North County Watch

Looking Out Today For Tomorrow

Mr. Murry Wilson
SLO County Planning and Building

Sent Via Email mwilson@co.slo.ca.us

June 4, 2013

Re: Comments on Las Pilitas Quarry DEIR

Dear Murry,

North County Watch is a 501 3c non-profit Public Benefit corporation. We are an all-volunteer organization committed to sustainable development in and around north San Luis Obispo County.

We are submitting comments on the Draft EIR for the Las Pilitas Quarry.

HAZARDOUS MATERIALS AND PUBLIC SERVICES

This project would create a hazard to people or the environment through routine transport, use, or disposal of hazardous materials as a result of an accidental release of hazardous materials.

> The project could create a risk to the public or to the environment through the inadvertent explosion or release of explosive materials during transportation or use on the property. This is considered a potential significant impact that can be mitigated. 4-7.9

It is not clear to us how the risk to the public has been mitigated to less than significant. Hazardous materials will be transported within the business and residential community of Santa Margarita and past the elementary school, including explosives. The DEIR states: An inadvertent explosion of blasting material or accidental release of material during transportation could create a potentially significant risk to the public or environment. 4-7.9. Yet we can find no measures offered to mitigate this potentially significant impact.

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If, as the Project description states, no explosives will be stored on site and the permit will be allowing blasting up to 20 times a year (nearly twice a month), then the public can assume that the transportation of explosives through their community and past the elementary school will be occurring at some frequency (20 times or 104 – see discrepancy regarding frequency below) during the year. If this is not the case, then explosives will be stored on site.

We do not see how MM HAZ-1a which relates to the qualifications of an explosives delivery company will mitigate the risk of the transportation of explosives through the residential areas and past the school in Santa Margarita. Please explain. Also, should an "inadvertent explosion" occur in the community, a general liability policy of only $5 million dollars is inadequate. Further, this mitigation puts the entire liability on an as yet undisclosed third party – the explosives delivery company which could conceivably declare bankruptcy in the event of an accidental explosion that caused significant damage. The applicant should be required to post a bond for the life of the project that would cover the liability.

> **MM HAZ-1a: Risk of Explosion or Release of Explosive Material -Transportation.** In accordance with the Blast Plan and as required by federal, state and local regulations, the Blaster and/or explosive delivery company must show evidence of compliance with the following requirements:
>
> - Copy of drivers current CDL with HAZMAT endorsement,
> - Current USDOT HAZMAT Certification of Registration,
> - Maintain a current California HAZMAT Transportation License,
> - Current enrollment in a drug screening program according to USDOT CFR Title 49 regulations, and
> - Maintain a general liability insurance policy for explosive transportation for not less than $5,000,000.

The risk management pertaining to the public's protection from accidental explosions during transportation is dependent on the driving record and skills of a single individual driver not under the control of the county or the operators of the quarry. How is the risk mitigated?

Has the project been referred to the California Highway Patrol for review for application for a valid Hazardous Material Transportation License? Such License, issued by the CHP, is required by law and regulations of the State of California Vehicle Code Section 3200.5 for transportation of either: hazardous materials shipments for which the display of placards is required by State regulations; or hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner. Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the state Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops, (Title 14, California Code of Regulations, Chapter 6, Article 1, Sections 1150-1152.10).

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The Project will require the transportation of explosives. It would be negligent to approve a project before the conditions of a Hazardous Materials Transportation License has been addressed whether or not the License is issued to the project owners or the delivery service. Additionally, though the project states that no fuels will be stored on site, fuels will be delivered to the site for the re-fueling of operating equipment and the transportation of those fuels is part of the project and needs to be reviewed and licensed. The Air Quality chapter suggests that the use of LNG as an alternative fuel may be an option to mitigate emissions impact. The storage or transportation of LNG would trigger a re-circulation of the EIR if it is not addressed now.

In the end, the risk pertaining to the public's protection from accidental explosions during transportation is a significant un-mitigable impact of the project.

Although the project description states that blasting will occur approximately 20 times a year, Chapter 4-7 Haz and Hazmat states that blasting would occur as often as 2 times a week. Two times a week is 104 blasting events:

> It is anticipated that blasting would occur up to two times a week and only during daylight hours. According to the applicant's Blast Plan (Gasch Associates 2009), blasting material will not be stored on-site but will be transported to the site by the contractor on an as needed basis. A blasting notification program will be implemented to notify the County and neighboring property owners before blasting events. (4-7.9)

The Blast Plan made no specific mention of the frequency of blasting. Please clarify the frequency of blasting.

In a letter dated December 8, 2009, in Appendix B, from Gasch (preparer of the blast plan) to Ken Johnson, Mr. Gasch states: Ultimately, the blaster-in-charge is responsible for all aspects and results of carrying out the blasting program. How will the conditions of approval specifically regulate the actions of the blaster-in-charge.

The Blast Plan notes the presence of a petroleum pipeline at 200 feet from the blasting site but no mention is made of the Coastal branch of the state water pipeline which also crosses the property and is subject to damage caused by vibration. Have potential impacts to the pipelines from the project been analyzed? How does the EIR address potential impacts to pipelines on the property and how will they be mitigated?

> **1.2. Adjacent Structures and Facilities**
> The site is bordered by vacant land. The closest residence is approximately 300 feet southeast of the southernmost corner of the mine. This structure is a single family dwelling. The Calf Canyon to Cuesta Pipeline crosses south and southeast of the Site. It is as close as 200 feet, but averages around 350 feet from the planned working area.

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4.2 of the blasting plan states: The Blaster-in-Charge will submit a plan of the details of the planned blast. To whom will the plan be submitted and who will be reviewing the plan pre-blasting?

