September 4, 2026 · Not for Commercial Use

In the 1950s, Oscar Miller Contractor, Inc. constructed a new plant on Duraleigh Road (then called Old Prison Farm Road) to produce “hot mix asphalt” (a mixture of roughly 95% aggregate from the existing quarry next door and 5% asphalt/bitumen “glue”), to be used in road paving contracts in the area (Figure 1). The quarry had been developed about 1949 and was operated during the 1950s by Bryan Rock and Sand Company, which was sold to Superior Stone Company, which was sold to Nello Teer about 1965. Nello Teer already owned an asphalt plant in Durham; the first such plant in North Carolina had been built in Wilmington in 1950. The quarry passed through many other hands to the present.



Figure 1: “New” Oscar Miller asphalt plant, News and Observer, 19 Dec 1959

Despite that “new plant” language, the asphalt plant was said to have operated there for “more than 20 years” until it burned on 26 October 1977, with extensive damage to the on-site testing laboratory and other buildings (see box below).



Firemen battle the 1977 blaze at the Oscar Miller asphalt plant. (Staff photo by Greg Stewart, The News and Observer)

Sources The News and Observer (Raleigh) and the Associated Press (widely distributed)

Event Fire destroyed the plant's testing laboratory and control buildings

Cause Origin undetermined; a leaking propane cylinder and a natural gas line (its regulator melted by the heat) fueled and intensified the blaze

Damage \$100,000–\$150,000 (approximately \$835,000 today)

Injuries None reported

Both the local paper and the AP wire story reported an intense blaze, fed by leaking gas, that destroyed the laboratory and control buildings at the Oscar Miller asphalt-paving plant on Duraleigh Road. The plant's owner said the facility had operated at the site for over 20 years without a significant prior fire.

Why it's relevant here This is the founding event of the site's contamination history — the fire that likely released and redistributed the volatile organics and PAHs discussed in the sections below.

Original clipping available via Newspapers.com.

This major damage occurred just as new national environmental laws and regulations (including the Prevention of Significant Deteriorating, PSD, regulations that had just been adopted in 1978 following the 1970 Clean Air Act). Rather than repairing the damage, the company elected to build a new plant, on a different nearby site, subject to those regulations in 1978-79 (Appendix). That new plant was acquired by Barnhill Company in 1985 and remains on that site under the Barnhill name today on Pleasant Valley Road.

Although available records are unclear about how the damaged buildings were removed, and how potentially contaminated soil and rock was addressed, concrete, asphalt and other debris is common back in the wooded areas to the east and south of the plant site. The plant site itself continued to be used for industrial purposes for at least four years after the fire (see the Appendix for selected sequential images from 1981 through 2024). The large number of hauling trucks staged on the site in the 1981 photograph suggests that further spills of gasoline, diesel fuel, lubricants and other organics onto the soil and into the underlying groundwater and rocks could have continued until about 1988, when the site shows as a barren area of 2-3 acres on aerial imagery, for a total industrial use of approximately 29 years. (This matches the 2 acre “building site” on the tract for which the quarry owners have been paying taxes. The rest is taxed as bottomland/wetland or “wasteland,” at 10-20% of its value as otherwise buildable land.)

The site was acquired by the quarry owners in 1989, as part of the larger 15+ acre tract, acquired in an effort to relocate Duraleigh Road to the east across this land in order to facilitate the opening of a second quarry on the south side of Crabtree Creek, the so-called “Duraleigh Connector” project. Governor Hunt blocked the Duraleigh Connector project for environmental reasons, and the City of Raleigh blocked any quarry south of the creek. The quarry owners sued COR over that matter, which was finally settled in the courts in 2014. A pine forest has developed on this land over the subsequent 37 years (see the 2024 image in the Appendix).

This potentially contaminated site was identified as needing further assessment in the environmental documents related to the Duraleigh Connector. An extract from that final project evaluation document below shows that although some analysis of the risk to the quarry owner had been conducted back in 1989, before the quarry owners bought the land, nonetheless the State concluded that the site required further risk assessment before any State acquisition (Figure 3).

