FINAL DECISION
And
RESPONSE TO COMMENTS

Chevron Gasoline Release

At Chillum, Maryland

April 2008

Volume 2 of 2

Attachments

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LIST OF PUBLIC COMMENTS

September 5, 2007

From: Mr. Andrew Robertson Jr./
Mrs. Martha Robertson

To: All Concerned

Our home at, 5812 Eastern Ave. N. E. has been violated by Chevron's Leak and Migration of Gasoline. Our home was tested April 12, 2002 for Benzene and found to have a reading of 14.4 over the standard. Also a reading for MTBE of 28.8, over the DC standard. Yet we must live with this problem daily. We have tried to let the supposed eligible/knowledgeable personnel, DDOE, EPA, Chevron ect, do their job in coming to a logical solution in helping and guiding the residents of the Riggs Park Community affected. But from the day that we became aware of Chevron's leak and migration, we have been lied to and given the run around. Is this a matter of Race? If this had occurred in a non-black neighborhood, I honestly feel that the problems that we are having would be lenient and the solution to our problems at a much further stage. My father and I attended the community meetings together, (First Thursday of each month). Until he was diagnosed with cancer June 2005 and died of cancer 20, January 2006. My sister also resided at this address, 5812 Eastern Ave. N.E.; she died November 1998 at the age of 40. Her doctors stated that her symptoms of deaf were similar to cancer, with growths of Lymph Nodes and Tumors. All the members of our household suffer from headaches and sinus problems regularly. I understand that Benzene and MTBE is an animal carcinogen with the potential to cause cancer, which leads me to some questions that I would like to have answered.

1. Why wasn't more tests done here at 5812 Eastern Ave., when the April 2002 test readings showed over the standards for, Benzene and MTBE?

2. Will the testing of our homes with high standard readings be tested again? If so, when?

Andrew Robertson Jr.
202-832-9159

Ma' Dear's Loving & Caring Arms
740 Oglethorpe Street, NE
Washington, DC 20011
202-269-2004

October 29, 2007

Andrew Fan
EPA
Philadelphia, PA

Dear Mr. Fan;

I am Delores Ford the owner of an Early Childhood Development Facility, as well as the owner of the property located at 740 Oglethorpe Street, NE. My hours of operation are from 5:00 a.m. to 5:00 a.m. (24 hours), seven days per week. The ages of the young child that are placed in my care range from new born (six weeks old) through 12 years of age. I have 5 comments to be entered and they are as follows:

1. There has only been one indoor vapor test done on my property; how is it possible that you can definitively say that vapor intrusion will not effect my business?

2. The Ground water in front of my home is 26 feet from ground surface (Geo Probe 19D) with dissolved phased gasoline in the ground water. In the summer months and the weather is hot are you saying that the dissolved phased gasoline vapors in the ground water will not rise and will never have any effect on my child care business?

3. As a business owner of a child care facility that has sat on a gasoline plum for several decades, what is the potential risk of loss of revenue because of vapor intrusion?

4. My child care business is located in the basement level of my property and young children are closer to ground, can you say, without any hesitation that these young children will never suffer any possible health effects as a result of being in my care?

5. Are you also saying that in the winter months when we are using the furnace that there will not be any chimney effect on the health and safety of any child while in my care?

Sincerely,

Delores Ford

1

FRANK HARRIS
734 OGLETHORPE ST.

For Meeting:

1. WHY WERE WELLS 38 + 39 INSTALLED IN THE CLAY AREA?

2. ARE THERE ANY PLANS TO REMOVE THESE INEFFECTIVE MONITORING WELLS FROM THE CLAY AREA AND REPLACE THEM IN AN AREA WHERE THEY WILL PRODUCE MORE ACCURATE DATA?

3. HOW CAN THE RESIDENTS TELL IF THE REPORTS ARE ACCURATE AND CORRECT ON OGLETHORPE ST.?

2

Mtg?:

We read the explanation of how EPA arrived at which homes might be cleaned up.

We want to ask a specific question regarding the method CRW

KerryVWaller@aol.com
10/05/2007 03:31 AM

To chevtex20011@yahoo.com, mbowser@dccouncil.us, g.hawkins@dc.gov, gregg.pane@dc.gov, adrian@fenty06.com, bcoleman@nhtsa.dot.gov,
cc v.sreenivas@dc.gov, wreeder@erols.com, btate33@yahoo.com, johndunston923@yahoo.com, cholm7777@yahoo.com, tiffanysmms@yahoo.com,
bcc

Subject Re: EPA Oct. 4,07 Fact Sheet on proposed remedy

Hello To All: Cleo I agree with everything that you are saying and as far as I am concerned the word will always be contamination instead of tainted. These are the kind of things that the EPA has done in a effort to obfuscate what the residents of the Riggs Park community have done in a effort to have a transparent investigation concerning the Chevron Gasoline Release of which Chevron has admitted to. The EPA has a habit of coming in and stirring up things and then disappearing.

Cleo, we have bigger issues to address and I hope that you and the other residents of this community will support me.

Andrew Fan, these questions are for you and you only. I am sure that everyone that is on this e-mail will be waiting for your response.

1. Mr. Fan, for over the last 4 plus years the residents of this community have been promised a 3D picture of
what the BTEX and MTBE plumes that has invaded this community would look like. When will we see this 3D picture? This picture is very important to us in our effort to have a transparent investigation concerning the Chevron gasoline release.

2. Mr. Fan, why is it that you allowed Chevron to report only the shallow well data and not the deep well data in your statement of basis? All the data is needed to delineate the plumes in order to have a transparent investigation. DCDOH statement of basis has proven what you have said to be wrong because they used all of the data. As far as I am concerned you have been using old data from 2 or three years ago.

Mr. Fan, I will leave it at the two questions that I have just asked you, praying that you will respond. Please respond to everyone that is on this e-mail.

Kerry V Waller

October 23, 2007

Mr. Andrew Fan (3WC23)
U.S. EPA, Region III
1650 Arch Street
Philadelphia, PA 19103

Dear Mr. Fan:

Re: Response to "Statement of Basis" Chevron Gasoline
Release at Chillum, Maryland August 30, 2007

1 I am objecting to EPA's proposed remedy for cleaning up Chevron's gasoline contamination in the Riggs Park Community located in Washington, D.C. The cleanup should respect the DC Standards and adhere to the District of Columbia Remedial Statement of Basis.

2 Continued Operation and Expansion of Existing Groundwater Remediation System
The original remediation system installed in 1990 and under MDE oversight did not prevent the gasoline migration into the District. Yet EPA is proposing continued operation of the existing system with an expansion of installing angle recovery wells across Eastern Avenue again replying upon MDE's detection requirement. You stated adequate safeguards are in place at the Facility to prevent another release. What are the safeguards?

3 What are the problems associated with the frequent shutdown times on the present system?

4 The reference to Area B for expansion of the system is limited to the area around MW-18 on Eastern Avenue. LPH was detected in the well in 2002. Yet the system was only upgraded in 2005. The community had three more years of gasoline migration. So how will installing angle recovery wells that will connect to the present system to the property line of private homes on Eastern Avenue be the acceptable remediation for a contaminated 1400 feet or more gasoline plume? Will the property owners of the private homes be contacted and allowed to voice their support/objection? Will the foundation of the houses be shifted because of the pressure from vacuuming the vapor in the soil? How will the expansion affect the present electric system that supplies power to the existing remediation system, Sunoco gas station and eighteen (18) properties on Eastern Avenue? Will increased pounds of vapor be released into the air? This remedy offers no protection for the residents on Eastern Avenue and the rest of the community.

5 Installation of Individual Vapor Mitigation System
According to EPA's Newsletter in July 2003.…"After many years of monitoring, the gasoline plume began to move into D.C. beneath a residential area of at least 400 properties." Your plan to install vapor mitigation system in five homes above the contaminated groundwater plume where the measured vapor levels exceed EPA's standards is questionable. Early on, EPA did not address the threat of Soil Vapor

Intrusion into the homes. In 2001 when some of the residents of Eastern Avenue were first notified of the gasoline migration from MD, Chevron's subcontractors used a PID to test our indoor air. In 2002 when LPH was detected in MW18, EPA only required Chevron to collect soil vapor samples from beneath the shared basement slabs of the four homes nearest to the well. You referenced 400 affected homes but your primary concern is limited to five homes because of EPA's standards.

I attended EPA's public meeting in September, reviewed the Statement of Basis and EPA's Fact Sheet dated October 4, 2007. I am not convinced that EPA's proposed remedy is in the best interest of Riggs Park and will protect human health and the environment.

Sincerely,

/s/
Frances F. Reeder, Resident
5884 Eastern Avenue, NE
Washington, D.C. 20011-2721

Cc: V.Sreenivas, PH.D.,C.P.M.
Environmental Health Affairs
DC Department of Health (DOH)

October 28, 2007

Mr. Andrew Fan
EPA, Region III
1650 Arch Street
Philadelphia, PA 19103

Dear Mr. Fan:

Re: Response to Statement of Basis Chevron Gasoline Release
At Chillum, Maryland August 30, 2007

1 #Region III EPA posted a Fact Sheet (dated October 4, 2007) on the Proposed Remedy for the Chillum Gasoline Spill Site. The District of Columbia DOH submitted their District of Columbia Remedial Action Strategy Statement of Basis September 30, 2007. Is there a reason why EPA did not acknowledge the document in their Fact Sheet? If EPA does not accept the DC Statement of Basis, will EPA explain, in detail to the community, the reasons why the Remedial Action Strategy is unacceptable?

2 #Why does EPA feel Chevron's installation of a separate independent Dual Phase Groundwater Recovery and Soil Vapor Extraction Treatment System on the District of Columbia side of the contamination is not the best solution to address the dissolved phase groundwater that has migrated throughout this down gradient community?

3 # In 2001 why did EPA not order Chevron to perform indoor air testing for the homes on Eastern Avenue to assure the protection of the residents? These homes were the first to be directly affected by the Chevron gasoline migration and the threat of Soil Vapor intrusion into the homes should have been addressed.

4 # Using the one in a million cancer risk, how many homes on Eastern Avenue would be over the EPA action limit?

5 # When LPH was detected in MW18 on Eastern Avenue in 2002, why did EPA only required Chevron to collect soil vapor samples and not indoor air samples as well, from the four homes nearest to the well?

6 # In Spring 2004 EPA determined indoor air sampling was necessary for limited properties on Nicholson, Oglethorpe and one on 8th St. Again, why did EPA not direct Chevron to conduct air sampling from the homes on Eastern Avenue?

7 # Why did it take the DC DOH's air sampling of 97 homes (through out the community) in 2006 and Category 1 homes in 2007 to enable EPA to recognize Mr. Andrew Fan

subsurface vapor intrusion into the homes from the gasoline plume?

8 # EPA's Statement of Basis only addresses the contaminated groundwater's vapor intrusion into basements and the plan is to only require Chevron to install a vapor mitigation system in five homes where indoor air vapor concentrations are above EPA's remediation standards. Please explain why EPA's Statement of Basis does not address how five vapor mitigation systems can clean up the contamination in soil, groundwater and soil gas underneath the 400 properties EPA's Sheet #1 July 2003 spoke about?

9 # EPA is relying upon MDE's UST leak detection requirement and "adequate safeguards" are in place at the Facility to prevent another release. What are these in place safeguards EPA is relying upon to prevent another release?

10 # By EPA's admission (via e-mails to the community) you stated there is a problem with frequent shutdown times of the present remediation system. What has EPA ordered Chevron to do to prevent these frequent shutdowns?

11 # DC DOH's analysis of Chevron's data reveals the gasoline and MTBE dissolved phase plumes have continued to migrate down gradient into Riggs Park:
(1) Why didn't the original and now upgraded system not prevent dissolved phase ground water plume from spreading deeper into Riggs Park?
(2) Why didn't EPA's oversight report the dissolved phase groundwater migration had increases at well 33B located at the lowest down gradient point in the community?

12 # The reference to Area B for expansion is limited to the area around MW-18 on Eastern Avenue, and the plan is to install angle wells that will connect to the present system to the property line of private homes:
(1) Can the foundation of the houses be shifted because of pressure from the drawback?
(2) How will the expansion affect the present electrical system that supplies power to the remediation system, gas station and eighteen (18) properties on Eastern Avenue?
(3) How many pounds of vapor can be legally released from the present DPE system into the air on a daily basis?
(4) Are there any safeguards in place to adhere to D.C. Standards on the daily release of vapor into the air?
(5) How many feet away from the District of Columbia boundary lines does the current DPE unit sit?

13 (6) How can the residents be assured that the underground gas lines installed at their properties will not explode from careless workers or pressure from the system?

14 (7) As previously stated, the gasoline and MTBE's dissolved phase plumes continue to spread. How will this proposed DPE system protect this community?

15 (8) Why did EPA include the cost of $280,000 for the expansion in the Statement of Basis? Does EPA believe a cost of $280,00 will protect the community?

There are too many unanswered questions for me to accept EPA's proposed remedy.

Sincerely,

/s/ Walter C. Reeder, Sr.
Resident
5884 Eastern Avenue, NE
Washington, D.C. 20011-2721

Cc: Dr. V. Sreenivas
DC Department of Health

Cleo Holmes questions and comments to EPA August 30, 2007 Statement of Basis
Dated October 29, 2007
Sent by email and hand delivered to A Fan 3:00 PM at 5818 Eastern Ave

1 Question: In a June 18, 02 EPA's Wayne Naylor Chief, technical and Program Support Branch, sent a letter to Chevron instructing Chevron based on available data monitor wells shall be placed at the following locations:
Oglethorpe Street

Location	Installed
GP 15A-690	no
GP 17A-702	no moved to 706
GP 19B-724-728	yes
GP 19H- 764	no
GP 19K- 778	no

* Why these changes made?
* Who authorized them?