Section **5.1. Blast Site Preparation** states: The blast site shall have unobstructed access for emergency services, mining equipment, and vehicle entry. All hazards, such as, loose boulders, under-cuts, and trip and fall hazards, shall be noted or resolved before drilling begins. How will the applicant assure unobstructed access for emergency vehicles and accommodate possible queueing of trucks on the site and on Highway 58? How will the conditions of approval assure unobstructed access?

The blast plan states: "Based on the San Luis Obispo County vibration regulations (Title 22 – Land Use, Chapter 22.10, section 22.10.170-Vibration) the site and its operations are exempt from county standards…." but makes no mention of state or federal regulations that might impact petroleum and state water project pipelines. Are the pipelines on the property exempt from state and federal regulations regarding impacts from vibrations generated by blasting? Is the potential for impacts to the pipelines a Health and Safety issue?

The Blast Plan makes no reference to what procedure will be followed if winds exceed 25 mph before a planned blast is completed. How will this be handled?

The DEIR claims that there will not be any cumulative effects associated with the nearby operation of the Hanson quarry. However, additional blasting episodes per year will result in a cumulative impact on the town and nearby residents that cannot be mitigated.

Although the project states that no fuels will be stored on site, fuels will be delivered to the site for the re-fueling of operating equipment and the transportation of those fuels and explosives are part of the project and need to be reviewed and mitigated. The EIR should inform the public of the estimated gallons of fuel, types of fuel and number of fueling trucks that will be associated with the project.

<u>EVACUATION PLANS</u>

The project would expose people and structures to a substantial risk of loss, injury, or death involving wildland fires. As many as 80 truck a minute (peak demand) could be queued up anywhere from Highway 101 to the construction site. The site only has the capacity to queue 20 trucks. Peak truck traffic could impair implementation of, or phycisally interfere with an adopted emergency response plan or emergency evacuation plan resulting from fire or release of hazardous materials, or other natural diasters such as Dam failure (the project is adjacent to the Salinas River and downstream of Salinas Dam), earthquakes, flooding.

Do the comments from Cal Fire address this issue of evacuation and the significant increase in truck trips (up to 800 trucks daily at peak [2-9]) on Highway 58. In a 10 hour day, 800 trips is 80 trips an hour or one truck every 40 seconds. This volume of traffic represents the worst case but CEQA requries that the worst case be addressed. Where and how many trucks will be queued up has a direct impact on evacuation plans for any emergency.

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Has the SLO County Emergency Operations Plan been consulted for guidance, procedures, and county policies pertaining to emergency planning and responses? Given the constraints of Highway 58 east of Santa Margarita and town itself, emergency plans that may be pertinent to the Project are Dam Failure Evacuation plan; Hazardous Materials Emergency plan; Earthquake Response plan, Storm Emergency plan.

Will the project be required to prepare, for public review, an Emergency Evacuation Plan that addresses emergencies such as fire, hazardous material release or spills, accidental explosions, dam failure, and flooding?

The project could create a risk to the public or to the environment through the inadvertent explosion or release of explosive materials during transportation or use on the property. Will the Hazardous Waste Business Plan be available for public comment and review?

> The project does not include on-site fuel storage; vehicle and equipment refueling will be conducted by service trucks. Other small volumes of hazardous materials and wastes will be stored on-site in compliance with applicable regulations. These might include hydraulic fluid, lubricants, pesticides and similar common substances. Depending on the amounts of wastes generated and stored, the quarry operator or service contractor will be required to register as a hazardous waste generator, and may also be required to file a hazardous waste business plan and comply with other regulations such as those related to training requirements and emergency response planning. The detailed requirements are set by federal and state laws and regulations, and administered by the County Environmental Health Division of the Public Health Department, which serves as the Certified Unified Program Agency. Table 4.7-2 presents more detailed regulatory requirements. 4-7.10

<u>PUBLIC SERVICES AND UTILITIES</u>

DWR and the Central Coast Water Authority were not contacted regarding this project regarding the state water pipeline that traverses the project. The DEIR should be referred to these agencies for consultation on the project and the Blast Plan in regard to ground vibrations and vibration predictions.

> The Blast Plan (Appendix B) includes specifications for the use of explosives and blasting, limiting ground vibrations and air-overpressure levels, records requirements and safety and warning programs, and vibration predictions based on project parameters. 4-7.10

The CPUC should be consulted regarding the potential for rail/truck collisions in light of the potential for 80 trucks a minute – one truck every 40 seconds – at the grade crossing at Highway 58. Even the average of over 200 hundred truck trips a day is a significant impact and safety issue at the grade crossing that cannot be mitigated to less than significant. There are no possible road improvements that could mitigate the impact. Has the CPUC been consulted on this issue?

Has the CPUC been consulted on the impact of vibration from blasting within 200 feet of a petroleum pipeline?

The project is in a high fire hazard area. The DEIR mentions additional water storage on site. What size is the additional water tank? Is a Fire Management Plan available for Public review?

Hazardous Materials Release Response Plans and Inventory Act of 1985, also known as the Business Plan Act, requries businesses using hazardous materials to prepare a plan that describes their facilites, inventories, emergency response plan, and training programs. Is the Business Plan available for public review and comment?

Hazardous Waste Control Act is implemented by regulations contained in title 26 of CCR, which describes the required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Does the project comply with the Hazardous Waste Control Act?

Has the proejct been referred to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program – County Environmental Health Services?

Has the project and the recycling project been referred to the California Department of Toxic Substance Control?

Has the project and a Hazardous Material Business Plan been referred to the California Office of Emergency Services? Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies and needs to be included in the business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment.

Courts require that anyone looking at the DEIR understand what is happening. The DEIR fails to give sufficient detail for the public to understand the risks associated with the use of hazardous materials and explosives related to the project. Commentary such as the following does not inform the public as to whether the operator or service contractor will be required to register as a hazardous waste generator. The DEIR generally consists of lists of federal, state and local regulations but little direction on how those regulations might apply to the project or be enforced through various plans in order to reduce the impacts to less than significant.

