Date: 18 July 2016
Subject: Testimony for CB46-2016 (ZRA-159) Fueling Stations

My name is Stu Kohn and I reside at 8709 Yellow Bird Court, Laurel Md. 20723. I am the President of the Howard County Citizens Association (HCCA). We unequivocally commend the Fueling Station Task Force who spent their valuable time during a 5-month period to evaluate and make recommendations for the improvement for the environmental health and safety regarding the effect of Fueling Stations in our County. The Council should be applauded for their insight by establishing this Task Force because of the magnitude of such a compelling situation. After reading this proposed Bill we conclude it has a lot of merit and should be unanimously passed by the County Council. HCCA would like to take this time to make some recommended revisions for your consideration.

- Page 1 – We would like to see an expansion of the definition of "Motor Vehicle Fueling Station" to include a maximum of 8-gas dispensers which is equivalent to 16-gas pumps.
- Refer to Page 3, Line 28 – Not sure why it states "a minimum of one acre of land or a minimum of three acres of land."
- Refer to Page 6, Line 8 – suggest you consider adding "hospital" as it states Fuel Dispensers shall be located at least 300 feet from any school, park, day care, or assisted living facility.
- Refer to Page 6, Line 14 – please change the number 100 to 300 feet as 100 feet is equivalent to only one-third of a football field.
- Refer to Page 6, Line 25 – change the word, "may" to "shall" for more forcefulness.
- Refer to Page 6, Line 35 – change the word "may" to "shall" for more forcefulness.
- Refer to Page 7, Line 13 – what is the definition of "minor?"
- Refer to Page 7, Line 18-23 – who inspects this and does the County have enough personnel to see the requirements are fully executed by the responsible party?

In conclusion, CB-46 is by far a step in the right direction to ensure the future of our health and safety concerning Fuel Stations will be much better off by you passing this Bill.

Thank You,

Stu Kohn
President, HCCA

CB – 46 Fuel Station Zoning Regulations
July 18, 2016

Good evening. My name is Rick Levitan and my address is 7248 Cradlerock Way, Columbia, MD. I am here tonight to speak in strong support of Bill No. 46-2016 (ZRA 159) which if adopted will provide a much needed revision/update to the County's current zoning requirements for fueling stations. There have been significant changes in the fueling station industry that directly impact the health, safety and economic viability of the communities you serve. Howard County's current zoning regulations for fueling stations do not reflect the realities of the marketplace. Failure to update requirements to address the industry issues identified by the Fueling Station Task Force – environmental, health, safety and blighting impacts – will ultimately undermine the economic and environmental vibrancy of the County's communities, specifically the village centers where blighting is already a pressing concern that has been impacted by the currently outdated regulatory requirements for fueling stations.

First, as a point of reference, I'd like to provide you with a brief outline of my experience. I have been in the Retail Petroleum Industry for over 31 years. First, as an executive with Mobil Oil Corporation, and then for the past 16 years as a small business owner here in Howard County. In my roles with Mobil, I was responsible for real estate activities all over the US, as well as overseas, and have extensive experience in developing and permitting locations and working with local municipalities, including planned communities in Virginia, Florida, Arizona and California. As a small business owner, I have permitted several projects in Howard County in the last 16 years.

As you know, I have been involved with this issue since 2013 when the original ZRA ultimately resulted in the creation of the Fueling Station Task Force. Thanks to the leadership of Councilman Ball and the unanimous support of the balance of the Council, the Task Force was created in recognition of the need for a more thorough and fully vetted assessment of the critical and complex nature of the issues involved to ensure that recommended changes, if adopted, would provide the County with a framework for fueling station siting that reflects current best practices and that would allow for appropriate new development without jeopardizing the environment or health and well-being of County residents. The Task Force composition reflected diverse stakeholder interests that committed to thoroughly evaluating the issues relevant to their charge.

The Task Force recommendations were consensus recommendations adopted after considerable deliberation and are reflective of their exhaustive consideration of changes in the fueling industry; current health and environmental issues related to fueling station development; economic issues that contribute to blighting; as well as recently adopted zoning changes in communities similar to Howard County. There has been extensive community support for adoption of the Fueling Station Taskforce recommendations as evidenced by the 19 community organization letters and editorials submitted to the Administration and County Council following the release of the final Task Force report.