Question:
* Which EPA Division RCRA or Superfund has the lead for this site?
* It seems as though Superfund is the lead agency, when was this decision made
* Is the lead agency following RCRA I regulations to complete the assessment and remediation for this site?

2 Question: Concerning the Chillum ATSDR Health Consultation dated January 12, 2004, why was this community not offered a comment period, as a part of the health consultation process, in the same manner other communities were offered?

3 Question: In the September 6, 2007 meeting Ms. Waters of ATSDR/EPA answered a question relating to was the Chillum Health consultation compared to another minority site for comparison purposes. Mr. Waters stated no because there is no other minority site tested before our 2004 Health Consultation.
* Why didn't ATSDR compare Chillum to the air study's dated 3-15-2001 and 11-19-2001 Afro-American community of Newtown Community, Gainesville, Hall County, Georgia?

4 Question: What is cancer risk is associated with Comparison Value DHACGL (ATSDR Division of Health Assessment and Consultation Guideline) for benzene for this site?

- one in a million
- one in one hundred thousand
- one in ten thousand

5 Question: What date was the CV DHACCL promulgated in the Federal Code of Regulations?

6 Question: What date and number of the Federal Register was DHACGL advertised?

7 Question: Why was CV Cancer Risk Evaluation Guidelines (CREGs) used for the Afro American community of Hall County, GA Health Consultation, and not used for this Afro American community associated with the Chillum Health Consultation?

8 *Under the section Proposed Remedy;*
Question: is this expanded remedial system in to Area B by installing angle recovery wells up to the boundaries of private properties able to remove free product already located on private property between MW 18 and 24A as shown in the July 07 Chevron Corrective Measures Study
* What is the angle well capture zone for groundwater plume recovery and soil vapor recovery.
* with the installation of these angle recovery wells will the free product between 5882 and 5884 Eastern Avenue be recovered?

9 Question: Is the expansion of existing remediation system, without adding another DPE unit on DC property, cone of influence large enough to remediate and restore the entire groundwater plume to drinking water standards or just free product?

10 Question: If the goal to restore ground water to drinking water standards is not attainable, what exactly does EPA consider a reasonable time frame to issue a "technical impracticability" from engineering prospective?

11 Question: Why would EPA grant Chevron a Technical Impracticability (TI) Waiver without first ordering Chevron to install, the more practicable, DPE system on DC property that would address dissolved phase hydrocarbons?

12 Question:
- How many times with dates has free product been found with MW 18 and 24a
- Does EPA count finding free product at GP5 when EPA says free product has been found in DC one time

13 Question: Why did EPA not follow the rules of the QAPP, Development of the Decision Rules, Section 2, page 9 of 17 and recognize the District standards 10-6 cancer risk one in a million, in soil vapor or indoor air testing?

14 Question: During the regulatory semi annual sampling events on District property, dated Mar. 06, Oct. 06, and Mar.06 did EPA order Chevron to record at what depth, after purge, the ground water sample taken? If not, why not?

15 Question: Did EPA during, the aforementioned, regulatory semi annual sampling events order Chevron, to measure the depth of the groundwater at each well point? If not, why not?

16 Question: Homes located outside the extent of the gasoline plume cannot be impacted by vapor intrusion from the plume. How does EPA explain the many homes experiencing vapor intrusion from under the homes? Is EPA saying vapors cannot present itself the unsaturated zone? And what data set is EPA using to make this determination?

17 Question: Is dissolved phase gasoline plume being transported by the groundwater to down gradient homes on Oglethorpe and Nicholson Streets?

18 Question: Is the present remediation system able to remediate and remove the groundwater under all down gradient residents on Eastern Avenue, Oglethorpe and Nicholson Streets?

19 Question: Will the present and remediation system remediate and remove dissolved phase gasoline and NAPL from monitoring wells 33B at 628-630 Nicholson Street?

20 Question: * Since EPA has generated a 3D map for this site, when will the electronic version 3D map be placed of EPA Chillum gasoline investigation web site?

21 Question: Does the sub slab vapor mitigation system have an installed carbon treatment system to treat the gases before they are released into the environment?

22 Question: Does the sub slab vapor migration system have an installed explosion proof fan attached to it?

23 Question: To meet the EPA goal to restore ground water to drinking water standard, don't you think remediation should be done for the entire dissolved phase contamination plume (underneath our homes) as well as free product in the source area?

24 Question: Are the shallow and deep wells samples from the same water table and aquifer?

25 Question: Is it true the contamination present in Riggs Park groundwater plume is resulting in production of hydrocarbon vapors therefore all homes on the groundwater plume should also qualify for vapor remediation and monitoring?

26 Question: Since all homes on the contaminated groundwater plume can and will produce hydrocarbon vapors shouldn't all the homes located on the contaminated groundwater plume require a vapor removal systems installed?

Statement of Basis – Chevron Gasoline Release

Comments-Bettye A. Tate

There are so many unanswered questions.

1 Chevron and EPA both know the that the leaked happened and they were not up coming with information to the Riggs Park Community and solutions to clean up the spill.

2 Why wasn't the right Remediation System put in place, now the upgrading of Dual Phase of Extraction of the Maryland side?

3 --That is not for all DC(Riggs Park) property and there is nothing mention about the LaSalle School.

4 --The DPE is Expected to be Effective in High Mass Recovery In The Initail Stage—(IS THIS EXPERIMENTAL?)

5 What about the air emission limits allowable from the MD existing remediation system?
--DC air limit 1 pound per day and MD is 20 pounds, we should have air monitors installed.

What about the groundwater and vapor migration under our homes?

6 --Five homes are addressed about Vapor Mitigation Systems and there are other homes also with contamination.

7 What about the safety of the Vapor Mitigation Systems?
--Refer me to places where this system has been used and really work.

8 Why did not ATSDR used the same Comparative Value at this Site as was done at Newtown Community, Gainsville. Hall County, Ga?

9 --We need cv basis of standard of one-a-million for Benzene(CREG) .The correct cv is needed for correct health evaluation with all the other value.
At our September 2007, Community Meeting Mr. Fan said the Plume is growing, that is even more concern for correct information

WE NEED A REMEDIATION SYSTEM ON THE DISTRICT OF COLUMBIA PROPERTY.

Bettye A. Tate

Bettye Tate <btate33@yahoo.com>

10/02/2007 08:23 AM

Subject
Re: Riggs Park Remedial Action Statement of Basis-District of Columbi a Strategy

Comments on District of Columbia Statement of Basis

1 We need cv basis on standard of one-in-a-million as used in Newtonton Community, Gainesville Hall County, GA. With DC remediation plan this will give us a needed correct answer to a lot of our concerns of health.

2 We heard at the last meeting, Mr. Fan said the plume is growing, that a big indication that the Remediation Station is not working for DC property--all this system is doing cleaning up what is on Maryland side of the line. I am greatly in favor for the DC Remedial Action for our property.

3 Chevron proposes installing five homes with vapor mitigation systems, there are more than five homes impacted with vapor intrusion.

I am sure the Community is ready for DC to get this job done.

Thank you,
Bettye A. Tate

September 6, 2007

These are my responses to Statement of Basis

I am asking that all of my questions be answered including those involving health issues as it should be noted we were never granted a public comment period for the ATSDR Health Consultation.

William & Judith Mills
5844 Eastern Ave. NE
Washington, DC 20011

DIANE CARPENTER
COMMENTS ON STATEMENT OF BASIS
CHEVRON GASOLINE RELEASE
CHILLUM MARYLAND

1. How come ATSDR never set up air monitoring system to determine the scale of ambient air intrusion in our school, churches and homes in our neighborhood?

2. How come ATSDR never used the middle scale approach which would help define the concentration typical of areas up to several city blocks in size with deminsion ranging from approximately 100m to 0.5km to effectively show the maximum impact on our community.

3. ATSDR stated they used the SLOP FACTOR to determine facts for inhalation exposures, why are the detection limits so different than the ones used in Newtown community in Georgia?

4. EPA kept stating that the water supply for home of concern has not been affected by the gasoline, but they don,t want to discuss the facts about permeability through pipes. Why is this?

5. DOH has located homes outside the plume that has been affected will EPA and Chevron change their plume boundaries?

6. How come Chevron never put outdoor air monitors in the community to ensure the air quality?

7. The neighbors on Eastern Ave continue to state that the first round of testing was flaw, How come this testing is still used to determine health effects?

8. How large is the plume today including desil and phase?

9. ATSDR stated they did a health assessement, where is the data for the study, evaluation or assessement?

10. Under study methods you indicate that the study sought to det-ermine whether or not cancer rates in the community are statistically different compared to the US rates for black African-an American. If industry is generally located more in African American and poor neighborhoods why wasn,t a comparison made to white populations of similar size?

11. I feel that ATSDR assessement void any environmental justice considerations or recommendations and therefore should be recommend to incorporate its environmental justice responsibilities into its assessement of the Chevron gasoline spill in the Chillum area.

12. The Executive Order itself requires that Chevron implement its programs policies, and activities that affect human health or the environment so to "identify" "address" and "ensure" that they do not result in disproportionately high and adverse effe -cts on minority and low income population, Moreover, ATSDR owns environmental justice programs purports that preventing" adverse effects and environmental injustices in minority popula - tion is a priority". What Happened?

13. ATSDR made a statement in the Newtown Community Health Assessm -ent in Georgia, that storm water is not used for drinking water, but areas where children, play swim in stormwater run off may be at high risk of exposure to organism that could cause illne -ss. ATSDR concluded in their statment that chemical exposer contamination in storm water runoff is not likely to result in health effects, however, exposure to stormwater contaminate -d with fecal organnisms via dermal absorption, inhalation or incidental ingestion of contaminated stormwater runoff could p -otentially resultin adverse health effects. Our community recreation center had a swiming pool which has probaly been contaminated for over 20 years or more, ground water levels are very high in this area. The school has football, basketball and other activity out doors which has made children more acceptab -le to chemical exposure. How come ATSDR didn, t take these fac -ts in account?

14. The angle well you are talking about adding to the system would be much longer in length, So we are talking about over 100 ft. Only two well angle to cover over 1400ft. of contamin -ation, Ifeel the current system cannot handle it, because the inadequate recovery result is persistent unacceptable level of elevated contamination in DC wells.

15. Will the design of two well capture the gasoline on the District side?

16. EPA, Chevron and DOH identify five homes could their be more? with vapor concentration that have exceeded EPA, s remediation standards.

17. Will EPA take in consideration the long duration of the spill the contamination of vapors people have breath for years.

18. Are you going to used the wells for injection of any type of agent?

Lora Werner/R3/USEPA/US
10/16/2007 04:21 PM

To Andrew Fan/R3/USEPA/US@EPA
cc Karl Markiewicz/R3/USEPA/US@EPA, Michelle Watters/R5/USEPA/US
bcc
Subject Chillum Statement of Basis

History: This message has been replied to.

Hi Andy

Hope you are well.

1 I have been meaning to touch base with you since the Chillum meetings. The statement of basis has some phrasing in it in reference to ATSDR that should be changed -- right now it says "The ATSDR, a division of the Center of Disease Control has reviewed..." It should be "The ATSDR, a sister agency to the Centers for Disease Control and Prevention, has reviewed..."

2 Also, I don't know the status of your changes to this document, but I was personally uncomfortable with the statements in Section 3 that "Subsurface vapor intrusion can impact only those homes located above the gasoline plume. Homes located outside the extent of the gasoline plume cannot be impacted by vapor intrusion from the plume." We have seen sites where there is vapor intrusion that has been determined to be site -related where the homes are not directly over a GW plume, due to migration of the contaminants via other preferential pathways (utility lines, fractures, etc). So I would recommend being less absolute in those statements.

Thanks, Lora

Lora Siegmann Werner, MPH
Senior Regional Representative
Agency for Toxic Substances and Disease Registry (ATSDR), Region 3
Department of Health and Human Services
1650 Arch Street, 3HS00, Philadelphia, PA 19103
phone: 215-814-3141, fax: 215-814-3003
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October 29, 2007

Mr. Andrew Fan
Technical Support Branch (3WC23)
Waste & Chemicals Management Branch
United States Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

RE: Comments on the EPA Statement of Basis
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Dear Mr. Fan:

The U.S. Environmental Protection Agency (EPA) Region III published the Statement of Basis (SB) for the Chevron Gasoline Release at Chillum, Maryland on August 30, 2007. The purpose of the SB was to solicit public comment on EPA's proposed remedy prior to making the final remedy selection for the site. This letter provides Chevron's comments on the SB for your consideration.

The comments are organized into general and specific comments. General comments address concerns identified throughout the SB, while specific comments identify concerns within individual pages, sections, figures, tables, and appendices of the document.

GENERAL COMMENTS

1. Text on page 6 provides a definition for the "gasoline plume" as the combined maximum boundary of the shallow benzene and methyl tertiary butyl ether (MTBE) plumes as shown in Figures 2 and 3. As presented in the Site Investigation Report (Gannett Fleming, 2006) in Section 5.1.2.2, Chevron has delineated hydrocarbons at separate levels within the aquifer. Hydrocarbons within the shallow, or water table aquifer are presented correctly in Figures 2 and 3 and subsequent data sets provided to you in progress reports. However, it should be noted that accretion was observed as the hydrocarbons flow toward the distal end of the plume (i.e., an unimpacted lens of water from precipitation infiltration is present over the hydrocarbons in the deeper portion of the aquifer). Chevron agrees that subsurface vapor intrusion generally only occurs in homes located above the shallow plume as defined in the SB (unless soil vapor moves laterally along a preferential pathway). However, clarification of this fact is warranted to prevent confusion by the public and the District of Columbia.

2. The SB does not mention the hydrocarbon plume originating from a separate upgradient source within Maryland. Hydrocarbons from this release are not

related to Chevron. Hydrocarbon detections from this release are present in wells MW-50 and MW-51 and may migrate further downgradient into the Riggs Park neighborhood during the period of performance of the remedy. It should be noted in the SB that Chevron is not responsible for cleanup of these wells to the groundwater remediation standards or wells that may become contaminated in the future.