> Depending on the amounts of wastes generated and stored, the quarry operator or service contractor will be required to register as a hazardous waste generator, and may also be required to file a hazardous waste business plan and comply with other regulations such as those related to training requirements and emergency response planning. The detailed requirements are set by federal and state laws and regulations,

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and administered by the County Environmental Health Division of the Public Health Department, which serves as the Certified Unified Program Agency. Table 4.7-2 presents more detailed regulatory requirements. 4-7.10

The public, through the EIR, should be informed on what wastes might be generated and stored and whether the quarry will be required to register as a hazardous waste generator. The DEIR generally consists of lists of federal, state and local regulations but little direction on how those regulations might apply to the project or be enforced through various plans or conditions of approval in order to reduce the impacts to less than significant.

TOXIC SUBSTANCES ASSOCIATED WITH THE RECYCLING OF CONSTRUCTION PRODUCTS

Common sealants on ashphalt include high levels of polycyclic aromatic hydrocarbons (PAH). PAHs cause tumors in some fish, disrupts the reproduction of aquatic organisms, and causes some water-bottom species to avoid sediment altogether. Health risks to humans include inhalation of PAH contaminated dust, dermal contact with millings, and other toxins, including silica. [see end notes 1, 2, 3 and 5].

The New Jersey EPA has the following information on the health risks associated with asphalt millings and dust [see end note 4]:

> **ASPHALT MILLINGS DEFINITION**
> The definition most commonly used for asphalt millings is the fine particles (generally from dust to less than an inch or so) of bitumen and inorganic material that are produced by the mechanical grinding of bituminous concrete surfaces.
>
> **ENVIRONMENTAL AND PUBLIC HAZARDS**
> The bitumen binder used in asphalt paving applications contains a relatively large concentration of a family of organic compounds which can have the potential to pose human health and environmental concerns in certain circumstances especially when asphalt material is ground into very small particles that easily blow off of or wash from the surface. These compounds, known as polycyclic aromatic hydrocarbons (PAHs) are specified as targeted pollutants by the U.S. Environmental Protection Agency (USEPA), and are present in asphalt at much higher levels than the criteria established by DEP guidance for general use in a loose fashion on land. Asphalt millings used alone without a paved top surface have the potential to significantly migrate from the roadway through the actions of water, wind, and physical displacement and possibly contaminate surrounding soils and/or surface water sediments. Traffic traveling on the unpaved asphalt millings would generate dust containing the compounds referenced above and the dust would be a major migration route of the asphalt millings to the surrounding environment.

The DEIR contains no analysis of the health risks and environmental impacts from millings and dust from run off from stockpiled asphalt, asphalt dust created from crushing asphalt, or assessment of the toxins contained and potentially released through the recycling process. These deficiencies need to be addressed. The saga of the Kaweah Crop Dusters enforcement

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issue at the Ca. Dept. of Toxic Substance Control is a case study in the kind of toxins that can unintentionally contaminate asphalt.

Contaminated run-off from the project site will impact the Salinas river habitat:

> The quarry site is drained by three surface water features including the Calf Canyon Creek (far northeastern corner of the property), Moreno Creek (southern portion of the property) and the Salinas River (southwestern portion of the property). The quarry itself is not located in the 100-year floodplain of the Salinas River. The majority of the groundwater resource for the project is located in the southern part of the site in the quaternary alluvium deposits located adjacent to the Salinas River. Granitic rock (Kgr) is not a good source of groundwater. 4-7.1

The county certified an EIR for the Biorn Diani project in 2008. The Biorn Diani project included an asphalt recycling component. The EIR stated that concrete dust and rubble may increase the PH of water percolating to the alluvial aquifer following storm events (5.14 16).

If the recycling for this project is likely to include the crushing of any concrete products, and we expect that will be the case, the DEIR does not address the issue of the impacts from runoff for the asphalt products or the cement products. The asphalt and concrete rubble must be stored in a manner to prevent runoff. The Biorn Diani project required a detention basin that "would be designed to accommodate run-off generated at the…plant site by a 10-year storm. The purpose of this facility is to control storm water runoff (BD EIR5.14-23). Extensive Sediment and Erosion Control Plan (SECP) mitigations were required (BD EIR 5.14 26-27).

AIR QUALITY

The DEIR claims that it based its modeling on flat terrain for a worst case scenario. A comparative modeling with complex terrain such as exists at this site would be appropriate and give the public a more accurate view of the potential impacts. If the consultant is making an assumption that the flat terrain modeling would render the worst case scenario, what is that assumption based on? In a mountainous area, why would the consultant assume that the receptors are generally at lower elevations? Shouldn't the actual location of the receptors that will be impacted by this project be the basis for the modeling? The modeling is flawed and should be redone based on the actual location of receptors not on unsupported assumptions regarding location of receptors. In regard to the dispersal of dust (PM 10), the EIR should include the factual basis that supports the assumption that "plumes will travel along the ground".

> Dispersion modeling was performed assuming flat terrain. Flat terrain is a conservative assumption for this project because the receptors are generally located at lower elevations than the sources and the emissions points are close to the ground. Thus, plumes will travel along the ground between sources and receptors which is

conservatively modeled as flat (i.e., the actual distance is greater with terrain than a straight line and complex terrain promotes vertical mixing). 4-3.18

The DEIR suggests that the use of liquid natural gas on site may be possible to lessen AQ impacts.

> The use of alternative fuel, such as compressed natural gas, or other measures may also be possible, but these would have to be developed by the applicant and accepted by the SLOAPCD.4-3.23

If the use of compressed natural gas is a possibility, the impact of the transportation and storage of compressed natural gas must be analyzed in the EIR as it would trigger a number of hazardous material standards.

Determination of on and off site mitigations for emissions should be subject to public review and comment prior to approval of the CUP. The Construction Activities Management Plan should be available for review and comment by the public prior to approval of the project.