The legislation before you today reflects a combination of Task Force recommendations as issued in their report and recommendations which have been amended based on input, evaluation and deliberation by the Department of Planning and Zoning, the Planning Board and other stakeholders who were concerned that some of the original recommendations had the potential to reduce competition or would result in other unintended consequences. While I personally believe the original recommendations were based on sound evidence and current industry dynamics, I also strongly believe that the legislation before you reflects an excellent compromise and a substantial enhancement and modernization of the County's requirements for fuel station development that will provide critical environmental, health and blighting protections for the County and its citizens without unduly impacting appropriate new development.

I strongly urge the adoption of this legislation. Bill No. 46-2016 (ZRA 159) reflects the Council's leadership in addressing, through a dynamic stakeholder process, the identification of necessary reforms of the current zoning requirements that reflect the changes in the fueling station industry. Adoption of the legislation is a testament to the Council's ability to resolve challenging issues through consensus, a rare occurrence in the current political environment.

I would personally like to thank Chairperson Dr. Calvin Ball for his leadership in advancing this issue as well as the Council for its continuing support and engagement. Thank you for the opportunity to speak in support of this legislation.

Letter to the Howard County Council

7/18/2016

Good Evening.

My name is Dick King; I reside at 5141 Harpers Farm Road, Columbia, MD.

My background includes working in the petroleum industry for 50 years-- 30 as a Real Estate Manager for the Shell Oil Company headquartered in Houston, Texas and --- since my retirement from Shell in 1995, I serve as president of my company as a commercial real estate Broker & Appraiser, specializing in gasoline Retailing.

I have had the honor of serving as the Chair of the Fuel Station Task Force which was created under th leadership of Chairman Ball whose foresight to recognize that tremendous changes have evolved in the retail petroleum industry. These include the increased demand for alternative fuels which necessitated a revision of the current standards and requirements for fueling stations.

As you know, the Task Force composition reflected a broad spectrum including the business community, the environmental community, the local village boards and the petroleum industry.--- we met over a six month period and worked diligently to achieve the objectives reflected in the Council's initial resolution.

In doing so we:

1. Studied the existing regulations from Counties across Maryland, and even other states;

2. Listened to experts from various Maryland State Agencies and environmental organizations;

3. Considered testimony from opposing stakeholder viewpoints;

4. Held a public hearing.

Our conclusions resulted in the Task Force Report delivered in December, 2014. The report presented our recommendations which addressed issues relative to fuel station siting such as: environmental, health, safety and blighting impacts that affect all citizens and areas within the County.---- Many of these recommendations are reflected in Bill No.46-2016 (today, ZRA-159).

Since the issuance of the Task Force Report, some of the Recommendations, as originally reflected in ZRA-159, have been modified following further consideration and deliberation by the Department of Planning & Zoning, the Planning Board and stakeholder discussion.

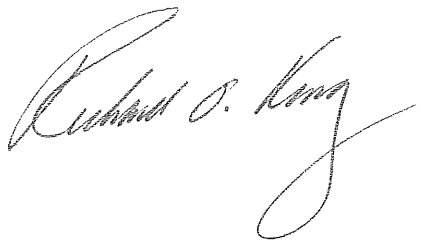
The end product of those further discussions is reflected in the language of the legislation before you today.--- I strongly support this legislation as introduced.

The revisions to the original Task Force recommendations reflect a carefully constructed balance of issues that advance the objections of the original Task Force. These do recognize the concerns of the interested stakeholders who were legitimately concerned about the potential unintended consequences of the recommendation in their original posture. The amended changes to the original recommendations do not undermine the critical environmental, health and blighting protections for the County. These will be achieved through passage of this legislation.

Passage of this legislation, as introduced, will reflect the Council's leadership in addressing, through a collaborative process, changes in the fueling station industry that necessitate reform of the current zoning requirements. Bill N. 46-2016 (ZRA-159) will enhance the protection of the Counties natural resources as well as the health and well being of its citizens without unduly impacting appropriate new development. I strongly urge the adoption of this legislation, as introduced.

I would like to thank Chairperson Dr. Calvin Ball for his leadership in advancing this issue and the Council for its continuing support. I appreciate and am honored to have had the opportunity to serve as Task Force Chair.

Thank you for this opportunity to speak in support of this legislation.



My name is Rizwan A. Siddiqi and I reside at 5410 Josie Court, Ellicott City, MD 21043. I am a former member of the Howard County Environmental Sustainability Board (ESB) and had the honor of serving on the Fueling Station Task Force. Based on my background as an Environmental Engineer and my interest and experience in environmental policy, one of my key duties as a member of the Task Force was to study the environmental impacts of gas stations.