SPECIFIC COMMENTS

1. **Section III, page 6, paragraph 4**. This paragraph states that a statistical evaluation of the District of Columbia Department of Health (DC DOH) indoor air sampling indicates that there is elevation in benzene and MTBE vapor concentrations in homes above the gasoline plume as compared to homes situated outside of the plume boundaries, suggesting that there is likelihood of subsurface vapor intrusion associated with the gasoline plume. Chevron has many concerns relating to the collection of these data and does not consider these data to be valid. For example, Chevron recently completed an indoor air and soil vapor investigation for the residence with the highest hydrocarbon concentrations in indoor air from the DC DOH study (Gannett Fleming, 2007). As the EPA representative witnessed, indoor vapor sources within an attached shed, including an open gasoline can, were removed prior to sampling. These items were not removed by technicians during the DC DOH study. The resulting indoor air results from Chevron's study were markedly lower than those reported from the DC DOH study. Therefore, statements relating to vapor intrusion based solely on these data should not be made.

2. **Section IV, page 7, paragraph 3**. This paragraph states that the remediation system has recovered 4,800 gallons of gasoline product cumulatively since the beginning of operation in 1990. The correct term is equivalent gallons. The dual-phase extraction system extracts hydrocarbons in three separate media, liquid-phase, dissolved phase, and soil vapor. Only approximately 850 gallons of liquid phase hydrocarbons (LPH or gasoline product) have been recovered since 1990. The bulk of the hydrocarbons are removed from the dissolved phase and from soil vapor that is extracted and treated. From the influent concentrations of soil vapor and groundwater measured by a laboratory, equations are used to determine the number of gallons of LPH equivalent that were removed. These data are presented in each progress report submitted to EPA. The text on pages 7 and 13 should be clarified.

3. **Section V, heading B, page 8**. This section provides the vapor mitigation strategy, but does not mention resampling or further testing of the residences where vapor concentrations exceeded the EPA indoor air remediation standards when sampled by others. Text in Section VII, heading B states that retesting is necessary prior to installation of vapor abatement systems. Furthermore, provisions for resampling are included in the approved Corrective Measures Study (CMS) (Gannett Fleming, 2007b). Even if a remediation system is required by EPA, it would be prudent for Chevron to obtain baseline indoor air data prior to system installation to assist with evaluation of system performance. It is recommended that resampling be added to text on page 8 for clarity.

4. **Section VI, page 8**. This section provides remediation standards. The objective of the remediation system is to eliminate all gasoline product (LPH) sources as stated in Section V. However, Section VI does not provide a remedial endpoint for LPH. It is suggested that the media clean up objective for LPH presented in Section 2.1.3.1 of the CMS (Gannett Fleming, 2007b) be added to the SB.

5. **Section VI, Paragraph B, page 8**. Vapor remediation standards for the site are described in this paragraph. The paragraph is unclear whether these standards apply to soil vapor or to indoor air. It is Chevron's understanding is that these standards apply to indoor air. The text should be clarified.

   In addition, text on page 9 states that EPA Region III considers MTBE to be a possible carcinogen. Based on the current level of scientific knowledge regarding MTBE, Chevron does not agree with this determination. Chevron has provided specific reasons for this opinion in a letter dated December 8, 2004 from Denise Dixon to Andrew Fan.

6. **Section VI, page 9, paragraph 3**. As stated, the 95th percentile values for the background data set were used to calculate the remediation standard based on the indoor air concentrations measured in 52 residences located outside the dissolved hydrocarbon plume. The 95th percentile was calculated as the mean plus two standard deviations. It is unclear whether the underlying distributions were checked. The above statement is only true for distributions that are normally distributed but not for skewed distributions. There are indications that the distributions may not be normally distributed.

   Therefore, it is suggested that EPA provide Chevron with the raw data from the 52 residences used in the background study so that the underlying statistics and data can be thoroughly evaluated. The addresses where the samples were collected are not required, just the sample identifiers.

7. **Section VII, page 11, subheading C**. This section sets forth institutional control objectives to be implemented at the site, including restrictive covenants. Chevron will comply with these objectives to the extent reasonably practical and feasible.

8. **Section VIII, Heading 2, page 14**. This section states that currently, only 4 monitoring wells and 7 recovery wells located in Area A contain measurable product (LPH). As described in Section 1.5.1 of the CMS (Gannett Fleming, 2007b), LPH have been observed in only 3 wells since the expanded remediation system became operational in late January 2005. The text should be revised.

REFERENCES

Gannett Fleming, 2006. Site Investigation Report for Former Chevron Facility 122208, Chillum, Maryland. Dated June 2006.

Gannett Fleming, 2007a. Interim Measures Report for Indoor Air Sampling at 5846 Eastern Avenue. Dated July 2007.

Gannett Fleming, 2007b. Corrective Measures Study for Former Chevron Facility 122208, Chillum, Maryland. Dated July 2007.

If you have any questions, please contact me at (770) 984-3165.

Sincerely,

Denise Dixon
Project Manager

cc: Dr. V. Sreenivas, DCDOH
Herbert Meade, MDE
Rob Scrafford, Gannett Fleming

Mr. Fan,

S.S. Papadopulos & Associates has recently been contracted by the Department of Health of the District of Columbia to evaluate vapor intrusion into homes in the Riggs Park neighborhood as a result of soil and groundwater contamination. As part of our preparation for that project, we have reviewed USEPA's 'Statement of Basis' for the Chevron gasoline release in Chillum, MD, dated August 30, 2007. We have prepared the following comments on that plan.

1 Regarding the proposed expansion of groundwater extraction to Area B, USEPA's plan does not specify the target zone for groundwater capture, nor the proposed extent of the modified capture zone. Additional information on these elements would be helpful for evaluating the potential effectiveness of the remedy.

2 We understand that EPA's primary goal in the groundwater remediation task is source removal. Elimination of the dissolved plume will be effected solely by passive degradation processes. Source removal is, of course, an important part of any remedial strategy. Unfortunately, the proposed plan includes no estimates of cleanup time for source area remediation. Consequently, there is no indication of the time frame until the dissolved plume is reduced below the appropriate standards, nor how long Chevron will be required to operate active vapor mitigation systems in the Riggs Park neighborhood to address potentially complete risk pathways. Elimination of the dissolved plume is essential for reducing any long-term risk to the inhabitants of Riggs Park.

3 USEPA is relying solely on groundwater extraction and vapor-phase transfer for elimination of the source material. No excavation of contaminated soils is planned. As EPA notes on page 10, however, sorbed contamination in the smear zone acts as a continuing source of dissolved contamination to the downgradient plume. During remediation activities, pumping of groundwater in Area B may decrease water levels below the smear zone, temporarily cutting off the source zone from the dissolved plume and temporarily shrinking the dissolved plume. During system operation, attention must be paid to impacts of water levels in the source area and mass loading to the dissolved plume. Once groundwater pumping has ceased, it is essential that EPA's remedial protocol evaluate potential rebound effects as groundwater levels once again rise into the smear zone. This is necessary to determine if the source is depleted to the point that is no longer supports a significant dissolved plume. EPA's protocol should require monitoring of water levels and contaminant concentrations in the source area and dissolved plume for a significant period of time after shutdown of the Area B extraction wells in order to evaluate such impacts. Similarly, the rebound effects associated with soil vapor extraction systems are well known, and we urge EPA to include multiple shut-down and rebound tests in the SVE protocol for determined when closure of the source remediation is appropriate.

4 The plan does not directly address the existing dissolved plume which underlies the Riggs Park neighborhood. Installation of an independent groundwater recovery system (Alternative D) was evaluated and rejected partly on the basis of concerns that an independent system would "overpower" the existing system pulling contamination across

the DC/MD line. We note that the existing (and planned) groundwater recovery systems are not designed to, and do not, address the 1400 ft long dissolved plume. The maps of groundwater elevations and contaminant plumes clearly show that the dissolved plume has not been, and is not currently captured by the Chevron remediation system - the plume long ago crossed the DC boundary, and thus it is difficult to understand this argument. Furthermore, the degree of drawdown associated with a groundwater extraction system is dependent on the number, placement, and pumping rates of extraction wells. All of these variables can be adjusted as required to avoid interference with other extraction systems.

5 In the vapor mitigation task, USEPA is also requiring that Chevron install and operate vapor mitigation systems only for those homes above the gasoline plume that have previously shown indoor vapor concentrations that exceed EPA standards. While this may be effective for those homes, we note that the proposed plan does not include additional plans for in home monitoring to assess whether other residences are impacted by gasoline vapors in the future. Since the proposed remedial plan does not specifically address capture of the entire groundwater plume, nor the time frame until the plume is addressed by passive degradation processes, this will remain a concern for many homes as long as the plume is present in the underlying groundwater.

We thank you for this opportunity to comment on USEPA's proposed plan for the Chillum gasoline release site. If you have any questions or comments, please feel free to phone or e-mail.

Harvey Cohen

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DISTRICT OF COLUMBIA REMEDIAL ACTION STRATEGY STATEMENT OF BASIS

Chevron Gasoline Release at Chillum, Maryland

Prepared by

V. Sreenivas, Ph.D.
Environmental Health
In coordination with the
Department of Health
Department of the Environment

Ward-4
Riggs Park Community
Environmental and Health Impact
Washington, D.C.

September 7, 2007

Government of the
District of Columbia
Adrian M. Fenty, Mayor

DEPARTMENT OF HEALTH

GLOSSARY

ATSDR - The Agency for Toxic Substances and Disease Registry

BTEX - Benzene, toluene, ethyl benzene, and xylenes

COC – Contaminants of Concern

DOH – District of Columbia Department of Health

EPA- U.S. Environmental Protection Agency

FDRTC - Final Decision Document and Response to Comments

MCL - Maximum Contaminant Levels

MDE - Maryland Department of Environment

MTBE - Methyl tertiary-butyl ether

OSHA - Occupational Safety and Health Administration

ppb – Parts per billion

RBC – Risk Based Concentrations

RCRA – Resource Conservation and Recovery Act

FDRTC - Final Decision Document and Response to Comments

SB – Statement of Basis

UAO – EPA Unilateral Administrative Order

ug/l – Micro grams per liter

UST – Underground Storage Tank

VOC - Volatile organic compounds

RBCA-D.C. Risk Based Corrective Action

List of Figures

I. INTRODUCTION

This Remedial Statement of Basis explains the District of Columbia's proposed remedy for the gasoline release originating from the gas station formerly owned by Chevron U.S.A. Inc. (Chevron) and located at 5801 Riggs Road in Chillum, Prince George's County, Maryland (the Facility) under the Title 20 DCMR Chapters 55 thru 77. The remedy was identified after reviewing the EPA Statement of Basis (dated August 30, 2007) and extensive groundwater, soil vapor, and indoor air sampling data generated by the District of Columbia, EPA, and Chevron. The District is proposing as the remedy the expansion of the existing groundwater remediation system at the Maryland facility to stop the impact on the District's properties, installation of a remediation system in the District of Columbia to remediate the contamination present underneath District properties, the installation of vapor mitigation systems in homes impacted by subsurface vapor intrusion, and the implementation of monitoring controls.

The purpose of this document is not to duplicate any federal requirements. Further, it is not appropriate to compare the District of Columbia to Maryland and Virginia, since the District is a completely urban setting. The District's environmental laws and regulations are generally in line with the federal environmental laws and regulations adopted by the US Congress and the Environmental Protection Agency. The District of Columbia (and other states') environmental laws and regulations are required to be "at least as stringent as" the federal laws and regulations in order for the District (or a state) to be granted "state authorization" or "state program approval" to implement its program in lieu of the federal program. The District and other states are always allowed to have requirements which are "more stringent than" or "broader in scope" than those of the federal government. In fact, this is contemplated by many of the federal regulatory programs.

The Riggs Park Environmental and Health Committee have participated in the proposed remedy selection process by reviewing this RSB and submitting this to EPA to include it as part of EPA's SB during the public comment period. Upon EPA addressing all significant comments submitted in response to the proposed remedy, EPA will make a final remedy decision in consultation with the District and issue a Final Decision and Response to Comments after it considers information submitted during the public comment period.

II. FACILITY BACKGROUND

The Facility is located at the eastern corner of the intersection of Eastern Avenue and Riggs Road in Chillum, Maryland. The north side of the right-of-way of Eastern Avenue delineates the boundary between Prince George's County, Maryland and the District. The southern extent of the Facility property abuts the District.

In 2001, Chevron discovered that the gasoline contaminated groundwater (plume) had migrated into the District affecting a residential neighborhood known as Riggs Park. Because the plume impacts two separate political jurisdictions (the State of Maryland and the District), at the request of District Councilmember Adrian Fenty, who was later elected as Mayor of the District, EPA assumed the lead investigatory role for the Facility. The understanding based on several meetings was to use the District's standards for the District side of the investigation and the remediation, and Maryland levels for Maryland side of the contaminants.

III. SUMMARY OF GASOLINE RELEASE INVESTIGATION

Chevron has collected soil, soil vapor, indoor air and groundwater samples, under the supervision of EPA, and has conducted pilot tests to upgrade the existing groundwater remediation system. Between 2001 and 2007, Chevron installed 232 temporary Geoprobe wells, 80 groundwater-monitoring wells, 7 product recovery wells, and 4 soil vapor monitoring wells. Cumulatively, during the same period, Chevron has collected over 3000 groundwater samples, 300 soil samples, 250 soil vapor samples from 90 properties, 50 indoor and ambient air samples from 20 properties, and 14 basement sump samples.