The exclusion of the Santa Margarita Ranch cluster subdivision in consideration of cumulative impacts based on its distance of 2 miles from the project site seems arbitrary. The SMR subdivision was determined by APCD to have significant impact on Air Quality.

BIOLOGICAL RESOURCES

South-central Coast California Steelhead are an endangered species and are present in the Upper Salinas River. The Salinas River is adjacent to the project and borders the project site. Although steelhead are not present in the drainage of the site, contaminated runoff from RAP dust and sediment from the site could potentially enter the Salinas River and impact the endangered steelhead and this impact should be addressed and mitigated. (4-5.30-1)

It was not possible to tell when the biological surveys were conducted nor if the studies extended over 2 seasons.

OPEN SPACE RESOURCES

The DEIR fails to analyze and mitigate for the impacts from the project to Open Space Resources. Rural Lands are considered to be in the inventory of open space and Open Space zoning and the project must mitigate for impacts resulting from the loss of open space.

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RECYCLING FACILITY

Is the applicant applying for a CUP for a recycling facility?

Sincerely,

Susan Harvey, President
(805)239-0542

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Minnesota Pollution Control Agency

Coal Tar-based Sealcoat

Environmental concerns

wq-strm4-12 • September 2009

If you decide to sealcoat your asphalt driveway this year, there are a few things you should know. Sealcoating makes old asphalt look new and protects its surface, but there are serious environmental concerns with its use.

Sealcoat comes in two basic varieties: coal tar-based and asphalt-based. The coal tar variety is more resilient, but it contains much higher levels of a class of chemicals called PAHs (polycyclic aromatic hydrocarbons) that harm fish, and with prolonged exposure, pose a risk of cancer in humans (see Figure 1).

Environmental problems

Coal tar is a waste material generated in the conversion of coal to coke. Manufacturers choose coal tar for sealcoat because of its resistance to petroleum products like gasoline and oil, which drip from cars and deteriorate asphalt surfaces. In time, sunlight and vehicle traffic wears down sealcoat and sealcoat flakes are washed away by rain or carried away by wind, contaminating stormwater ponds, streams and lakes with PAHs.

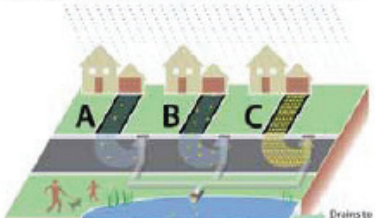
PAHs cause tumors in some fish, disrupts the reproduction of aquatic organisms, and

water coming off parking lots coated with asphalt- and coal-tar sealcoat (Figure 2).

Figure 1: Relative amounts of PAHs in sealcoat products

An Austin, Texas, study determined that sealcoat products based on coal tar contained up to 1,000 times more PAHs than asphalt-based products. Consider asphalt-based sealcoat if you choose to coat your driveway.

Figure 2: Concentrations of PAHs in runoff



END NOTE 2

Environmental News

Parking lots create sticky pollution problem

Suburbia, beware. Vast stretches of parking lots in the U.S. are coated with toxic coal tar that is slowly crumbling into dust. Coal-tar-based sealants, which give the lots an ebony finish, produce dust containing 100 to 1000 times higher PAH levels than unsealed lots, according to new research published in *ES&T* (DOI 10.1021/es802119h). Many PAHs are carcinogenic and harm aquatic life, and runoff from the lots could be a major source of urban water contamination, the scientists report.

The sealants first drew attention in Austin, Texas, when city workers discovered high PAH levels in sediments near Barton Springs, a popular swimming spot and home to an endangered salamander species. Scientists from the U.S. Geological Survey (USGS) first reported in *ES&T* in 2005 that runoff from Austin parking lots sealed with coal tar contained 65 times more PAHs than runoff from unsealed lots. Since then, Austin and Dane County, Wisc., home to the city of Madison, have banned coal-tar sealants. Now the USGS team, led by research hydrologist Peter Van Metre, has compared lots sealed with coal tar and with asphalt in nine U.S. cities.

Pavement sealants, used to prevent cracks from freezing and thawing, are most often used on parking lots rather than roads and are ground into dust as vehicles drive over them. In the new study, researchers compared PAHs in dust from sealed and unsealed parking lots. Dust from sealed lots in the central and eastern U.S. contained an average of 2200 milligrams per kilogram (mg/kg) of 12 PAHs, compared with 27 mg/kg in unsealed lots. "There is evidence, at least qualitatively, that where coal tar is in use in urban settings it's the major source [of PAHs to streams]," Van Metre says.

Coal tar is the most common sealant east of the Continental Divide, the study shows, whereas low-PAH asphalt sealants dominate in the West. This pattern is consistent with industry information and corresponds with the availability of coal tar, which is a byproduct of steel manufacturing.

Coal-tar sealants are sprayed onto parking lots and driveways to give the surface a new appearance and protect underlying asphalt.

Other sources of PAHs, such as exhaust particles, tire-wear residue, and motor oil, could not account for the high levels found on and near coal-tar-sealed parking lots, Van Metre says. "Even if the soil was made completely of tire rubber or motor oil, it wouldn't reach these PAH levels," he says. No one knows how much coal-tar sealant is used nationally, but according to industry estimates, about 600,000 gallons of sealant, or about 1 gallon per person, are applied annually in the Austin area alone.

"America is doing the worst possible thing by putting down a material with extremely high PAH levels on the surface, where it flakes off and wears down," says Craig Depree, an environmental chemist at the National Institute of Water and Atmospheric Research (New Zealand). Depree has matched the chemical fingerprint of PAHs in New Zealand streams to coal tar in older roads repaved with asphalt.