8. Hazardous Waste

A field survey and records search was performed to determine areas of potential geoenvironmental concern, such as underground storage tanks, hazardous waste dumps, or similar sites that may result in future liability if acquired as right of way. One operational facility was identified with the possibility for underground storage tanks within the proposed corridor alignments, the Tops Texaco Mart. This operational gasoline station and convenience store is located in the northeast quadrant of the Duraleigh Road and Delta Lake Road intersection. There are five (5) underground storage tanks registered with the Division of Environmental Management at this site. The tanks range in capacity from 8,000 to 12,000 gallons and contain gasoline, diesel, and kerosene. Records show that these underground storage tanks were installed in 1989 and are located approximately 55 feet east of the existing Duraleigh Road centerline. As currently proposed, the project **will not require right of way acquisition from the tank pit area.**

The Geographical Information System was also used to assess the project area. Research indicated that no regulated or unregulated landfills or dumpsites occur within the project limits. A vacant property located just north of Crabtree Creek within the alignments of Alternatives 1 and 4 has the potential for the presence of hazardous materials. The site was previously used for an asphalt plant in association with the rock quarry, but there was no testing lab on the site. The plant burned in the late 1970's and the nineteen acre tract of land was acquired by the quarry in 1989. The Environmental Assessment completed in 1989 reports an environmental risk audit performed prior to the purchase of the tract by the quarry revealed no hazardous material.

If these sites cannot be avoided, preliminary site assessments should be performed prior to right of way acquisition to determine the existence and extent of potential contamination.

Figure 3. Extract from the final Duraleigh Connector environmental document (Duraleigh Road [SR 1664] Connector Between I-40 and US 70, Wake County State Project 9.8052012, TIP No. U-2110; page 149)

Potential hazards related to building a road across a site are much less than those related to building residential structures on top of it.

Potential Environmental Concerns

Hot mix asphalt plants pose four different significant environmental concerns regarding both human health and environmental contamination. When such plants burn, these issues can be exacerbated.

1) Releases to air and other media of volatile organic toxicants from the hot mix and other industrial processes and cleaning, and during the fire

Solid asphalt releases its most volatile components (most notable the "BTEX" toxicants: benzene, toluene, ethylbenzene and xylene) when liquified, in the course of hot mix asphalt production, related industrial processes and (obviously) when raised to even hotter temperatures during a fire. We have no information about stocks of asphalt on hand at the time of the fire, or the use and management of liquid organic solvents, but "more than twenty years" of operations would have emitted significant volatile organics along the way. The fire would well have added more, in the massive black cloud released, as well as delivering those materials with the tens of thousands of gallons of water used to fight the fire to the groundwater and with surface runoff to Crabtree Creek down below (the direction that water flows travel).

All BTEX compounds are respiratory and eye and skin irritants. Benzene is a known human (Group 1) carcinogen. Toluene is a known reproductive and developmental toxicant. Ethylbenzene is a possible carcinogen (Group 2B) and known reproductive and developmental toxicant. Xylene is a

possible reproductive toxicant. Together, this is bad news.

However, while all releases to air and to surface waters from 1977 and before are likely long gone, that may not be the case for fire-associated releases or possible ground-dumping of solvents (as these chemicals are also used in industrial applications that continued through at least 1981 and perhaps as long as 1988). All of these compounds are only lightly soluble in water, and float, but can be delivered with water flowing into groundwater, where they tend to pool on groundwater or solid rock, and break down fairly slowly. Thus, reservoirs of these chemicals could remain in the ground downslope from the site, which could then be released by soil and/or bedrock disturbance.

2) Releases to the air, ground and groundwater of highly toxic and persistent polyaromatic hydrocarbons (PAHs)

Perhaps the most concerning compounds associated with hot mix asphalt production are a family of complex hydrocarbons called Polyaromatic Hydrocarbons (PAHs), built around fused benzene rings. While a few of these are less harmful (like naphthalene), most are not only highly persistent, but among the most problematic environmental toxicants. Most are believed to be cytotoxic, affecting multiple organ systems, and many are mutagenic or carcinogenic. PAHs occur both naturally after incomplete combustion of complex hydrocarbons and are also prevalent in crude oil (and coal and gasoline), and in crude oil products after cracking (including asphalt). PAH production is also enhanced when cracking products like asphalt are heated or burned.

While there are over 100 PAHs, perhaps 30 of them are especially important to assess individually. Among the worst actors are seven probable human carcinogens: benzo(a)pyrene, chrysene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene and indeno[1,2,3-c,d]pyrene.

PAHs would be likely to occur on the Oscar Miller site both from the long-term hot mix asphalt production and from the fire. Large amounts would have been exhausted, and some widely distributed, through the black smoke plume from the fire, seen as far away as North Hills. More would have been distributed across the site during fire-fighting operations, including movement into and through soils, pooling underground on bedrock and at the water table. While much of this material could have been carried downslope into Crabtree Creek, much could remain in all these environmental media on site.