Between 2002 and 2005, EPA's Superfund Removal program collected indoor air samples from 32 properties and installed 24 soil vapor wells for its PERC investigation; and the U.S. Army Corps of Engineer (ACE), on behalf of EPA, generated split /quality control data from over half the properties sampled by Chevron. As per the communities request and the council, in 2006, DOH initiated an independent indoor air sampling effort, based on voluntary participation by the Riggs Park residents. During that investigation, DOH collected indoor air data from 97 homes in Riggs Park bounded geographically by four streets: Kennedy Street, Madison Street, Eastern Avenue, and Riggs Road. While EPA's proposed remedy does not address the DOH or PERC investigation, EPA has relied on data collected by both investigations to support its proposed remedy for the Facility. In 2007, DOH initiated winter sampling of Category I homes and their co-slabs as identified in the previous DOH investigation.

Based on soil, soil vapor, indoor air, and groundwater data collected through May-June 2004, EPA has delineated a shallow benzene plume and a shallow methyl tertiary-butyl ether (MTBE) plume as shown in Figures 2 and 3. The shallow benzene plume extends approximately 700 feet from the Facility into the District, and the shallow MTBE plume is about twice as long, extending about 1400 feet from the Facility into the District. The combined maximum boundary of both plumes are referred here as the gasoline plume. However, verification of results submitted by Chevron for March 2006, September 2006 and March 2007 indicate significant increase in size of the gasoline plume. DOH has delineated benzene plume and MTBE plume as shown in Figure 4 and 5.

1

The District has characterized the indoor air data collected from 97 homes by DOH, Soil Vapor test results completed by EPA and Chevron. The data indicate that there is elevated benzene and MTBE vapor concentrations in homes, suggesting that there is likelihood of soil vapor intrusion. Based on review of indoor air samples collected by EPA, Chevron, and DOH, the District has identified up to 53 homes where measured vapor concentrations have far exceeded the Cancer Risk Evaluation as indicated above that are estimated contaminant concentrations that would be expected to cause no more than one excess cancer in a million persons exposed over a lifetime. These are calculated from EPA's cancer potency factors. The District has listed the remediation standards for groundwater and soil, however, the listed indoor air and soil vapor concentrations representing one-in-a million are extracted from EPA documents and presented in Section VI, below. The District has also characterized the outdoor ambient air data collected by Chevron, DOH, and ACE. Outdoor benzene concentrations are at levels below to that of measured indoor air concentrations. This suggests soil vapor intrusion as well.

2

IV. HEALTH AFFECTS

The primary health concern for the Department of Health is that vapor can volatilize from the contaminated soil, aqueous gasoline plume, and groundwater in the form of soil gas and migrate into the basements of homes through cracks, joints and utilities openings, and front and back yards gardening and playing areas. This effect is referred to here as Soil Vapor intrusion. Subsurface vapor intrusion can impact those homes located above such subsurface zones. DOH's indoor air sampling differs from Chevron's approach because DOH relied upon direct measurement and impact of vapor intrusion on the indoor air and the cancer risk evaluation based on the adequate protection of human health in accordance with maximum tolerable human health risks. This includes acute, chronic, and cancer risk evaluation based on one-in-a million criteria for residents within designated impacted geographic boundaries which correlate with the whole down gradient assessment boundaries. Acute levels and chronic levels were used as the guide for immediate removal and to determine moderate risks. For the remedial action plans in the District of Columbia, the standard of one-in-a million cancer risk must be used. The Center for Policy, Planning & Epidemiology of the District of Columbia Department of Health has determined that exposure to high levels of volatile compounds, like benzene and MTBE increases the risk of various adverse health outcomes, and DOH wants to ensure that this risk is minimized. In this regard, DOH accepts that exposure to contaminated air at the levels determined in separate EPA and DOH assessments is not expected to cause any adverse health effects, if remediation procedures are followed based on the standard of one-in-a-million cancer risk, as indicated above.

V. INTERIM MEASURES

In 1990, under MDE oversight, Chevron installed and began operating a skimmer system at the Facility to recover gasoline product from the groundwater. In 1994, the system was modified into a dual phase extraction system to recover gasoline product from both groundwater and soil vapor. To aggressively recover the additional gasoline product, a source system upgrade was done in early 2005. This upgraded groundwater remediation system is currently pumping about 20 gallons per minute, versus about 2 gallons per minute the old system was pumping before the upgrade. As of March 2007, the system has recovered 4,800 gallons of gasoline product cumulatively since the beginning of its operation in 1990. For more than 10 years until early 2005, the system recovery was less than 2500 gallons of gasoline product. Upon the District's initiative, in the past two years after system upgrade, nearly 2500 gallons has been recovered stopping additional migration into District properties. During this interim remedial measure, sufficient recovery wells and an adequate capture zone have not yet been established to reduce the contaminant migration into the District. DOH is afraid that the plume is expanding on the western side of clay layer based on Chevron's semi annual monitoring well sampling results collected during District's oversight. Source has been spread to District side due to inadequate capture of contaminated plume. Chevron submits these results to EPA as per their order.

3

VI. SCOPE OF REMEDIATION AND STRATEGY

Although, Chevron proposes to expand the existing groundwater remediation system and install vapor mitigation systems in five homes impacted by subsurface soil vapor intrusion, this will only minimize the further migration of contaminants from the facility and the vapor mitigation of 5 homes. However, the contamination already present in the soil and groundwater and the soil gas underneath all impacted homes has to be recovered and treated to the regulatory standards. Chevron's expectation that the plume will be self-cleaning due to biodegradation of dissolved phase

hydrocarbons (benzene, toluene, ethyl benzene, xylenes, MTBE, total petroleum hydrocarbon-gasoline range) is not acceptable to the District due to the plume's location (in an existing residential area) and its size (longest gasoline plume of 1400 feet in the history of the District of Columbia). Evaluation of the sample results for the last year and a half, after the remediation startup in 2005, indicates that the Benzene and MTBE Plumes have extended on the west side of the clay layer reaching Nicholson Street. Now a 700 feet benzene plume, as identified before, would mean more than an estimated 1400 feet in both length and width and an increase in volume. The plume has increased by an estimated 700 feet. Similarly, now the MTBE plume has increased to the other side of the clay layer resulting in an estimated benzene and MTBE plume of equal length and widths. This can be addressed in Three prong approach:

A. Free product Removal, Groundwater and Vapor Extraction Remediation Strategy

1. Product Removal at Facility: Remove all liquid phase hydrocarbons (gasoline product sources) that are continually present at the parking lot and on the Facility. Evaluate for installing additional active product skimmers.

2. Stopping Petroleum Migration to DC side: Upgrade or expand the existing groundwater remediation system in Area A as mentioned in EPA Statement of Basis by installing angle recovery wells up to the boundaries of private properties to stop the imminent migration of source from the facility. Inadequate recovery resulted in persistent unacceptable levels of elevated contamination in DC well numbers 16, 17, 18, 22, 23, and 25, resulting in a potential source for plume expansion. Proposed inclined wells will enhance the removal of petroleum product entering into the residential Area B not addressed in 2005 system upgrades. However, the design of two recovery wells will not address the capture of gasoline plume on the District side.

4

3. Removing Free Product, Treating Groundwater and Soil Vapor Extraction on DC side: The District understands that it is highly infeasible and not practical to install 20 to 30 additional conventional recovery wells across the residential properties that then connect back to the existing recovery system. The plume not addressed before cannot be remediated by installing two inclined wells at Eastern Avenue. Therefore, an Independent Dual Phase Groundwater Recovery and Soil Vapor Extraction Treatment System installed in the Riggs Park community with conventional recovery wells on the DC side connected to an independent treatment system is warranted. The capture zone will be designed to recover the contaminants from the plume which was never addressed before.

Please refer to the following results as immediate reference and to plot on the existing EPA plume map dated 2004:

DC Side Groundwater Wells Impacts (in ppb)									
GW Well #	BENZENE (5ppb) Action level 5 ppb			MTBE (20 ppb) Action level 20ppb			TPH-GRO (<1000ppb) Guidance 1000ppb		
	Mar-06	Oct-06	Mar-07	Mar-06	Oct-06	Mar-07	Mar-06	Oct-06	Mar-07
Eastern Avenue Section, GW depths 26 feet to 44 feet									
16	24.4	1600	2200	1970	2500	2400	2210	18000	32000
17	1620	5100	360	3030	6500	750	31400	18000	6200
18	1.6	<5	<20	1709	<5	<20	4320	4900	25000
22	6860	7900	2400	2020	1100	570	85200	110000	54000
23	1	1.2	2	31.3	20	38	152	<100	<100
24	864	540	5.6	4	<50	1	60100	80000	48000
25	403	470	320	461	550	370	1630	1300	1300
OGLETHORPE STREET Section -Not enough wells (Interpolate data) GW depths 15 to 22 ft.									
Nicholson Street Section, GW depths 4.1 feet to 13 feet									
26	144	100	140	221	210	270	484	320	320
43	309	3	5	29.6	24	30	<100	<100	<100
44	1	1	1	143	120	140	159	<100	<100
27	168	150	200	451	370	530	706	970	720
33	974	760	670	653	520	400	2820	2000	1200
53	4	54	15	103	240	110	116	250	110

DOH does recommend this alternative because of the concern that the present recovery system has not pulled the gasoline plume from the District side further into Maryland. It appears from recent data on the District side, although the system in Maryland is working, the plume on the District side is expanding when compared with EPA's plume declaration in the Statement of Basis presented for public comments on August 30, 2007. This system must be dual phase with the soil vapor extraction capability while treating the groundwater. There may be numerous implementation obstacles to overcome such as acquiring private property for the placement of the treatment building, securing a separate power source, installing recovery wells and underground piping to private properties and tie them into the treatment system and discharge to the storm sewer. Additional challenges include the noise, esthetic concerns, emission and traffic interference during construction, and long-term operation of the system in a residential neighborhood. These can be controlled by environmental regulatory oversight. But, the future protection of human health, the environment, and the safety of the public living on Eastern Avenue, Oglethorpe, Nicholson and 8th Street is important to the District of Columbia Department of Health.

B. Home Vapor Mitigation Strategy

Homes located above the overall gasoline contamination are vulnerable to subsurface vapor intrusion. The District's guidance to evaluate the inhalation of these toxic vapors is based on one in a million cancer risk as per DCMR to develop removal action levels for remediation or refer to the EPA soil vapor guidance document and extract remedial action levels based on one-in-a million. Scientific equations are in several District and Federal documents. The number of impacted homes

based on one in a million can be determined. Presently, the District estimates 53 homes based on the DOH studies. The District proposes to have Chevron install a subslab depressurization system commonly used in radon mitigation to prevent vapor entry into residential basements impacted by the gasoline contamination. The depressurization system operates by creating a slight vacuum beneath the subslab that draws a slow stream of air through the subslab venting pipes, thereby reversing the vapor movement gradient and direction. As a vapor mitigation strategy, identify the number of homes above the one in a million conservative cancer risk evaluation comparison values, which DOH believes is safe for indoor inhalation, and design the vapor abatement system with a rigorous monitoring plan that protects from any vapor leaks or fire hazards.

C. Indoor Air and Soil Vapor-Monitoring and Sampling Strategy

Inhalation of volatile organic carbon poses an incremental involuntary risk. Until complete remediation of subsurface contamination on the Maryland and District side, Chevron must monitor
5 indoor air quality on a quarterly basis. On a semi-annual basis Chevron must sample for indoor air and the soil vapor for all the houses located on the contaminated plume. This can be accomplished during semi annual sampling of groundwater wells. All data included in the Home Test Report must be validated and include a professional opinion as to the source of the contaminants and remediation recommendations, if needed, and provide to the homeowners. Adequate permanent soil vapor ports on the residential properties do not exist on site.

VII. REMEDIATION STANDARDS

The contaminants of concern (COC) relating to the Facility are benzene, toluene, ethylbenzene, xylenes (BTEX) and MTBE. These COCs are present in groundwater, soil and soil vapor within the gasoline contamination zone.

A. Groundwater Remediation Standards

District and EPA have promulgated groundwater cleanup levels to meet drinking water standards established by the Maximum Contaminant Levels (MCLs) promulgated at 40 C.F.R. Part 141 pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. Section 300g-1, except for MTBE. MTBE does not have a MCL in either of the regulations. However, in 2002, DOH provided a conservative cleanup standard adopted by several states in the region and EPA as proposed remediation standard for MTBE based on taste and odor thresholds. EPA accepted the standard as adopted by the District. Proposed groundwater remediation standards are as follows:

Benzene	5 µg/l (micrograms per liter)
Toluene	1,000 µg/l
Ethylbenzne	700 µg/l
Xylenes	10,000 µg/l
MTBE	20 µg/l

6 **B. Soil Remediation Standards:**

District has developed soil cleanup levels and EPA has accepted these action levels in 2002. These levels are based on 10^{-6}

Benzene	0.157 mg/kg (milligrams per kilogram)
Toluene	125 mg/kg
Ethylbenzne	1160 mg/kg
Xylenes	504 mg/kg
MTBE	1440 mg/kg
TPH	100 mg/kg

C. Indoor Air Targeted Action Level and Soil Vapor Targeted Action Level

DOH has been working very closely with EPA and the Maryland Department of the Environment (MDE) over the past six and half years in communicating the community's concerns about the potential risk due to former release from the facility located in the State of Maryland and impacting the District of Columbia. Because of concerns raised by the public and the Council, DOH contracted with an independent vendor to conduct an indoor and ambient air study in the Riggs Park Community. During this contract, for screening purposes, indoor action levels were developed for Benzene, which is a carcinogen, by using the model equations. This was 0.8 µg/m^3 based on 1 in a million cancer risk. The action level for the four other contaminants was the same as that of EPA's removal action level for this site. The former Senior Deputy Director of EHA and Attorney, DOH communications, DOH contractor, Deputy Chief of Hazardous Materials and Toxic Substances, the Air Quality Division Program Manager, UST and LUST technical staffs contributed to the development of the benzene screening indoor air action level document. Indoor air direct sampling measurements were captured by the DOH contractor. The contractor conducted pre sampling interviews of the occupants, screening of the building to identify unintended cracks and openings in the lower level of the home, and screening for consumer products. The benzene action level described above was the benzene screening level for this contract for this site. This site did not meet the criteria to be apart of the Risk Based Corrective Action Program due to the presence of free product on the site, therefore the District could not apply the Tier 2 or Tier 3 target indoor action levels. Therefore, as per the requirements, screening levels will become the only clean-up levels.