"There's no regulation of how much [coal-tar sealant] is used or the PAH content of sealants," adds Tom Ennis, environmental resource manager for Austin's Watershed Protection and Development Review Department. Ennis's research group recommended the Austin ban after finding biological effects such as altered growth, survival, and development in amphibians exposed to sediment containing coal-tar sealant.

PAHs are not the only pollutants that wash off pavement. "The dominant hydrology of urban areas is storm water," says Allison Watts of the University of New Hampshire (UNH) Stormwater Center. Storm water sends large pulses of runoff, loaded with various contaminants, into streams. The research center is now continuously monitoring runoff water quality from three parking lots—unsealed as well as coal-tar- and asphalt-sealed.

Van Metre, Watts, and environmental scientist Mateo Scoggins of Austin's watershed department have briefed the U.S. EPA and lawmakers on their results. The EPA's maximum soil screening level for one PAH, benzo[a]pyrene, is 0.09 mg/kg, 5300 times lower than the level in dust from coal-tar-sealed driveways sampled in suburban Chicago. However, EPA's stormwater program, which could help control non-point-source pollution from parking lots, was recently criticized as ineffective in a report by the National Research Council. Because the sealants are used on some playgrounds and driveways, Van Metre says, the human-health effects of coal-tar dust should be studied further.

—ERIKA ENGELHAUPT

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END NOTE 3

September 29, 2005

Ms. Gail Ottolino, Manager
St. Louis County Planning Department
St. Louis County Government Center
41 South Central Avenue
Clayton, MO 63105

Dear Ms. Ottolino:

At Monday evening's Planning Commission hearing on asphalt waste (PC 83-05), Mr. Morgan asked several witnesses if they had any studies or documentation on the health hazards associated with asphalt production or RAP. I just can't imagine how all of the representatives of the asphalt industry could have forgotten that under the Hazard Communication Standard (HCS), 29 CFR 1910.1200, mandates that "the hazards of all chemicals produced or used in the workplace are evaluated and that the information is transmitted to employers and employees." In other words, OSHA requires them to keep Material Safety Data Sheets on file for all chemical products that they produce, store, use or distribute. I have included three fairly recent examples of MSDSs for recycled asphalt product and limestone-based asphalt with the latest health and safety information on those products for your staff to review.

Mr. Morgan also asked me if I would provide the staff with any reports that I may have on the health risks associated with asphalt production. On the enclosed CD I have provided twenty-nine (29) different reports, fact sheets, regulations and articles with more than 870 pages of health and environmental research, findings, recommendations and warnings from various agencies and industry representatives on the hazards related to asphalt, asphalt waste, hydrogen sulfide (H_2S), particulate matter and polycyclic aromatic hydrocarbons (PAHs) – three very common by-products of asphalt production. These reports come from a variety of independent agencies like the U.S. Department of Health and Human Services, the U.S. Environmental Protection Agency, the CDC's Agency for Toxic Substances and Disease Registry, the National Institute for Occupational Health and Safety, the National Park Service, the New Jersey Department of Health and Senior Services, Environment Canada, the Missouri Department of Natural Resources, the University of Missouri, the University of North Carolina, the Virginia Department of Health and the Martin Marietta Corporation.

I have included hard copies of excerpts from some of these reports to highlight the environmental and health hazards posed by RAP and asphalt processing. As one example, the APAC MSDS on **recycled asphalt pavement** states***: "Removal of hardened asphalt concrete, or other types of asphalt recycling asphalt work can produce dust. Dust may irritate nose, throat, and airways, and may cause coughing, sneezing, and shortness of breath. Prolonged or repeated breathing of quartz-contained dust may result in progressive and permanent lung disease (silicosis) which may cause death from respiratory and/or heart failure."*** It also states that "The International Agency for Research on Cancer (IARC) and the National Toxicology Program have determined that ***there is sufficient evidence in humans for the carcinogenicity*** of inhaled crystalline silica in the form of quartz or cristobalite."

The MSDS goes on to state that "There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as ***scleroderma (an immune system disorder manifested by fibrosis of the lungs,***

skin and other internal organs) and kidney disease. Hot asphalt may release hydrogen sulfide gas and other irritating vapors. Breathing hydrogen sulfide gas may cause nervousness, excitement, dizziness, drowsiness, headache, difficulty walking, and fluid buildup in the lung tissue."

As to Jim Bell's opinion that RAP is clean fill, the MSDS states under Hazardous Decomposition that RAP ***"May form carbon dioxide and carbon monoxide, amines, ammonia, nitrogen dioxide, hydrogen sulfide, ozone, various hydrocarbons***. Hazardous vapors may collect in areas that are not properly ventilated." I believe the data in this MSDS which was prepared in November 2001 is much more current and complete than the 1977 data Mr. Bell referred to or the "guppy test" allegedly done by MoDOT.

The "guppy test" was offered as evidence to imply how safe asphalt millings are to wildlife. In 1997, the National Park Service reviewed existing studies on the environmental impacts of asphalt and whether asphalt leachate is a problem. Among the findings in that report: ***"There is some evidence of mutagenic effects and DNA damage in animals due to asphalt exposure [609]."*** "Chemical and physical insults as diverse as cattle urine and molten lava have been known to breakdown asphalt roadways. Greases can soften asphalt, while xylene and toluene can diffuse through it [478]." ***"Road dust and other erosion fractions originating from slowly wearing-away asphalt roadways are considered one potential source of PAHs in the sediments of urban rivers and bays, although the amount of PAHs coming from this source versus other sources would be difficult to assess. Asphalt wear products were suggested to be responsible for some of the petroleum in urban runoff as well as for some of the PAHs found in the sediments of some urban lakes [750]."*** This would tend to address Mr. Powers questions regarding asphalt run-off and possible contamination of the air and water from piles of asphalt.

The report went on to say that "In spite of such potential complications, various formulations of asphalt and binders have been used to cover or encapsulate hazardous waste. ***Under certain conditions, solvents and road salts can accelerate breakdown of asphalt***." To be fair, the National Park Service Report did say that more testing should be conducted, and recommends that protocols and procedures for testing and predicting stabilization and solidification should be developed.