As you have heard previously, the Task Force Report contained a number of recommendations, many of which arc reflected without amendment in Bill No. 46-20 16 (ZRA -159) that is before you. While legislation also reflects modifications made to some of the Task Force recommendations, it is my opinion that those amendments reflect a deliberative effort over the last several months to address the issues of importance to both those who supported the Task Force Recommendations and those who had concerns about unintended consequences. The result of those considerations, and the resulting amendments to some of the Task Force recommendations, do not diminish the important impact the passage of this legislation will have on Howard County.

I am in full support of this legislation as introduced. It reflect s a collaborative effort to address changes in the fueling Station industry that necessitate reform of the current zoning requirements in a manner that is balanced and supported by solid evidence. The legislation will enhance the protection of the County's natural resources as well as the health and well-being of its citizens.

I would like to thank Chairperson Dr. Calvin Ball for sponsoring the original legislation that created the Task Force and for the Council's unanimous support of that effort. The Task Force deliberations and the ensuing recommendations and community discussion have resulted in a regulatory framework that balances the interests or the various stakeholders while achieving the original objectives that led to the creation of the Task Force.

I would also like to thank our Task Force Chairman, Mr. Richard King for his leadership and all of my fellow Task Force members for their participation. It is rare when consensus can be reached when the issues under consideration are complex and potentially controversial. Mr. King's leadership along with the process undertaken to come to the ultimate regulatory structure proposed in the legislation before you today should be applauded and the legislation adopted as introduced.

Thank you for this opportunity to present in support of this legislation, for the opportunity to serve on the Task Force and for your continued leadership on this important issue.

Sincerely,

Rizwan A. Siddiqi, PE
Ranking Member
Fueling Station Task Force
July 18, 2016

Howard County Council Public Hearing
Testimony- CB46-2016
July 18, 2016
6:00 pm

Meagan Braganca
Howard County Fueling Task Force Member

As a member of the Howard County Fueling Task Force who worked on the environmental setback deliverable, I am here to tell you that the proposed 100-foot setback between future gasoline or fueling stations and streams, rivers and floodplains is not enough.

As the state of California's compilation study finds in their technical justification paper outlining the science and reasoning for certain setback distances, a 500-foot setback is a minimum setback marker to avoid ground contamination from underground storage tank spillage to ANY undesired destination. The compilation focused of concentrations of indicator constituents, or compounds, measuring the attained distance of spillage plumes from site of origin. They quantified 3 difference constituents: Benzene, MTBE and TPHg. What they found was that "*a total separation distance from the source area to the receptor of about 500 feet should be protective for 90% of plumes from UST sites, and a total separation distance from the source area to the receptor of about 1,000 feet should be protective for virtually all plumes from UST sites.*"
In other words, if an underground storage tank were to leak, and our setback is 500 feet, 90% of the time, we should be good, while if our setback was 1,000 feet, virtually 100% of the time, that contamination will not reach the receptor area we do not want it to reach.

I'm not saying that we need to have a thousand-foot setback at the juncture. But what I'm suggesting is that we should get as close to a 500-foot setback as possible (which was the task force's original recommendation).

The risk of underground storage tank leakage in not the only concern here and should not be the only risk considered. Johns Hopkins researchers have conservatively estimated that 40 gallons of gasoline spills at any given station per year from day-to-day fill-ups. That spilled gasoline does not evaporate, but rather permeates through the concrete, with a large percentage making its way to the ground underneath the concrete pad, providing a constant infiltration of gasoline compounds.

And finally, some of these future stations may have vehicle repair facilities on-site. An increasing number of municipalities around the country have come to categorize these facilities as "stormwater hotspots" because of the type of and amount of toxic compounds that can wash away from their pavement surfaces.

Again, a setback that allows a safe buffer area is strongly recommended, and 500 feet should be a targeted goal.

MDE Reporting Period October 2012 - Sept. 2013

Total # of USTs: 7,954

Number of Confirmed Releases: 174

71% compliance

Technical Justification for Groundwater Plume Lengths, Indicator Constituents, Concentrations, and Buffer Distances (Separation Distances) to Receptors

The purpose of this document is to provide technical justification for the four classes of low-threat groundwater plumes that are described in the Groundwater section of the Low-Threat UST Closure Policy (the Policy). The fifth plume class is a site-specific evaluation.