Therefore, the following model equation used in the calculation for indoor air action screening level for Benezene:

$$\frac{TR \times BW \times ATc \times 365}{IR_{ai} \times ET_{in} \times ED \times EF \times SFi}$$

$$\frac{10^{-6} \times 15 \times 70 \times 365 \times 1000}{0.417 \times 18 \times 6 \times 350 \times 0.029} = \mathbf{0.838}\ \mu g/m^3$$

For Resident Child = ~ 0.80 µg/m^3

Description	Variables	Res. Child	Res. adult	Com. Worker	Cons. Worker
Target Risk	TR	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Body Weight	BW	15	70	70	70
Averaging Time For Carcinogens	Atc	70	70	70	70
Exposure Frequency	EF	350	350	250	90
Exposure Duration	ED	6	30	25	1
Averaging Time For Carcinogens	AT_{nc}	6	30	25	1
Hourly indoor inhalation rate	IRin***	0.417	0.633	1.5	1.5
Exposure time for indoor inhalation	***ETin*	18	18	10	10
Exposure time for outdoor inhalation	Etout	10	10	10	10
Target Hazard Quotient	THQ	1	1	1	1
Indoor inhalation Rate	IR_{ai}	0.417	0.633	1.5	**1.5**
Slope Factor inhalation	Sfi	0.029	0.029	0.029	**0.029**

The computations are per the District's Underground Storage Management Act and the regulations that dictate the maximum tolerable human health risk for carcinogens shall be one-in -a-million Vs EPA's action levels one in ten thousand to one in a million as per superfund guidelines. Please note, action levels vary from site to site based upon the identified target population at risk, i.e., adults, children, both, and what published exposure inputs used to arrive at the calculated action levels to include breathing rate, exposure, duration, exposure time, body weight etc. The action levels for soil remediation have been calculated similarly and submitted to EPA. In 2002, EPA accepted the District's soil remediation action levels as calculated. These action levels are calculated using the same model equations.

The background outdoor ambient air concentrations were measured to be between 0.4 to 0.9 ug/m3. Since the indoor air concentration due to vapor intrusion from the subsurface exceeds the indoor air screening level as calculated above, a specific remedial plan for each case must be devised. However, the above screening level does not imply that outdoor air concentrations are unacceptable and need to be mitigated. DOH considered both the background concentrations of BTEX constituents and MTBE and the acceptable risk ranges for those contaminants in establishing the above remediation standards. According to the District's remediation guidelines, the acceptable risk range for cancer protection is one in 1,000,000, and for non-cancer protection is a Hazard Quotient equaling one. Benzene is a known human carcinogen. The carcinogenic status of MTBE has not been established by EPA, however, EPA Region III conservatively treats MTBE as a possible carcinogen and the District has adopted is treatment. All other petroleum compounds of concern, toluene, ethylbenzene and xylenes, are not considered to be carcinogenic. The District understands that the removal of soil vapors present in indoor air to concentrations below the background ambient air level is difficult to achieve.

EPA has developed the Indoor Air Soil Vapor Remediation standards of one in 100,000. EPA selected 8 $\mu g/m^3$ and 17 $\mu g/m^3$, as the remediation standards for benzene and MTBE, respectively. Lifetime excess cancer risks associated with the selected standards are estimated to be in one in 100,000 and are within the EPA acceptable risk range of one in 10,000 thru 1 in 1,000,000. However, for the presence of multiple contaminants at a site, 40 CFR Ch.1 Page 70 section 300.430

7 e)(2)(i)A) suggests the use of one in a million. Accordingly, the District converted this to one in a million and the following would be the remediation standards, which are in line with the District's Screening levels:

	DC Calculated	EPA Calculated
Benzene	0.8 µg/m^3 (10^{-6})	8 µg/m^3 (10^{-5})
MTBE	1.7 µg/m^3 (10^{-6})	17 µg/m^3 (10^{-5})

However, the letter from the Attorney General, dated August 31, 2007, to the Riggs Park residents suggests that the action levels for indoor air or soil vapor derived from 10^{-6} standard must be properly promulgated and published for comments prior to utilization as a standard. The Indoor Air Action levels that are derived from the one-in-a-million risk standard for the use of the DOH contractor have not been promulgated and hence not enforceable on Chevron. Therefore until DDOE promulgates indoor air action levels, the District will prevail by deferring to EPA's guidelines. Therefore, the District has referred to properly promulgated and published EPA Subsurface Vapor Intrusion Guidance document dated November 2002, EPA530-D-02-004-Draft Guidance For Evaluating The Vapor Intrusion To Indoor Air Pathway From Groundwater And Soils (www.epa.gov/correctiveaction/eis/vapor/complete.pdf). This guidance provides targeted indoor air concentrations set at 10^{-4}, 10^{-5} and 10^{-6} (incremental individual lifetime cancer risk) levels and a Hazard Quotient (HQ) of 1 for non-cancer risk. For the presence of multiple contaminants at a site, Federal 40 CFR Ch.1 Page 70 section 300.430 e)(2)(i)(A) mandates the use of 10^{-6}. The Riggs Park site has multiple contaminants.

Therefore, as per the document-Table 2C, Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index [R=10^{-6}, HI=]:

Benzene 0.31 micrograms per cubic meter (µg/m^3)
or 0.098 ppbv

As per Table 2C, Target Shallow Gas (Soil Vapor) Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.1

Benzene 3.1 micrograms per cubic meter (µg/m^3)
or 0.98 ppbv

Under a Department of Health contract authorized and funded by the DC Council, Building Sciences and Engineering Associates, Ltd. performed indoor and outdoor air testing at 97 homes for which testing was authorized. The participating homes were provided an Individual Home Test Report directly forwarded from the contractor, which included chemical concentrations detected and the contractor's judgment as to whether the sources of each of the chemicals of concern were mainly from outdoor air sources, indoor air sources, and/or soil/vapor intrusion. Comparing the Benzene measurements completed under this contract with the above EPA's table suggest an elevated level of benzene in all homes but two. However, 53 homes were identified under high category for further actions. These were communicated by DOH to EPA in 2006 and early 2007.

In addition, District DCMR Section 6207.2 Regulation mandates that the responsible party shall submit a remedial plan that provides adequate protection of resident's health in accordance with maximum tolerable human health risks of one in a million standards as identified standards for the responsible party remedial plan implementation. The District has compared the impacted site media

measured data for compliance with this 10^{-6} standard. Data presented by Chevron under the Tables 5-2, 3, 4 and 5 as part of the baseline risk assessment for indoor air and soil vapor measurements suggest an elevated level of benzene in all homes for indoor air and all but three for soil vapor measurements resulting in a failure to comply.

In conclusion, EPA should use 10^{-6} as acceptable exposure standards instead of a value between 10^{-4} and 10^{-5} for Chevron's remediation plan in the District. There are several reasons for this conclusion which include the following:

1. The ground water clean-up level for Benzene as per Table 2C is based on 10^{-6} standard and a target groundwater concentration of 5 ppb which is enforced for this site. This is listed in the published EPA Subsurface Vapor Intrusion Guidance document dated November 2002, EPA530-D-02-004-Draft Guidance For Evaluating The Vapor Intrusion To Indoor Air Pathway From Groundwater And Soils (www.epa.gov/correctiveaction/eis/vapor/complete.pdf)

2. The soil clean-up level for Benzene (157 ppb) is based on the 10^{-6} standard and the soil remediation standard is developed based on 10^{-6}.

3. The District's recognized cancer risk Level is 10^{-6} as per the Attorney General.

4. District Regulations DCMR Section 6207.2 mandates the 10^{-6} standard for remediation and implementation.

5. The presence of multiple contaminants at a site, Federal 40 CFR Ch.1 Page 70 Section 300.430 e)(2)(i)(A) mandates the use of 10^{-6}. The Riggs Park site has multiple contaminants. (Setting this level for Benzene and MTBE will lead to cumulative health risks between 10^{-4} and 10^{-6} for the combinations of chemicals.)

6. EPA risk based concentration documents would expect to cause no more than 10^{-6}.

7. The ATSDR's Cancer Risk Evaluation Guides (CREGs), in which no chance exists for carcinogenic health effects, specifies 10^{-6}.

8. DC RBCA TIER level clean-ups are based on 10^{-6} (Page 2-5 RBCA published document)

9. The EPA calculation of 8 $\mu g/m^3$ as the level between 10^{-4} and 10^{-5} is not codified in the Federal Regulations.

8 10. EPA staff hand calculated 8 ppb as 10^{-5} is not listed in EPA Subsurface Vapor Intrusion Guidance document dated November 2002, EPA530-D-02-004-Draft Guidance For Evaluating The Vapor Intrusion To Indoor Air Pathway From Groundwater And Soils (www.epa.gov/correctiveaction/eis/vapor/complete.pdf)

11. EPA action levels identified in Statement of Basis were never published in Federal Register with a public notice and comment period in accordance with promulgation procedures.

12. District never implemented lower level than 10^{-6} as a federally approved state program implemented by the District.

9 13. Using 10^{-6} for soil and groundwater clean-ups, which are in subsurface and addresses the ingestion and dermal, but not using the same standard for inhalation of vapors generated from these soil and groundwater lead to disparity in addressing the contaminant impacts and clean-up attainments.

14. District's request for lowering acceptable level to 10^{-6} could prevent additional cancer deaths. As per the established protocol, EPA should defer to DC to address matters that are implemented in the District more stringent than those of the federal government.

The District recommends the following general outline of further action to be taken by the responsible party:

1- Install permanent sub slab monitoring vapor ports to collect soil gas samples, and indoor air samples semi annually.
2- Implement engineering controls.
3- Mitigate indoor air exposure.
4- Retrofit existing building which includes the installation of a sub-slab venting system and frequent monitor of indoor air and soil vapor.

D. Soil Vapor Action Level

As per EPA guidance on explanation of soil Vapor Removal Action Levels document, using a dilution ratio of 10 between soil vapor concentrations and that of indoor air, SB must include:

Benzene	8 micrograms per cubic meter ($\mu g/m^3$)
Toluene	50,000 $\mu g/m^3$
Ethylbenzene	10,000 $\mu g/m^3$
Xylenes	1000 $\mu g/m^3$
MTBE	17 $\mu g/m^3$

VIII. COST

The proposed remedy is cost effective in meeting the remediation objectives. DOH has expended capital costs in testing 97 homes in Riggs Park. The results were used by EPA and Chevron for calculating Chevron indoor vapor remediation and approvals. The District is seeking an environmental testing firm to document, monitor and sample subsurface vapor intrusion in the Riggs Park Community by installing soil vapor ports, indoor air and ambient sampling, and soil sampling. The cost recovery with administrative cost to implement this project is due to the District. The DDOE will take the lead on cost recovery including staff resources expended for this site.

IX. COMMUNITY AND EPA ACCEPTANCE

Community acceptance of EPA's and District's proposed remedy will be evaluated by EPA, as per the letter form Abe Ferdas of EPA to Dr. Pane dated August 29, 2007, based on comments received during the 60 day public comment period and will be described in the Final Decision and Response to Comments. (See letter attached)

X. ALTERNATIVES

DOH has evaluated all alternatives provided by Chevron. The selected main remediation alternative is briefly described below with an explanation of the key reasons as to why it is recommended.

Installation of an Independent Groundwater and Soil Vapor Extraction Dual Phase Recovery and Treatment System in the Riggs Park community in the District of Columbia is recommended. This alternative involves installation of conventional recovery wells in the highly impacted Area B residential side and in the updated gasoline plume area as shown in the Figure 4 & 5. Installing inclined recovery wells will not resolve the groundwater and soil vapor contamination underneath the homes in the District of Columbia.

XI. PUBLIC PARTICIPATION

On August 30, 2007, EPA placed an announcement in the Washington Times and Washington Post to notify the public of EPA's proposed remedy and of the location of the Administrative Record. As per conference call held on August 23, 2007 between EPA and DOH, all alternatives were explained and thought to be productive. EPA sent a letter to this effect that this document will be added as part of the EPA Statement of Basis for public comments for final determination of remedy selection for this site. Therefore, the District is requesting comments from the public on the remedy proposed in this document during the EPA public comment period beginning August 30, 2007 and ending October 29, 2007. Comments regarding the Districts proposed remedy may be submitted directly to EPA:

Mr. Andrew Fan (3WC23)
U.S. EPA, Region III
1650 Arch Street
Philadelphia, PA 19103
Phone: (215) 814-3426
FAX: (215) 814-3113
Email: fan.andrew@epa.gov

All questions regarding the Districts proposed remedy and a copy of the comments submitted to EPA should be submitted to Dr. V. Sreenivas, D.C. Department of Health (V.Sreenivas@dc.gov) and George Hawkins, Acting Director, Department of the Environment (G.Hawkins@dc.gov).

After evaluation of all comments, EPA will prepare a Final Decision Document and Response to Comments (FDRTC) that identifies final selected remedy. The FDRTC will address all significant written comments and any significant oral comments generated at the public meeting and will be made available to the public. If, on the basis of such comments or other relevant information, significant changes are proposed to be made to the corrective measures identified by EPA in this SB, EPA may seek additional public comments.

The District anticipates that the final remedy will be implemented in consultation with DOH, DDOE, and the Riggs Park Environmental Health Advisory Committee as communicated in the following EPA letter to Dr. Pane.