I also wish to add a little clarity to the information provided by Mr. Bell regarding the Missouri Department of Natural Resources' classification of RAP. Even if the department may consider asphalt "clean fill" they do not permit its use in flood prone areas. **No one** applying for an NWP, better known as a 404 Permit, may use asphalt millings in flood-prone areas. It is specifically excluded. They also require the asphalt material to be free from debris before it is classified as "clean fill". ***"Section 404(a) of the Clean Water Act, requires you to get a Federal 404 Permit from the U.S. Army Corps of Engineers (Corps) before excavating in or putting materials or fill into jurisdictional waters of the United States. Missouri requires a 401 Certification for any project that needs a Federal 404 permit."*** (From the **MDNR Preventing Pollution at Hot Mix Asphalt Plants**). That same DNR guide states: "The most common air pollutants from hot mix asphalt plants are particulate matter with a diameter of no more than 10 microns (PM10), sulfur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds (VOCs), carbon monoxide (CO) and hazardous air pollutants (HAPs). ***To protect public health and the environment, all asphalt plants are required to take steps to protect air quality***." Just because a product is legal does not automatically make it safe for our environment or our public health.

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On a related issue, the location of this material is also constricted by FEMA regulations, the County Flood Damage Prevention Ordinances and the Meramec Greenway Plan passed by the Planning Commission and the County Council.

While recycling asphalt is a laudable effort, after reading the most ***up-to-date*** information, it is clear to me that there are significant risks involved with asphalt production and storage that require that strict limitations be placed on where this material is stored and processed. In no way should the county endorse placing asphalt facilities and storage in residential neighborhoods or environmentally sensitive areas. The symptoms and health problems associated with chronic exposure to asphalt fumes and dust documented by medical research precisely describe the type of health problems reported in the health survey conducted last fall by Metropolitan Congregations United. I have included another copy of the MCU survey for your convenience.

I hope the information I have provided will be of some use to you and the Planning Commission as you evaluate Mr. Mange's proposal. As we said during the hearing, we believe that the county already has sufficient regulatory authority within the exiting ordinances to grant those operators who wish to process and store RAP the right to do so – so long as they comply with all other county, state and federal regulations that apply to their operations. In light of all the independent research, it would be unwise to loosen restrictions within the County Zoning Ordinances which are designed to protect the health, safety and property of ALL St. Louis County residents.

Should you have any questions, please don't hesitate to call.

Sincerely,

Tom Diehl

Thomas J. Diehl

enclosures

cc Mr. Charlie Dooley
Mr. Jim Baker
Mr. John Campisi
Ms. Janet Williams
Ms. Janet McNichols, St. Louis Post-Dispatch
Ms. Laura Uhlmansiek, Call Newspapers

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END NOTE 5

New Jersey EPA
http://www.state.nj.us/dep/dshw/rrtp/asphalt.htm

Asphalt Millings Guidance Document Revision Date: 05/15/02

A. **ASPHALT MILLINGS GENERAL INFORMATION**

This guidance document outlines the New Jersey Department of Environmental Protection's (DEP or Department) guidance for use of asphalt millings (bituminous concrete). The guidance document is intended only as a guide to help the reader understand the need for controlled use of asphalt millings in some forms of use and does not replace any regulations in any context. Asphalt millings may be: recycled pursuant to existing regulations at N.J.A.C. 7:26A-1.4(a)1 for recycling directly into new asphalt without Department approval; reused directly for road construction in some situations without Department approval; and, used for beneficial uses pursuant to N.J.A.C. 7:26-1.7(g) with site specific Department approval as discussed below.

B. **ASPHALT MILLINGS DEFINITION**

The definition most commonly used for asphalt millings is the fine particles (generally from dust to less than an inch or so) of bitumen and inorganic material that are produced by the mechanical grinding of bituminous concrete surfaces.

C. **WHAT ARE ASPHALT MILLINGS?**

Asphalt millings contain approximately five to seven percent asphalt, which is used as a binder for the quarry materials (stone, rock, sand, silt) that make up the load-bearing portion of a bituminous concrete surface. The asphalt millings are produced by grinding a bituminous

concrete-paved surface which results in the generation of fine particles of bitumen and inorganic material that made up the road surface.

D. **SOURCES AND QUANTITIES OF ASPHALT MILLINGS**

Sources of asphalt millings include highway departments and local contractors hired to conduct road improvements. Quantities of asphalt millings from a particular operation can vary greatly from a few tons to hundreds of thousands of tons and quality will vary dependant on the original asphalt character, age, weather and other site-specific conditions.

E. **ENVIRONMENTAL AND PUBLIC HAZARDS**

The bitumen binder used in asphalt paving applications contains a relatively large concentration of a family of organic compounds which can have the potential to pose human health and environmental concerns in certain circumstances especially when asphalt material is ground into very small particles that easily blow off of or wash from the surface. These compounds, known as polycyclic aromatic hydrocarbons (PAHs) are specified as targeted pollutants by the U.S. Environmental Protection Agency (USEPA), and are present in asphalt at much higher levels than the criteria established by DEP guidance for general use in a loose fashion on land. Asphalt millings used alone without a paved top surface have the potential to significantly migrate from the roadway through the actions of water, wind, and physical displacement and possibly contaminate surrounding soils and/or surface water sediments. Traffic traveling on the unpaved asphalt millings would generate dust containing the compounds referenced above and the dust would be a major migration route of the asphalt millings to the surrounding environment.