The Policy Stakeholder Group chose benzene, MTBE, and TPHg as adequate indicator constituents for the groundwater *plume lengths* discussed in the Policy. The technical justification for using these three constituents, discussed in more detail below, relies heavily on the facts that (1) benzene has the highest toxicity of the soluble petroleum constituents, (2) MTBE typically has the longest plume lengths, and (3) TPHg represents the additional dissolved hydrocarbons that may be present resulting from a typical petroleum release. Although TPHd is not used to describe plume lengths (largely because the hydrocarbons in the TPHd carbon range are of low solubility), other technical considerations associated with the use of TPHd data are discussed below.

Benzene and MTBE are used in research studies as key indicator constituents for the threat (human health risk and nuisance) posed by groundwater plumes from petroleum releases because (1) benzene has the highest toxicity of the soluble petroleum constituents, and (2) MTBE typically has the longest plume lengths and has a low secondary MCL (taste and odor threshold of 5 micrograms/liter [ug/l]).

Several significant multi-site studies of groundwater plume lengths from petroleum release sites have been conducted across the U.S. since the mid-1990s. These studies included sites where remediation had been performed and sites where no active remediation had been performed. Most of these studies focused on benzene plumes (e.g., Rice, et al. 1995; Rice et al. 1997; Busheck et al. 1996; Mace, et al. 1997; Groundwater Services, Inc. 1997; API 1998); three studied benzene and oxygenate plumes (including MTBE) (Dahlen et al. 2004; Shih et al. 2004; Kamath et al. in press). Most of these plume studies are further discussed in detail in the Fate and Transport chapter of the California LUFT Manual.

In summary for all of these multi-site studies, the average benzene plume length was less than 200 feet and 90% of the benzene plumes were less than 400 feet long. The peer-reviewed study by Shih et al. (2004) of plume lengths at 500 UST sites in the Los Angeles area is widely relied upon as representative of current knowledge of plume lengths at UST sites in California. Results for benzene, MTBE and TPHg from Shih et al. (2004) are as follows:

Constituent (and plume limit concentration)	Average Plume Length (feet)	90th Percentile Plume Length (feet)	Maximum Plume Length (feet)
Benzene (5 ug/l)	198	350	554
MTBE (5 ug/l)	317	545	1,046
TPHg (100 ug/l)	248	413	855

Data are from Shih et al. (2004). Plume lengths were measured from the source area.

Although the California MCL for benzene is 1 ug/l, Shih et al. (2004) used a plume limit concentration of 5 ug/l because of statistical uncertainty with concentrations too close to the laboratory reporting limit. The benzene plume lengths at a 1 ug/l concentration limit would be expected to be slightly longer than those shown here.

Ruiz-Aguilar et al. (2003) studied UST sites in the Midwest with releases of ethanol-amended gasoline (10% ethanol by volume) and found that benzene plume lengths may increase by 40% to 70% due to the addition of ethanol in gasoline (replacing MTBE). Ethanol is preferentially biodegraded over the benzene, which results in a longer benzene plume. However, the Policy addresses this potential for expansion of the plume lengths by adding safety factors of 100% to 400%.

It is well documented that, due to effective solubility, the hydrocarbons that will dissolve at measurable amounts into groundwater from a petroleum fuel release (including gasoline, kerosene, jet fuel, diesel or heavier fuels) are limited to primarily the very small aliphatics (less than C7) and the C14 or smaller aromatics (e.g., Shiu et al. 1990; Coleman et al. 1984). The C15 and larger hydrocarbons have very low effective solubilities and are not found in the dissolved phase of a petroleum fuel release. The carbon range of the potential dissolved hydrocarbons (less than or equal to C14) is largely covered by the TPHg carbon range (approximately C5 to C12). Therefore, TPHg should be sufficient to represent the dissolved hydrocarbons that may be present in addition to benzene and MTBE from virtually any type of product release. TPHd was not included as an indicator constituent for groundwater plume length because the vast majority of the TPHd carbon range (approximately C12 to C22) is higher than the carbon range for the possible dissolved hydrocarbons (less than or equal to C14). Oxygenates other than MTBE were not included as indicator constituents because Shih et al. (2004) documented that MTBE had the longest plume length of any of the oxygenates (MTBE, TBA, DIPE, TAME, ETBE) at any percentile, and Kamath et al. (in press) found that TBA plumes were comparable in length to MTBE plumes. Therefore, MTBE can be used as a conservative indicator for the other oxygenates including TBA.