"U.S. EPA LETTER TO DR. PANE, DIRECTOR"

Dr. Greg Pane
DC Department of Health
825 North Capitol Street, NE
Fourth Floor, Room 4199
Washington, DC 20002

Dear Dr. Pane:

Thank you for your letter dated August 17, 2007 to the United States Environmental Protection Agency (EPA) regarding the draft Chevron Statement of Basis. We have weighed all the factors related to your request and have decided that the most prudent path forward is to proceed with the Public Comment Period starting on August 30, 2007.

The EPA does agree with your suggestion for placement of the public notice. Therefore, the public notice will be published in both the Washington Times and the Washington Post on Thursday, August 30, 2007.

In an effort to ensure that the residents learn about the public comment period, as well as the public meeting scheduled for September 6, 2007, EPA representatives will deliver a fact sheet door-to-door to all the homes located in Riggs Park, which have been impacted by the gasoline release.

I had a very productive discussion with Dr. Sreenivas on August 23, 2007, regarding your concerns about the Department of Health (DOH) review of the Statement of Basis. Although EPA is not going to postpone the comment period beyond August 30, 2007, I want to assure you that the EPA will include your submission as part of the Statement of Basis. Upon receiving your comments, the EPA will place them as part of the Public Record, so that citizens can comment on them as part of the Public Comment Period.

During my conversation with Dr. Sreenivas, we discussed a number of issues which made the call very productive. Let me assure you, as I assured Dr. Sreenivas, that the DOH will have a significant role in the design and implementation of the remedy at Chillum.

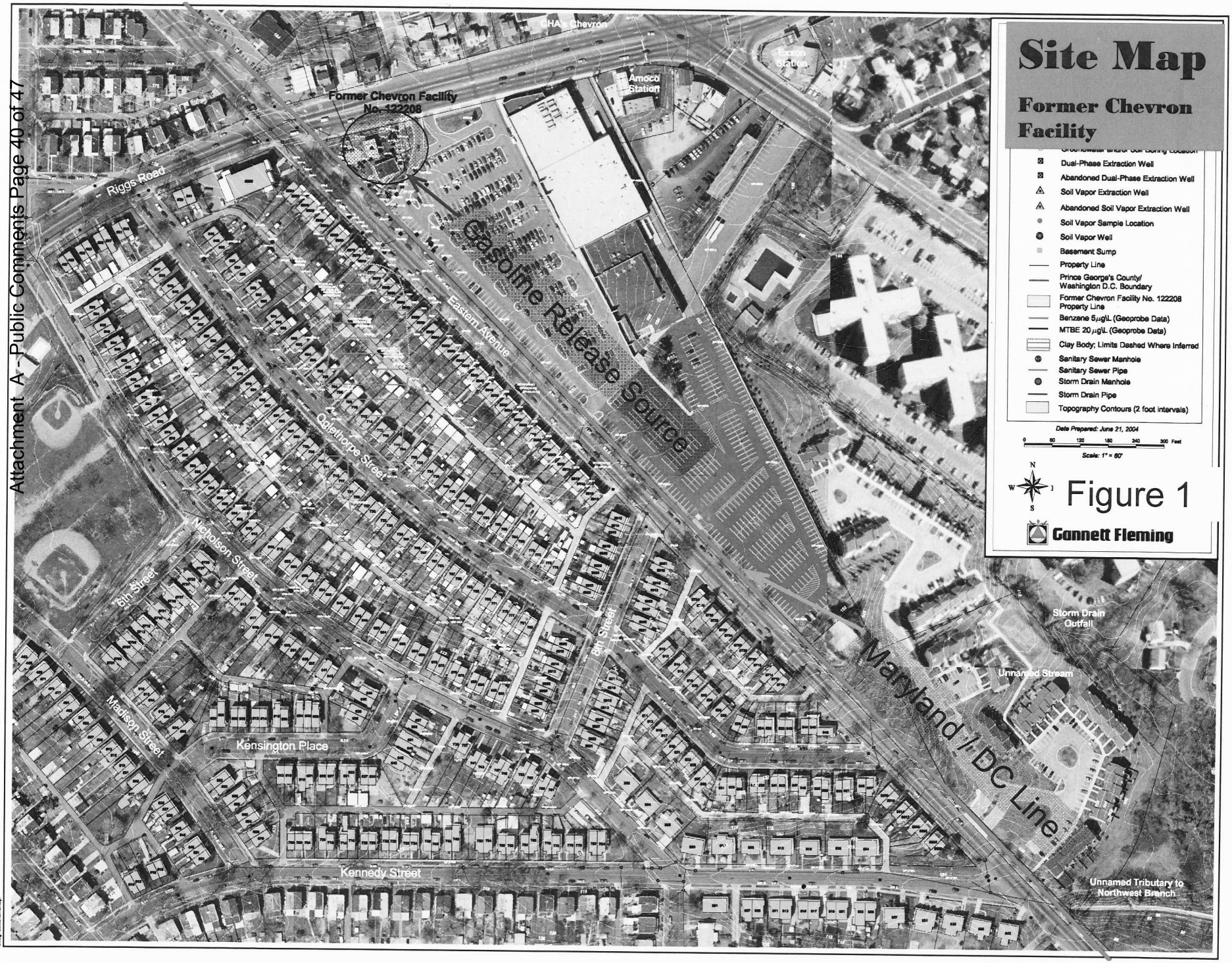
If you have any further questions about the Statement of Basis, please contact me at 215-814-3143.

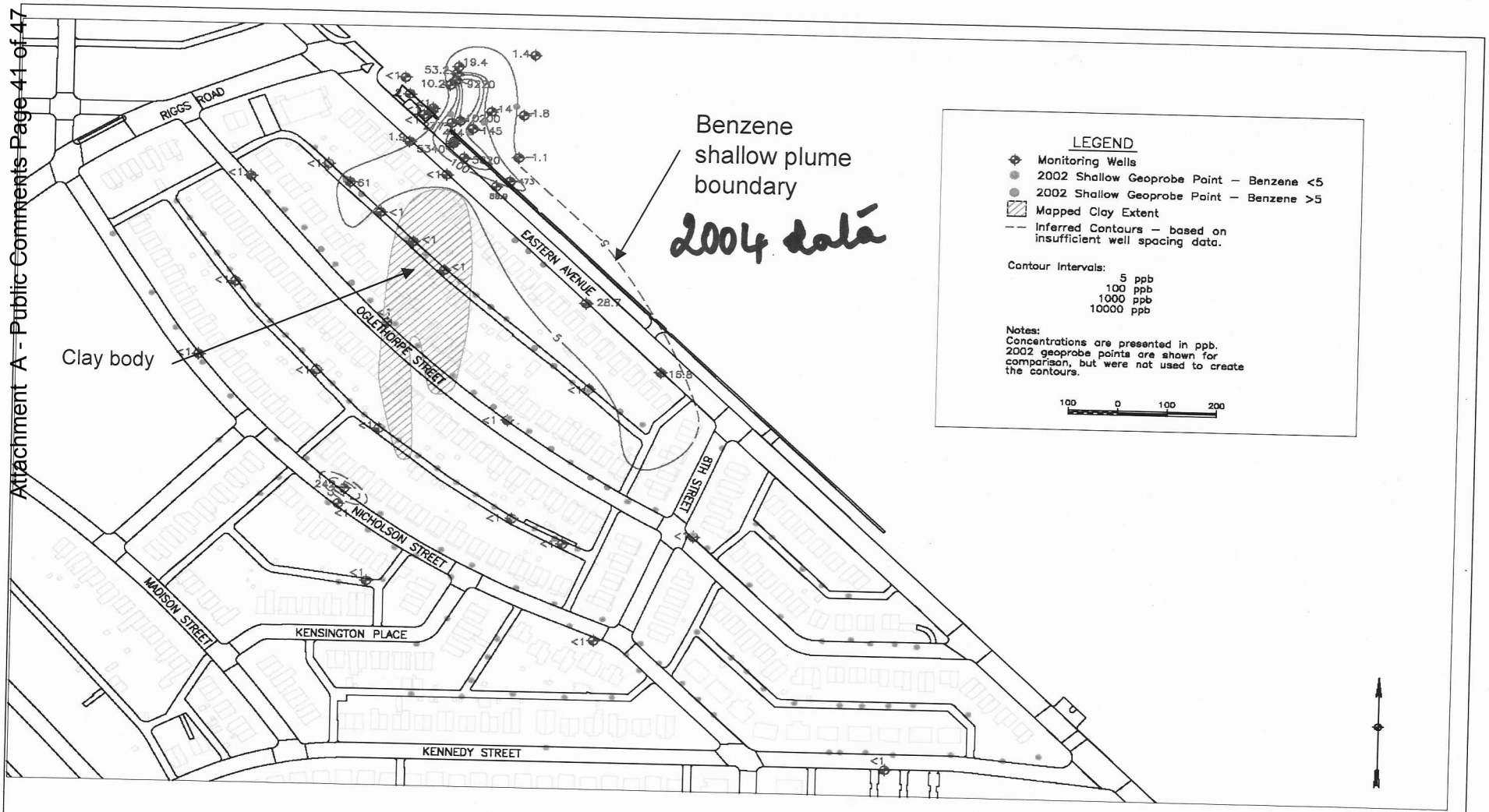
Sincerely,

/S/

Abraham Ferdas, Director
Waste and Chemicals Management Division

Cc:
Adrian Fenty, Mayor
Muriel Bowser, Council member
Linda Singer, Attorney General
George Hawkins, Acting Director, DDOE


Site Map
Former Chevron Facility
Dual-Phase Extraction Well
Abandoned Dual-Phase Extraction Well
Soil Vapor Extraction Well
Abandoned Soil Vapor Extraction Well
Soil Vapor Sample Location
Soil Vapor Well
Basement Sump
Property Line
Prince George's County/ Washington D.C. Boundary
Former Chevron Facility No. 122208 Property Line
Benzene 5 µg\L (Geoprobe Data)
MTBE 20 µg\L (Geoprobe Data)
Clay Body; Limits Dashed Where Inferred
Sanitary Sewer Manhole
Sanitary Sewer Pipe
Storm Drain Manhole
Storm Drain Pipe
Topography Contours (2 foot intervals)
Date Prepared: June 21, 2004
0 60 120 180 240 300 Feet
Scale: 1" = 60'
N
W
E
S
Figure 1
Gannett Fleming
Former Chevron Facility No. 122208
Amoco Station
Riggs Road
Gasoline Release Source
Eastern Avenue
Oglethorpe Street
Nicholson Street
5th Street
6th Street
Madison Street
Kensington Place
Kennedy Street
Maryland / DC Line
Storm Drain Outfall
Unnamed Stream
Unnamed Tributary to Northwest Branch



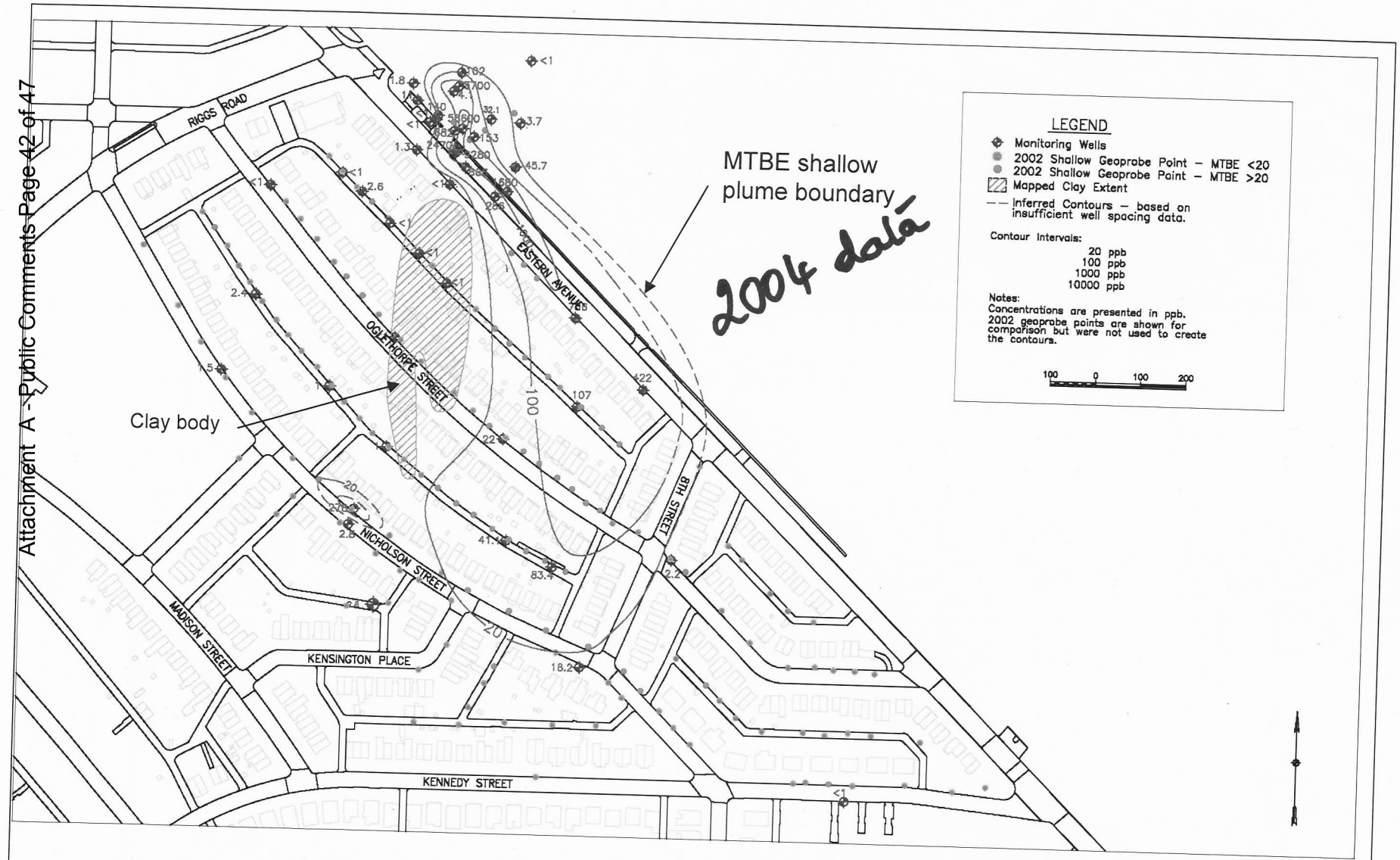
U.S. Army Corps of Engineers
10 S. Howard Street
Baltimore, Maryland 21040