It is worth noting that Crabtree Creek itself has been the recipient of other toxicant damage for many years, notably from two known superfund sites in the basin, the Ward Transformer site (located at the RDU Airport, and an important source of Polychlorinated Biphenyls, or PCBs), and the Koppers Company site near Morrisville (a former wood treating facility). Crabtree Creek remains an impaired waterbody based on the presence of PCBs and mercury, the subject of important and expensive cleanup activities. A new fish consumption warning was just issued for Crabtree Creek (Wake County Waterways Carry Rare Warning: Officials Say Do Not Eat Fish from Certain Local Waters – DoRaleigh).

Disturbance of soils and rocks on the site could easily liberate PAHs that remain from the asphalt plant operations and the fire and potentially be delivered to Crabtree Creek, especially during construction. PAHs could also remain in the soil after completion of any permitted residences, creating potential concerns.

Note that the tests needed to assess the very low concentrations at which these materials become problematic were not even developed until 1984, and the very low detection limits required today were not available until much later. Thus, new monitoring and risk assessments are probably required.

3) Releases to the ground and groundwater of potentially toxic metals, including heavy metals (lead, mercury, cadmium and others)

Depending on the materials used and process employed (batch vs drum mixing), potentially toxic metals can also be released from hot mix asphalt plants, potentially exacerbated by the fire on the Oscar Miller site, including mercury, cadmium, nickel and lead (among many other things).

So far, we have no information that would inform whether or not specific metals would be expected on the Oscar Miller site, but site surveys for toxic metal concentrations to avoid during any construction are nonetheless important. Studies of other asphalt plant sites around the world are quite variable in metal concentration in soils and groundwaters, requiring further care in sampling.

4) Purposeful and/or accidental release of very highly toxic solvents

Events that occurred in 1991 made plain that at least some asphalt plants in North Carolina had been dumping spent solvents on site, including the notorious carcinogens trichloroethylene, trichloroethane and carbon tetrachloride – the same chemicals that caused the Camp LeJeune groundwater problems and cancer issues. These especially dangerous solvents (and others mentioned above) were likely used in the testing laboratory (which burned) and likely in machinery cleanup (Figure 4). Note that in testing asphalt mixes, the bitumen/asphalt “glue” is dissolved away from the asphalt to weigh the aggregate portion and demonstrate, batch-by-batch, that standards are met for asphalt quality for road and other projects. That leaves considerable volumes of spent/contaminated solvents, that must be managed and disposed.

See box below for the 1991 statewide contamination-testing program.

ARCHIVAL RECORD · NOV. 2, 1991

Source Journal Raleigh Bureau (Winston-Salem Journal)

Event State transportation officials approved \$400,000 for contractors to determine the extent of chemical contamination at eight asphalt plants statewide

Scope Work covered 71 sites contaminated by asphalt-testing solvents emptied on the ground from the late 1940s to the early 1980s

Chemicals named Trichloroethylene, trichloroethane, and carbon tetrachloride

The N.C. Board of Transportation authorized statewide testing after acknowledging that solvent dumping had occurred at asphalt-testing sites for decades, with an estimated cleanup cost as high as \$100 million across the affected sites.

Why it's relevant here This is a statewide, state-acknowledged pattern of the exact solvent-dumping practice this paper flags as a possible risk at the Oscar Miller site — not a one-off allegation.

Original clipping available via Newspapers.com.

Although we have no inside information about practices on this site, there are clear records of spent solvent dumping elsewhere in asphalt plants in North Carolina. That practice could have left behind serious groundwater contamination issues. Earth moving and site leveling could easily release that material, inducing serious potential risks.

Overall Environmental Risk

Taken together, these risks of toxic environmental contamination are significant, and deserving of modern, high-level assessment prior to authorization to build residences there. The State of North Carolina agrees that more work is needed to characterize the toxicant risks at this site. We have provided this information to state officials.

Until we have a clear demonstration of low risks to human health and environmental contamination

from toxicants on this burned asphalt plant site – based on modern site survey and risk assessment methodologies – and that these risks can be effectively mitigated during site preparation and construction, neighbors have no choice but to oppose rezoning for intensive development requiring significant earth disturbance, both to prevent human exposure and delivery into Crabtree Creek.

Appendix

This 1978 legal notice (see box below) documents the process then underway of building a new plant consistent with the new PSD regulations in 1978-79, on Pleasant Valley Road, off Duraleigh Road.