For groundwater samples analyzed for TPHd for comparison to Water Quality Objectives (WQOs), a silica gel cleanup (SGC) should be included for the following reasons. It is well known that the TPHd analysis (Method 8015B) is not specific to hydrocarbons unless a SGC is used; otherwise the reported TPHd concentration can include polar non-hydrocarbon compounds in addition to the hydrocarbons that may be present in a water sample (e.g., Zemo and Foote

2003). These polar compounds can be from various sources, including metabolites from biodegradation of petroleum (primarily alcohols and organic acids, with possible phenols, aldehydes and ketones). At sites with biodegrading petroleum, the majority of the organics being measured as "TPHd" (without SGC) can be polar compounds and not dissolved hydrocarbons. WQOs for diesel-range petroleum hydrocarbons for health risk or taste and odor concerns are based on the properties of the dissolved hydrocarbons assumed to be present and not on the properties of the polar compounds. For example, the health-based ESL for TPHd is based on the assumption that 100% of the TPH has a toxicity equivalent to the C11 to C22 aromatics, and the taste and odor value for TPHd is based on the dissolved phase of fresh diesel/kerosene (which would be primarily the C14 and smaller aromatics) (SFRWQCB 2008). The San Francisco Bay RWQCB recognized that reported TPHd concentrations may include polar compounds and issued a guidance memorandum recommending that SGC be routinely used so that "….. decisions could be made based on analytical data that represents dissolved petroleum." (SFRWQCB 1999). Only the hydrocarbon component of the TPHd concentration should be compared to the TPHd WQOs, and thus SGC is necessary to separate the hydrocarbons from the polar compounds in a groundwater sample prior to analysis. It is well established that a SGC does not remove the dissolved hydrocarbons in a sample (e.g., Lundegard and Sweeney 2004). Further, the potential for removal of hydrocarbons by a SGC is always monitored as part of the routine laboratory quality assurance reporting where lab control samples are spiked with a hydrocarbon (surrogate), are subjected to a SGC, and recovery of the surrogate is measured and must be within acceptable ranges.

The four classes of stabilized plume lengths and buffer distances from the plume edge to the closest water supply well or surface water (receptors) that are defined as "low threat" in the Policy are initially based upon the plume lengths from the studies cited above, but also are based on additional safety factors that the Stakeholder Group considered applicable to be protective in a state-wide policy document. For example, based on the plume studies, *a total separation distance from the source area to the receptor of about 500 feet should be protective for 90% of plumes from UST sites, and a total separation distance from the source area to the receptor of about 1,000 feet should be protective for virtually all plumes from UST sites.* Conversely, the "low-threat classes" require a known maximum stabilized plume length (which reduces uncertainty as to how long the plume might become in the future), and include additional safety factors and concentration limits developed by the Stakeholder Group.

Stakeholder Group participants also recognize and acknowledge that this Policy is consistent with other State and local practices regarding impacts to groundwater caused by other anthropogenic releases. For example, State and local agencies establish required separation distances or "setbacks" between water supply wells and septic system leach fields (typically 100 feet), and sanitary sewers (typically 50 feet; [DWR 1981]).

The Stakeholder Group acknowledges that the biodegradation/natural attenuation of petroleum hydrocarbon and oxygenate plumes has been documented by many researchers since the 1990s.

All of this work shows that biodegradation/natural attenuation of petroleum hydrocarbons and MTBE occurs under both aerobic and anaerobic conditions, but the rate of degradation/attenuation depends on the individual constituent and the plume geochemical conditions. The maximum concentrations for benzene and MTBE specified in the low-threat classes below are expected to biodegrade/naturally attenuate to WQOs within approximately 10 to 30 years, based on commonly-accepted rate constants for typical plume conditions and calculations (e.g., Wilson 2003; USEPA 2002). A time period of multiple decades or longer to reach WQOs has been determined to be "reasonable" for plumes of limited extent in existing State Water Board closure orders for UST sites (e.g., Order WQ 98-04 [Matthew Walker]).