PREPARED BY: PAD

DATE: December 2004

Figure 2

Benzene Shallow Plume
May–June 2004 Data from Shallow Wells

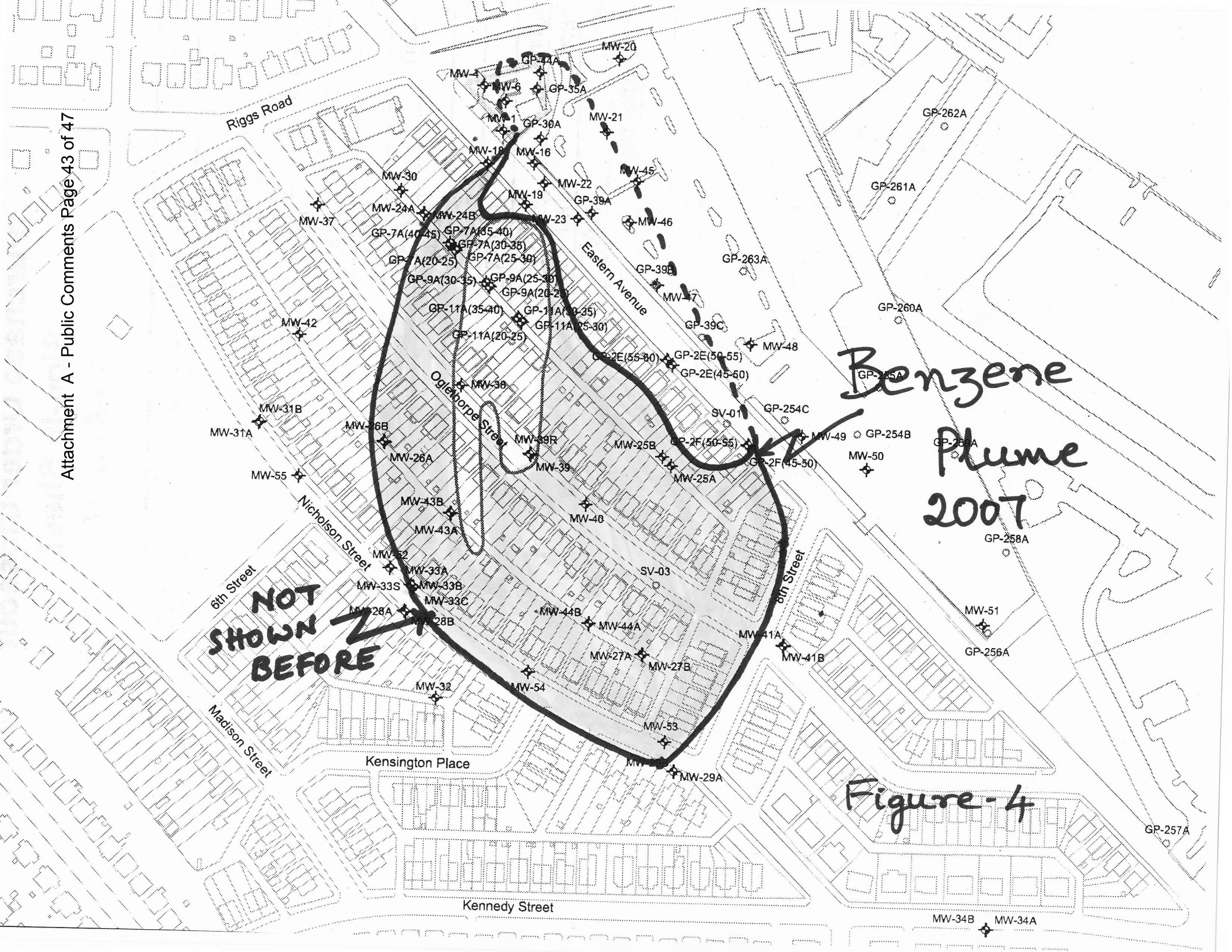


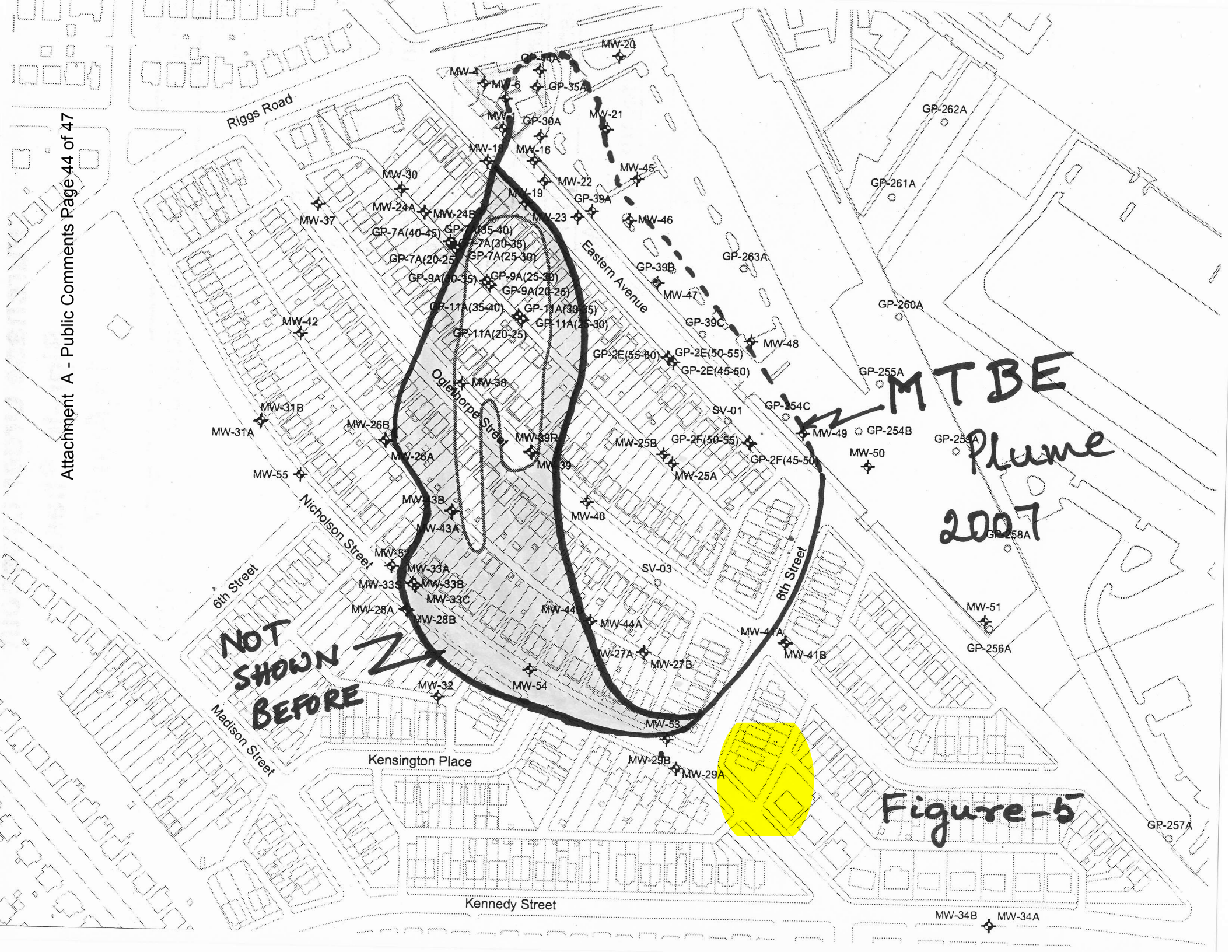
U.S. Army Corps of Engineers
10 S. Howard Street
Baltimore, Maryland 21040

PREPARED BY: PAD | DATE: December 2004

Figure 3

MTBE Shallow Plume
May–June 2004 Data from Shallow Wells


Riggs Road
Eastern Avenue
Ogletthorpe Street
Nicholson Street
6th Street
8th Street
Madison Street
Kensington Place
Kennedy Street
MW-20
GP-44A
MW-4
MW-6
GP-35A
MW-1
GP-30A
MW-21
MW-18
MW-16
MW-45
MW-30
MW-22
GP-262A
GP-261A
MW-19
GP-39A
MW-24A
MW-24B
MW-23
MW-46
MW-37
GP-7A(40-45)
GP-7A(35-40)
GP-7A(30-35)
GP-7A(25-30)
GP-7A(20-25)
GP-263A
GP-39B
GP-9A(30-35)
GP-9A(25-30)
GP-9A(20-25)
MW-47
GP-11A(35-40)
GP-11A(30-35)
GP-11A(25-30)
GP-11A(20-25)
GP-260A
GP-39C
MW-42
MW-48
GP-2E(55-60)
GP-2E(50-55)
GP-2E(45-50)
MW-38
GP-265A
MW-31B
MW-31A
SV-01
GP-254C
MW-26B
MW-39R
MW-49
GP-254B
GP-259A
MW-25B
GP-2F(50-55)
MW-26A
MW-50
GP-2F(45-50)
MW-39
MW-25A
MW-55
MW-43B
MW-40
MW-43A
GP-258A
MW-32
MW-33A
SV-03
MW-33S
MW-33B
MW-33C
MW-51
MW-28A
MW-44B
MW-28B
MW-44A
MW-41A
GP-256A
MW-27A
MW-27B
MW-41B
MW-54
MW-32
MW-53
MW-29A
GP-257A
MW-34B
MW-34A
Benzene Plume 2007
NOT SHOWN BEFORE
Figure-4


MTBE Plume 2007
NOT SHOWN BEFORE
Figure-5
Riggs Road
Eastern Avenue
Oglethorpe Street
Nicholson Street
6th Street
8th Street
Madison Street
Kensington Place
Kennedy Street
MW-20
MW-4
MW-6
GP-35A
MW-21
GP-30A
MW-16
MW-45
MW-22
MW-30
MW-19
GP-39A
MW-24A
MW-24B
MW-23
MW-46
MW-37
GP-7A(40-45)
GP-7A(30-35)
GP-7A(20-25)
GP-7A(25-30)
GP-39B
GP-263A
GP-9A(30-35)
GP-9A(25-30)
GP-9A(20-25)
MW-47
GP-11A(35-40)
GP-11A(30-35)
GP-11A(25-30)
GP-11A(20-25)
GP-39C
MW-42
MW-48
GP-2E(55-60)
GP-2E(50-55)
GP-2E(45-60)
MW-38
GP-255A
MW-31B
MW-31A
MW-26B
MW-26A
SV-01
GP-254C
MW-49
GP-254B
MW-39R
MW-39
MW-25B
GP-2F(50-55)
GP-2F(45-50)
MW-50
MW-25A
MW-55
MW-43B
MW-40
MW-43A
GP-258A
MW-53
MW-33A
MW-33B
MW-33C
SV-03
MW-28A
MW-28B
MW-44
MW-44A
MW-51
MW-41A
MW-41B
GP-256A
MW-27A
MW-27B
MW-32
MW-54
MW-53
MW-29B
MW-29A
GP-257A
MW-34B
MW-34A
GP-262A
GP-261A
GP-260A

Outdoor Ambient Air

Figure 6		Benzene	Over all Average for site	MTBE	Over all Average for site
Units in µg/m3	# of Samples	Average	0.47	Average	1.5
DOH 2006 outdoor air data (Zones 3,5,6)	22	0.9		0.3	
Chevron 2005 outdoor air data (Zone 5)	12	0.8		2.9	
ACE 2005 outdoor air data (Zone 5)	12	0.8		2.7	
McMillan Reservoir Station 1 and Station 2 (2006 DOH data) about 5 miles from Riggs Park			Monitoring Too far from site		
DOH 2007 Winter Sampling	2	0.12		0.11	

Council of the District of Columbia
1350 Pennsylvania Avenue, N.W., Suite 406
Washington, D.C. 20004-3001

Muriel Bowser
Councilmember, Ward 4

Tel: 202.724.8052
Fax: 202.741.0908
mbowser@dccouncil.us

October 25, 2007

Donald S. Welsh
Regional Administrator
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

Re: Comments on United States Environmental Protection Agency Statement of Basis, Chevron Gasoline Release at Chillum, Maryland dated August 2007

Dear Mr. Welsh:

I am formally submitting my comments on the EPA Statement of Basis (August 2007) pertaining to the Chevron gasoline release at Chillum, Maryland and the District of Columbia Remedial Strategy submitted by the Fenty Administration. I strongly concur with the District's recommendation for an Independent Dual Phase Groundwater Recovery and Soil Vapor Extraction Treatment System to remediate the petroleum free product, dissolved contaminants, and the soil vapor on the District of Columbia side to protect the Riggs Park Community from present and potential future public health impacts on residents and visitors to the Riggs Park Community.

As you know, this gasoline release has adversely impacted a community that I represent, namely the Riggs Park Community in the District of Columbia, which is located directly across the street from the gasoline station in Chillum, Maryland where the release occurred. After review of the Statement of Basis and many hours of discussion with staff of the DC Department of the Environment (DDOE), Department of Health (DOH), the Riggs Park Environmental Health Advisory Committee and residents of the affected community, and being a resident of the area myself, I am concerned that the remediation EPA options do not aggressively "deplete all petroleum contamination" which has shown up in the groundwater, soil vapor, and indoor air in Riggs Park. Since the proposed remedial plan does not specifically address capture of the entire groundwater plume, this will remain a concern for many homes as long as the plume is present in the underlying groundwater.