LEGAL NOTICE · MAY 14, 1978 · THE NEWS AND OBSERVER

Applicant Oscar Miller Contractor, Incorporated

Facility proposed 320 tons-per-hour hot mix asphalt plant, Duraleigh Road, Raleigh, Wake County

Regulatory basis Federal Prevention of Significant Deterioration (PSD) air quality regulations (newly proposed Nov. 1977) and N.C. Administrative Code Title 15, Subchapter 2H

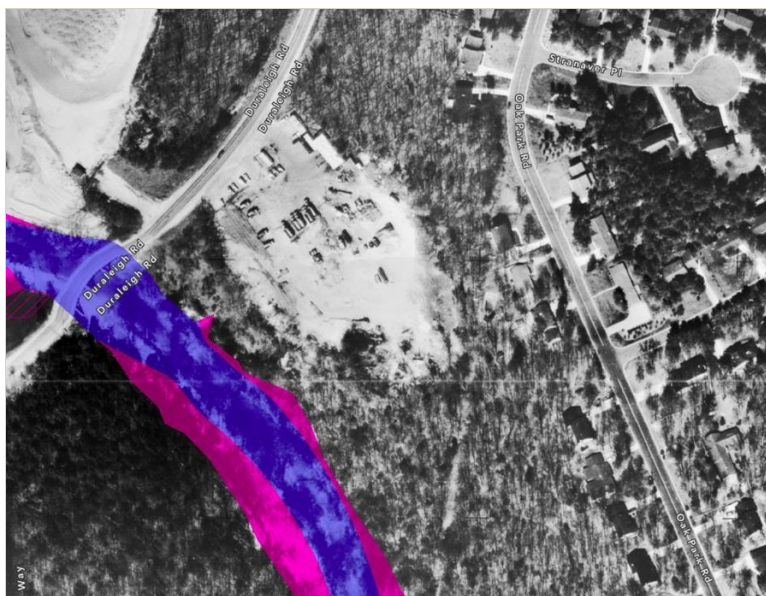
Status Preliminary determination that construction could be approved subject to conditions; 30-day public comment period, 15-day window to request a hearing

Signed A.F. McRorie, Acting Director, Division of Environmental Management

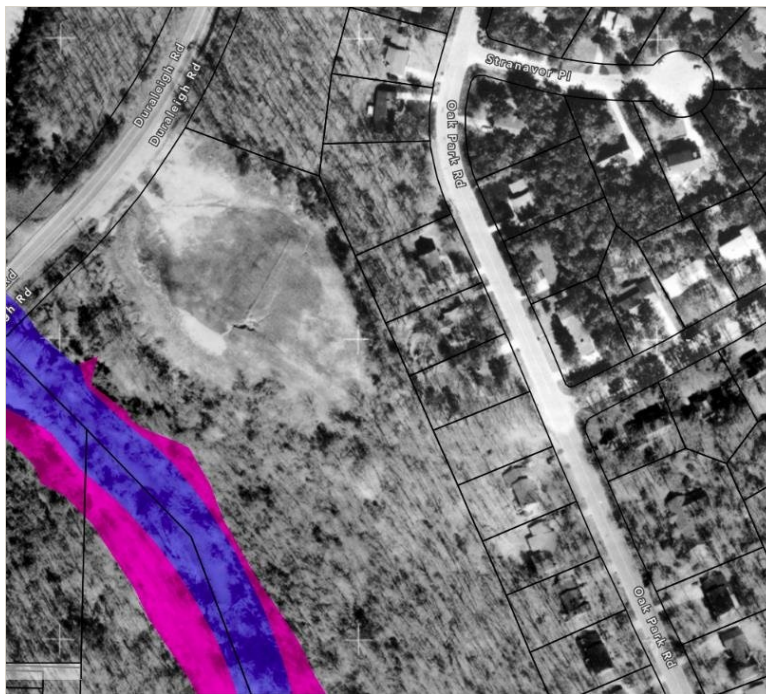
This state-mandated public notice announced preliminary approval, subject to conditions, of Oscar Miller's new replacement asphalt plant — built under the first generation of modern federal air-quality rules, on a different site, following the 1977 fire.

Why it's relevant here This notice confirms the replacement plant went through modern environmental review in 1978 — the original Duraleigh Road site, damaged by the fire, never did.

Original clipping available via Newspapers.com.



1981. The large number of hauling trucks staged on the site suggests continued industrial use after the fire, with possible ongoing spills of gasoline, diesel fuel, and lubricants onto the soil. Crabtree Creek and bottomlands shown in color. (Wake iMaps)



1988. The site now shows as a barren area of 2-3 acres — consistent with the “building site” the quarry owners have been paying taxes on — marking the likely end of active industrial use, for a total of roughly 29 years of industrial activity on the site. (Wake iMaps)



1999. The site remains cleared, roughly a decade after being acquired by the quarry owners in 1989 as part of the larger 15+ acre tract for the proposed (and later blocked) Duraleigh Connector project. (Wake iMaps)



2024. A pine forest has developed on the land in the years since the Duralough Connector project was blocked, with no evidence of remediation or soil testing having taken place in the interim.