TBA is a byproduct of biodegradation of MTBE, and TBA concentrations can build up temporarily in the anaerobic portion of a plume. With respect to the natural attenuation of TBA, Kamath et al. (in press) recently studied benzene, MTBE and TBA plumes at 48 UST sites (30 sites in California) and found that (1) most (68%) of the TBA plumes were stable or decreasing in size, and (2) in the stabilized plumes, the median attenuation rate for TBA was similar to the rates for MTBE and benzene. These findings indicate that TBA should not pose a significant threat to groundwater resources, and are consistent with the finding from Williams (in press) that TBA and MTBE have been detected in only a very limited number of public drinking water supply wells in California between 1996 and 2010. The average annual detection frequencies at any concentration and at concentrations greater than the WQO (12 ug/l for TBA and 5 ug/l for MTBE), through 2010 are: 1.4% and 0.2% for TBA, respectively, and 1.6% and 0.8% for MTBE, respectively (Williams, in press).

The following paragraphs present and discuss the key rationales for low-threat plume lengths, maximum concentrations, and separation distances for each low-threat class. Note that the specified concentrations are maximums, and would likely occur in only a few wells; the average concentrations in the plume would be lower. Note also that these groundwater plume class criteria (concentrations, plume lengths and separation distances) are only one component of the overall evaluation of site conditions that must be satisfied to be considered for closure as a low-threat site under the Policy.

Class 1: The "short" stabilized plume length (<100 feet) is indicative of a small or depleted source and/or very high natural attenuation rate. The 250 feet distance to a receptor from the edge of the plume represents an additional 250% "plume length" safety factor in the event that some additional unanticipated plume migration was to occur.

Class 2: The "moderate" stabilized plume length (<250 feet) approximates the average benzene plume length from the cited studies. The maximum concentrations of benzene (3,000 ug/l) and MTBE (1,000 ug/l) are conservative indicators that a free product source is not present. These concentrations are approximately 10% and 0.02%, respectively, of the typical effective solubility of benzene and MTBE in unweathered gasoline. These concentrations are expected to biodegrade/naturally attenuate to WQOs within a reasonable time frame. The potential for vapor

intrusion from impacted groundwater must be evaluated separately as per the vapor intrusion section of the Policy. The 1,000 feet distance to the receptor from the edge of the plume is an additional 400% "plume length" safety factor in the event that some additional unanticipated plume migration was to occur. Also note that California Health and Safety Code §25292.5 requires that UST owners and operators implement enhanced leak detection for all USTs within 1,000 feet of a drinking water well. In establishing the 1,000 feet separation requirement the legislature acknowledged that 1,000 feet was a sufficient distance to establish a protective setback between operating petroleum USTs and drinking water wells in the event of an unauthorized release.

Class 3: The "moderate" stabilized plume length (<250 feet) approximates the average benzene plume length from the cited studies. The on-site free product and/or high dissolved concentrations in the plume remaining after source removal to the extent practicable (as per the General Criteria in the Policy) require five years of monitoring to validate plume stability/natural attenuation (i.e., to confirm that the rate of natural attenuation exceeds the rate of NAPL dissolution and dissolved-phase migration). The potential for vapor intrusion from free product or impacted groundwater must be evaluated separately as per the vapor intrusion section of the Policy. The 1,000 feet distance to the receptor from the edge of the plume is an additional 400% "plume length" safety factor in the event that some additional unanticipated plume migration was to occur, and is consistent with H&S Code §25292.5 as discussed above.

Class 4: The "long" stabilized plume length (<1,000 feet) approximates the maximum MTBE plume length from Shih et al. (2004). The maximum benzene and MTBE source area concentrations (1,000 ug/l each) in the stable plume are expected to biodegrade/naturally attenuate to WQOs within a reasonable time frame. The maximum benzene concentration would not pose a vapor intrusion risk over the extent of the plume (assuming that five feet of bioreactive vadose zone is available over the extent of the plume; see justification for vapor intrusion screening criteria for details). The 1,000 feet distance to the receptor from the edge of the plume is an additional 100% "plume length" safety factor in the event that some additional unanticipated plume migration was to occur, and is consistent with H&S Code §25292.5 as discussed above.