F. **BENEFICIAL USE OF ASPHALT MILLINGS**

Several uses of asphalt millings are fully

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appropriate in accordance with regulations for recycling and beneficial use and, therefore, asphalt millings may be used as follows below. The use of loose unbound asphalt millings on land and roadway surfaces without the placement of a paved top surface is not generally appropriate, and asphalt millings are not considered clean fill. In order to prevent sediment contamination, asphalt millings should not be used where runoff to surface water features would be possible. Asphalt millings may be used, provided the appropriate conditions are followed.

1. Asphalt millings may be taken directly to and used by road asphalt manufacturing plants for direct incorporation into asphalt (bituminous concrete), pursuant to the recycling exemption for such use at N.J.A.C. 7:26A-1.4(a)1.

2. Asphalt millings may be used as sub-base material if:

•The asphalt millings are placed directly beneath, and fully contained by, a paved road surface of either bituminous asphalt or Portland cement concrete.

•The use of asphalt millings follows the New Jersey Department of Transportation (DOT) requirements mentioned below and other site-specific criteria as determined and approved by the DEP for use of asphalt

•The use of the asphalt millings follows the DOT 1996 Standard Specification for Road and Bridge Construction Subsection 202.12 concerning roadway sub-base construction and depth requirements for roadway embankments, which is prudent guidance for appropriate use of asphalt millings that were not recycled back into asphalt. Subsection 202.12 specifies using excavated bituminous concrete, in the lower portion of Zone 3 embankments and not placed within 600 millimeters of the final sub-grade or less than one meter above the highest seasonal high groundwater table. Such use should adequately prevent the asphalt millings from

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entering the surface water and groundwater features in most instances. in road construction.

This use would be considered direct recycling pursuant to N.J.A.C. 7:26-1.1(a)1 and would not require authorization as a Beneficial Use Project from the Department pursuant to N.J.A.C. 7:26-1.7(g) if performed to construct or repair a needed vehicle surface that meets DOT and/or local construction requirements.

3. Asphalt millings may be used as surfacing materials if an appropriate binder is applied to keep the asphalt millings in place. Liquid asphalt (tack) may be used to bind the asphalt millings in surficial applications. This may be less expensive than applying finished asphalt or concrete to meet the sub-base requirements described above and meets the need to fully contain and bind the particles to prevent wind and water erosion.

This use would be considered direct recycling pursuant to N.J.A.C. 7:26-1.1(a)1 and would not require authorization as a Beneficial Use Project from the Department pursuant to N.J.A.C. 7:26-1.7(g) if performed to construct or repair a needed vehicle surface that meets DOT and/or local construction requirements.

http://water.usgs.gov/nawqa/asphalt_sealers.html

http://water.usgs.gov/nawqa/asphalt_sealers.html

http://www.atsdr.cdc.gov/toxprofiles/phs69.html

END NOTE 5

http://pubs.usgs.gov/ds/361/#

Collection and Analysis of Samples for Polycyclic Aromatic Hydrocarbons in Dust and Other Solids Related to Sealed and Unsealed Pavement From 10 Cities Across the United States, 2005–07

By Peter C. Van Metre, Barbara J. Mahler, Jennifer T. Wilson, and Teresa L. Burbank

Abstract

Parking lots and driveways are dominant features of the modern urban landscape, and in the United States, sealcoat is widely used on these surfaces. One of the most widely used types of sealcoat contains refined coal tar; coal-tar-based sealcoat products have a mean polycyclic aromatic hydrocarbon (PAH) concentration of about 5 percent. A previous study reported that parking lots in Austin, Texas, treated with coal-tar sealcoat were a major source of PAH compounds in streams. This report presents methods for and data from the analysis of concentrations of PAH compounds in dust from sealed and unsealed pavement from nine U.S. cities, and concentrations of PAH compounds in other related solid materials (sealcoat surface scrapings, nearby street dust, and nearby soil) from three of those same cities and a 10th city. Dust samples were collected by sweeping dust from areas of several square meters with a soft nylon brush into a dustpan. Some samples were from individual lots or driveways, and some samples consisted of approximately equal amounts of material from three lots. Samples were sieved to remove coarse sand and gravel and analyzed by gas chromatography/mass spectrometry. Concentrations of PAHs vary greatly among samples with total PAH (ΣPAH), the sum of 12 unsubstituted parent PAHs, ranging from nondetection for all 12 PAHs (several samples from Portland, Oregon, and Seattle, Washington; ΣPAH of less than 36,000 micrograms per kilogram) to 19,000,000 micrograms per kilogram for a sealcoat scraping sample (Milwaukee, Wisconsin). The largest PAH concentrations in dust are from a driveway sample from suburban Chicago, Illinois (ΣPAH of 9,600,000 micrograms per kilogram).

Recent engineering briefs within the FHWA and the FAA, discuss the toxic and hazardous particulate matter released into the atmosphere when a coal tar coated pavement is recycled. As a result, many engineers have begun banning the recycling of asphalt pavements that have been coated with coal tar. This change in stance and rating of coal tar may require owners to remove coal tar coated pavements completely and dispose of it as "hazardous waste".

http://www.epa.gov/RegSuper/ecology/html/toxprofiles.html#pahs

EPA site

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

PAHs are highly potent carcinogens that can produce tumors in some organisms at even single doses; but other non-cancer-causing effects are not well understood (Eisler 1987b). Their effects are wide-ranging within an organism and have been found in many types of organisms, including non-human mammals, birds, invertebrates, plants, amphibians, fish, and humans. However, their effects are varied and so generalizations cannot be readily made. It has been shown that the fungus Cunninghamella elegans can inhibit the mutation-causing properties of various PAHs, including: benzo(a)pyrene and benzo(a)anthracene. Effects on benthic invertebrates include inhibited reproduction, delayed emergence, sediment avoidance, and mortality. Fish exposed to PAH contamination have exhibited fin erosion, liver abnormalities, cataracts, and immune system impairments leading to increased susceptibility to disease (Fabacher et al. 1991; Weeks and Warinner 1984; 1986; O'Conner and Huggett 1988).

Mammals can absorb PAHs by inhalation, dermal contact, or (more poorly) ingestion (Eisler 1987b). Plants can absorb PAHs from soils through their roots, and translocated them to other plant parts such as developing shoots. Uptake rates are generally governed by PAH concentration, PAH water solubility, soil type, and PAH physicochemical state (vapor or particulate). Lower molecular weight PAHs are absorbed more readily than higher molecular weight PAHs. PAH-induced phytotoxic effects are rare, however the database on this is limited. Some higher plants can catabolize PAHs, but this metabolic pathway is not well defined. Certain plants contain substances that can protect against PAH effects, inactivating their cancer-causing and mutation-causing potential. Additionally, PAHs synthesized by plants may act as growth hormones.

In aquatic systems, PAHs tend towards increased toxicity with increased molecular weight (Eisler 1987b). In addition, although the rate of uptake from the environment is variable among species, bioaccumulation tends to be rapid.

Adsorption of PAHs in soil is directly proportional to soil organic matter (OM) content and the Kow of the PAH (greater in high molecular weight (HMW) PAHs than in low molecular weight (LMW) PAHs, and is inversely proportional to soil particle size (roughly 2 orders of magnitude greater on silts and clays as compared with

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sands). LMW PAHs have higher volatilization rates and are more readily leached as compared with HMW PAHs. Both LMW and HMW PAHs are microbially degraded, but the rates are higher for the former probably because of weaker adsorption and greater bioavailability. Examples of soil half-lives are approximately 100-200 and 300-500 days for LMW and HMW PAHs, respectively; however, they will be longer in hazardous waste sites toxic to bacteria. Plants absorb PAHs from soil, especially LMW PAHs, and readily translocate them to above-ground tissues. The concentrations in plants are substantially lower than in soil, and they are poorly correlated because of deposition and absorption of atmospheric PAHs. Eating of leaves (foliar herbivory) does not appear to be a significant route of exposure to soil PAHs. Bioaccumulation has been shown in terrestrial invertebrates and voles, earthworm levels were 30-60 times greater than soil concentrations (Gile et al. 1982), but PAH metabolism is sufficient to prevent biomagnification. The oral toxicity of PAHs ranges from very to moderately toxic (50 to 1000s mg/kg bw) in rats. Many PAHs are cancer-causing, producing tumors in epithelial tissues in "practically all animal species tested" (Eisler 1987b). Other effects in terrestrial organisms are not well known, but may include adverse effects on reproduction, development, and immunity (ATSDR 1993c).

DIOXINS

The most toxic of the chlorinated dioxin isomers is 2,3,7,8-TCDD (Eisler 1986c). It has been associated with lethal, cancer-causing, teratogenic, reproductive, mutation-causing, tissue damaging, and immunotoxic effects. In fish, the following effects were observed: reduced growth, fin necrosis, death, declining interest in feeding (5-8 days postexposure), skin discoloration, reduced resistance to fungal infestations, reduced swimming, teratogenesis, tissue damage, degeneration and necrosis of the liver in fry, and opercular defects in fry. In general, older and larger fish die last; and smaller or younger specimens succumb first. Bioaccumulation does occur in fish. Among fish, body burdens of 2,3,7,8-TCDD increased with increasing concentration in the water column and with increasing duration of exposure; on removal to uncontaminated water, less than 50% was lost in 109 days.

Invertebrates, plants, and amphibians were comparatively resistant to 2,3,7,8-TCDD.

Birds exhibited the following effects from dioxins (Eisler 1986c): death, enlarged livers, severe emaciation, high accumulations of uric acid salts in connective tissues, and fluid accumulations in the pericardial and abdominal cavities, excessive drinking, loss of appetite, hypoactivity, emaciation, weakness, debility, muscular incoordination, increased reaction to stimuli, fluffed feathers, huddled position, unkempt appearance, falling, tremors, spasms, convulsions, necrosis, fatty degeneration, and immobility. Birds may bioaccumulate from fish prey, but dioxins do not appear to biomagnify.

In mammals, poisoning by 2,3,7,8-TCDD is typically characterized by loss of body weight and delayed lethality; large interspecies differences exist in lethal dosages and toxic effects (Eisler 1986c). For example, 2,3,7,8-TCDD produces prominent chloracne-type skin lesions in humans and monkeys, and severe liver damage in rats, mice, and rabbits. Other effects include tissue damage, atrophy of the thymus, edema,

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hemorrhagic tracheitis, pleural hemorrhage, and dystrophic lesions of the liver, skin hyperkeratosis, gastric ulcers, and lung and kidney lesions, teratogenesis, carcinogenesis (in the liver, pharnyx, lungs, skin, and thyroid), and fetotoxicity. Suppression of thymus-dependent cellular immunity, particularly in young animals, may contribute to their death. Developing mammalian fetuses are especially sensitive to 2,3,7,8-TCDD, and maternal exposure results in increased frequencies of stillbirths. Among live births, exposure to 2,3,7,8-TCDD produces teratogenic effects such as cystic kidney, cleft palate, and spinal column deformities; dioxin poisoning also produces decreased litter size at birth, increased number of stillborns, and reduced survival and growth of young in both the Fl and F2 generations (first and second generations of offspring--e.g., children and grandchildren of animals exposed to a chemical). Higher dose level in monkeys for extended periods (i.e., 500 ppt in diets equivalent to about 0.011 ug/kg body weight daily for 9 months) caused death (63%) or, among survivors, abortion, chloracne, nail loss, scaly and dry skin, and progressive weakness. Most treated monkeys remained fairly alert to external stimuli until just prior to death. On removal from the 500 ppt 2,3,7,8-TCDD diet and transfer to an uncontaminated diet, a severely affected monkey became pregnant and gave birth to a well-developed infant after an uneventful gestation. This suggests that some 2,3,7,8-TCDD damaging effects are not permanent.

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