Notes on Free Product Removal

State regulation (CCR Title 23, Division 3, Chapter 16, Section 2655) requires that "responsible parties".... remove free product to the maximum extent practicable, as determined by the local agency..." (Section 2655a) ".... in a manner that minimizes the spread of contamination into previously uncontaminated zones"... (Section 2655b), and that "[a]batement of free product migration shall be the predominant objective in the design of the free product removal system" (Section 2655c). Over the years there has been debate on the meaning of the terms "free product" and "maximum extent practicable". Product (light non-aqueous phase liquid [LNAPL]) can exist in three conditions in the subsurface: residual or immobile LNAPL (LNAPL that is

trapped in the soil pore spaces by capillary forces and is not mobile), mobile LNAPL (enough LNAPL is present in the soil pore spaces to overcome capillary forces so that the LNAPL can move) and migrating LNAPL (mobile LNAPL that is migrating because of a driving head). "Residual LNAPL", "mobile LNAPL" and "migrating LNAPL" are described in detail in several peer-reviewed technical documents, including the 2009 Interstate Technology Regulatory Council (ITRC) Technical/Regulatory Guidance "Evaluating LNAPL Remedial Technologies for Achieving Project Goals". Given the predominant objective of abatement of migration, the term "free product" in the State regulation is primarily equivalent to "migrating LNAPL" (which is a subset of "mobile LNAPL"), and secondarily equivalent to "mobile LNAPL". Whether LNAPL is mobile (and therefore could potentially migrate) or not is usually tested by observing recharge of LNAPL after removing LNAPL from a monitoring well. Whether LNAPL is migrating or not is tested by monitoring the extent of the LNAPL body (usually using the apparent product thickness in monitoring wells) at a certain water level elevation over time. If the extent at that water level elevation does not expand, then the LNAPL is not migrating. Therefore, LNAPL must be removed to the point that its migration is stopped, and the LNAPL extent is stable. Further removal of non-migrating but mobile LNAPL is required to the extent practicable at the discretion of the local agency. Removal of mobile LNAPL from the subsurface is technically complicated, and the definition of "extent practicable" is based on site-specific factors and includes a combination of objectives for the LNAPL removal (such as whether the mobile LNAPL is a significant "source" of dissolved constituents to groundwater or volatile constituents to soil vapor, or whether there is a high likelihood that hydrogeologic conditions would change significantly in the future which may allow the mobile LNAPL to migrate) and technical limitations. The typical objectives for LNAPL removal, technologies for LNAPL removal and technical limitations of LNAPL removal are discussed in several peer-reviewed technical documents including the 2009 ITRC Guidance (see especially Section 4 "Considerations/Factors Affecting LNAPL Remedial Objectives and Remedial Technology Selection", Table 4.1 [Example Performance Metrics], Table 5-1 [Overview of LNAPL Remedial Technologies], and Table 6-1 [Preliminary Screening Matrix]).

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TESTIMONY ON CB 46 – 2016 (ZRA – 159)

I offer this testimony as a resident of Howard County. I am fortunate to live in Woodbine and therefore have the availability of gasoline at numerous facilities including both branded stations and independent suppliers. Woodbine is also located convenient to stations in Carroll and Frederick County. Because of the fair competition, gas prices are some of the lowest in the County.

My concern with this legislation is the message it sends to residents of the urban area of the County, particularly Columbia. While the average price of regular gas in the rural area and the southeast County near Laurel ranges from $2.07 to $2.13 averaging $2.10 per gallon the stations in Columbia range from a 40 cent to 50 cent a gallon higher price.

The sole purpose of this legislative initiative, which has been promoted by a coalition of branded dealers, is to lock out competition and increase the restrictions to competition that would benefit the residents and businesses in Columbia and Ellicott City.

The Council is now considering initiatives to support the diverse housing in the Town Center. In addition to the thousands of additional market units, provisions for almost 1000 new affordable housing units for a range of incomes from low to moderate are being legislated. This legislation is directing those households to an area with a 20 to 25 percent gas fee imposed by the County for the sole purpose of restricting free market competition. If this initiative is successful the next logical step will be to prohibit grocery stores that can compete with Whole Foods, prohibit independent pharmacies (remember Walgreens on 175) that compete with grocery stores that all now have pharmacies.

The original Columbia concept to limit gas stations to Village Centers was a 1960's idea to address the potential blighting influence of repair garages. That type of facility is not what is being constructed. Most of those repair facilities have transformed to convenience stores that sell gas. The blighting influence of abandoned gas stations was addressed in the 1973

revisions to the zoning regulations by requiring all service facilities including the pumps and tanks be removed in accordance with the abandonment provisions still in the code today.

In summary, if you must approve this legislation at least consider deleting section 131.0 O 1. D and J. These two sections have no scientific justification. Even for higher volume facilities new vehicle emission control mitigates the need for the proposed setbacks.