1 An Independent Dual Phase Groundwater Recovery and Soil Vapor Extraction Treatment System installed on the District side to capture and remediate the entire plume of contaminants that have migrated under the homes in the Riggs Park community, as mentioned in the District of Columbia

Remedial Action Strategy, Statement of Basis, Chevron Gasoline Release at Chillum, Maryland, dated September 7, 2007 (see attachment), as well as installation of a vapor abatement system for all 53 highly affected homes and co-slabs as identified in the DOH report, is essential to effectively remedy the contamination in our community, in addition to those you proposed. Would you also direct your staff to furnish the 3D groundwater map in both electronic and hardcopy format, this would honor a request made by the community four years ago. Should you have any questions, please do not hesitate to contact me at 202-724-8052 or mbowser@dccouncil.us.

2

3

Looking forward to a productive collaboration, I remain

Sincerely,

Muriel

Muriel Bowser
Councilmember
Ward 4

cc: The Honorable Adrian Fenty
The Honorable Eleanor Holmes Norton
The Honorable Albert Wynn
Riggs Park Environmental Health Advisory Committee
George Hawkins, Esq., Director, DDOE
Carlos Cano, MD, Interim Director, DOH
Abraham Ferdas

Agency for Toxic Substances and Disease Registry
Region 3
1650 Arch Street, 3HS00
Philadelphia, PA 19103

Andrew Fan
U.S. EPA R3 WCMD
1650 Arch St, 3WC23
Philadelphia, PA 19103

April 1, 2008

Dear Mr. Fan:

We understand that the Environmental Protection Agency (EPA) received community questions related to public health and/or the Agency for Toxic Substances and Disease Registry (ATSDR)'s activities at the Chillum Perc/Chevron Gasoline spill site during the EPA public comment period on the proposed remedy for this site. Thank you for forwarding these questions to ATSDR. Please see the attached document for our responses.

Sincerely,

Lora Siegmann Werner, MPH
Senior Regional Representative
ATSDR Region 3

Enclosure
cc Dr. Tina Forrester, ATSDR DRO
Dr. V. Sreenivas, DC DOH
Nick Kauffman, DC DOE

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April 2008
Agency for Toxic Substances and Disease Registry (ATSDR) Responses to Health-Related Community Concerns on the Chillum Site Provided to EPA R3

Response to Comments from Cleo Holmes, dated 10/29/2007

(2) "Question: Concerning the Chillum ATSDR Health Consultation dated January 12, 2004, why was this community not offered a comment period, as part of the health consultation process, in the same manner that other communities were offered?"

ATSDR Health Consultation documents can be released as public comment versions. This is done on a case by case basis. ATSDR worked diligently to collect community concerns prior to the release of our 2004 document. Based on the limited response rate we received in our survey of community health concerns, we determined that a public comment release of the Health Consultation was not needed at that time. However, based on your interest, ATSDR plans to release our upcoming third Health Consultation document for the Chillum site as a public comment version.

(3) "Question: In the September 6, 2007 meeting Ms. Waters of ATSDR/EPA answered a question relating to the Chillum Health consultation compared to another minority site for comparison purposes. Mr. Waters sated no because there is no other minority site tested before our 2004 Health Consultation.
***Why didn't ATSDR compare Chillum to the air study's dated 3-15-2001 and 11-19-2001 Afro-American community of Newtown Community, Gainesville, Hall County, Georgia?"**

Dr. Watters' understanding of your question to her at the September 6, 2007 meeting was that you asked her if she personally knew of minority communities where vapor intrusion had been detected and evaluated soon after a spill as opposed to evaluation performed many years later (as was the case in Chillum). She understood your question to be directed at trying to get an appreciation of how ATSDR evaluates historical exposures to vapor intrusion in communities. She answered that she had not personally worked on another site with exactly the same situation as the Chillum site. ATSDR as worked on many different sites, some in minority communities such as the Georgia Newtown site you referenced. Each site is evaluated with the site-specific and exposure pathway data available and with the unique questions for that site in mind. There are many characteristics of the Newtown site that differ from the Chillum site, and it would not make sense to directly compare the air data and findings for these two different situations. For example, the Newtown site was a review of ambient air quality not specific to a particular environmental release to address community concerns about cancer, lupus, etc. Thus, a cancer registry evaluation was done at the site and tables referring to the contaminants of concern list both cancer risk evaluation guidelines and other ATSDR health-based comparison values. As you know ATSDR's work at the Chillum site focuses on the public health implications of environmental sampling data related to a mixed gasoline and perchloroethylene (perc) groundwater plume.

(4) "Question: What is cancer risk is associated with Comparison Value DHACGL (ATSDR Division of Health Assessment and Consultation Guideline) for benzene for this site?

- **One in a million**
- **One in one hundred thousand**
- **One in ten thousand"**

ATSDR's Division of Health Assessment and Consultation (DHAC) proposed an interim guideline of 10 ppb for chronic inhalation exposure to benzene vapor (i.e., this is the Division of Health Assessment and Consultation Guidance Level (DHACGL) for benzene). The guideline suggested that if no maximum values exceed 10 ppb in air, the exposure is classified as a no apparent public health hazard. This guideline is not developed using the "one in a million, one in one hundred thousand, or one in ten thousand" risk assessment methodology used to develop a Cancer Risk Evaluation Guideline (CREG) value. This guideline was based on information from toxicological literature reviews, experimental findings, reevaluation of occupational cohorts related to benzene, and professional judgment by the ATSDR toxicologists and used a no observed adverse effect level endpoint to establish their value. Benzene levels found in the air at the Chillum site are orders of magnitude below levels associated with cancer in workers.

(5) "Question: What date was the CV DHACCL promulgated in the Federal Code of Regulations?"
(6) "Question: What date and number of the Federal Register was the DHACGL advertised?"

ATSDR screening comparison values and guidance do not need to be promulgated in the Federal Code of Regulations or published in the Federal Register. The ATSDR DHACGL was developed in 1999 as an interim guideline value. Note however, that all of ATSDR's Toxicological Profiles and Minimal Risk Levels (MRLs) are publicly available on our Internet website at www.atsdr.cdc.gov.

(7) "Question: Why was CV Cancer Risk Evaluation Guidelines (CREGs) used for the Afro American community of Hall County, GA Health Consultation and not used for this Afro American community associated with the Chillum Health Consultation?"

As referenced in ATSDR's 2005 "Public health assessment guidance manual (update)," when determining which health-based comparison value (CV) to use, ATSDR staff followed the agency's general hierarchy and use professional judgment to select those CVs that best apply to the site conditions. For the previous Chillum site Health Consultation documents, ATSDR used the benzene DHACGL as a trigger to further evaluate the levels of benzene in air at this site. ATSDR has stated that the reported levels of volatile organic chemicals (VOCs) (including benzene) in indoor air at the Chillum site are below levels shown to cause health effects. ATSDR uses screening values (e.g., CREGs or DHACGLs) to determine if a chemical(s) should be reviewed further. The DHACGL used to evaluate community exposures to benzene at the Chillum site included consideration of both cancer and non-cancer effects. Sample results above a screening value do not mean that health effects will result (i.e., screening values are just screening values). A more detailed discussion of both the CREG and DHACGL in the context of the monitoring results from this site will be included in ATSDR's next health consultation reviewing the available DC DOH sampling data for this site, and ATSDR hopes this will be helpful in clarifying this issue for you and the community.

<u>Response to Betty Tate's Comments, dated October 27, 2007</u>

(8) "Why did not ATSDR used the same Comparative Value at this Site as was done at Newtown Community, Gainsville, Hall County, Ga?"

Please see ATSDR's response to Cleo Holmes' Comments #3 and #7 on comparison values used by ATSDR.

Response to William and Judith Mills Comments, dated 9/6/07

(1) "I am asking that all of my questions be answered including those involving health issues as it should be noted we were never granted a public comment period for the ATSDR Health Consultation."

See ATSDR's response to Cleo Holmes' Comment #2 regarding public comment periods and ATSDR documents. ATSDR Health Consultation documents can be released as public comment versions. This is done on a case by case basis. ATSDR worked diligently to collect community concerns prior to the release of our 2004 document. Based on the limited response rate we received in our survey of community health concerns, we determined that a public comment release of the Health Consultation was not needed at that time. However, based on your interest, ATSDR plans to release our next Health Consultation document for the Chillum site as a public comment version.

Response to Diane Carpenter's Comments, dated October 27, 2007

(1) "How come ATSDR never set up air monitoring system to determine the scale of ambient air intrusion in our school, churches and homes in our neighborhood?"

ATSDR typically does not conduct our own air monitoring at sites. If the information we need is available from regulatory agencies, such as the U.S. EPA and the D.C. Departments of Health and the Environment, we use that data for our public health reviews.

(2) "How come ATSDR never used the middle scale approach which would help define the concentration typical of areas up to severa; city blocks in size with demension ranging from approximately 100m to 0.5km to effectively show the maximum impact on our community."

ATSDR focused on the maximum chemical concentrations in our evaluation of the environmental data from this site. We did this to look at "worst case" possible exposures in the community for our public health evaluations. Although sampling shows that only a few homes may have exposures at the maximal, "worst case" chemical concentration, assuming all homes in the entire community have that maximal exposure allows us to evaluate the maximum potential health impact on the community.

(3) "ATSDR stated they used the SLOP FACTOR to determine facts for inhalation exposures, why are the detection limits so different than the ones used in the Newtown community in Georgia?"

The detection limits for environmental sampling events are set by the organizations performing the sampling. Detection limits reflect the ability of the sampling equipment and laboratory analytical technique to accurately measure the chemical of concern. Detection limits can be different for different sampling events.

Cancer slope factors are different from sampling detection limits. They represent an estimate of a person's probability or risk of developing cancer as a result of a lifetime of exposure to a particular level of a chemical (as opposed to a straight concentration of a chemical that you would see in a detection limit). EPA develops cancer slope factors from a review of the available

medical and toxicological studies looking at health effects from exposure to chemicals expected or known to cause cancer. In some cases, if you use a chemical's cancer slope factor to estimate a specific probability of cancer risk, you may produce a concentration below the detection limit set for the sampling event.

(9) "ATSDR stated they did a health assessment, where is the data for the study, evaluation or assessment?"

ATSDR has completed several public health reviews of the information for this site. Please see our Health Consultation documents from January and November 2004 for descriptions of the information we reviewed. These documents are available on line at http://www.atsdr.cdc.gov/HAC/pha/chillumperc/cps_toc.html and http://www.atsdr.cdc.gov/HAC/pha/chilliumPerc112404HC-MD/chilliumPerc112404HC-MD.pdf
In addition, ATSDR is now completing a third Health Consultation for this site. This document will include our review of the data from the DC Department of Health sampling events at this site from June-September 2006 and winter 2006. This document will be available later this year.

(10) "Under the study methods you indicate that the kind of study sought to determine whether or not cancer rates in the community are statistically different compared to the US rates for black African American. If industry is generally located more in African American and poor neighborhoods why wasn,t a comparison made to white populations of similar size?"

It is not clear to ATSDR what study methods this comment refers to. ATSDR has not conducted a review of cancer rates in this community comparing it to any other populations.

(11) "I feel that ATSDR assessment void any environmental justice considerations or recommendations and therefore should be recommend to incorporate its environmental justice responsibilities into its assessment of the Chevron gasoline spill in the Chillum area."

ATSDR agrees with you that this site has environmental justice considerations. We have dedicated significant staff resources and expertise to try to answer the questions and concerns raised by the community about this site since 2002, and have attempted to be sensitive to the environmental justice concerns at this site. As stated in ATSDR's Public Health Assessment Guidance Manual, "Environmental justice refers to efforts to ensure that all populations, regardless of their economic status or political power, are treated equally with respect to the development, implementation and enforcement of environmental laws, regulations, and policies." Per your comment, ATSDR site team members will share your comment and information about our work at this site NCEH/ATSDR's Office of the Director, Environmental Justice program.

(12) "The Executive Order itself requires that Chevron implement its programs, policies, and activities that affect human health or the environment so to "identify" "address" and "ensure" that they do not result in disproportionately high and adverse effects on minority and low income population, Moreover, ATSDR owns environmental justice programs purports that preventing" adverse effects and environmental injustices in minority population is a priority". What happened?"

Please see ATSDR's response to your previous comment, Comment #11.

(13) "ATSDR made a statement in the Newtown Community Health Assessment in Georgia, that storm water is not used for drinking water, but areas where children, play swim in storm water run off may be at high risk of exposure to organism that could cause illness. ATSDR concluded in their statement that chemical exposure contamination in storm water runoff is not likely to result in health effects, however, exposure to storm water contaminated with fecal organisms via dermal absorption, inhalation or incidental ingestion of contaminated storm water runoff could potentially result in adverse health effects. Our community recreation center had a swimming pool which has probably been contaminated for over 20 years or more, ground water levels are very high in this area. The school has football, basketball and other activity outdoors which has made children more acceptable to chemical exposure. How come ATSDR didn't take these facts in account?"

ATSDR evaluates every site we work on individually. Exposure pathway information, available environmental data, and health concerns for each site are unique. There are many characteristics of the Newtown site that differ from the Chillum site, and it would not make sense to directly compare the environmental data and findings for these two different situations. It is a concern if children are playing in stormwater potentially contaminated with fecal organisms. However, we have not seen or heard that children are doing this at the Chillum site. If children are playing in stormwater in the community, this information needs to be shared with the D.C. Departments of Health and the Environment. The swimming pool's water quality is unrelated to the groundwater level in the area. A properly maintained and chlorinated swimming pool at a community recreation center receives its water from the public water supply and not from the stormwater system or the contaminated groundwater in the area. Therefore, the pool would not get fecal contamination from the stormwater system or chemicals from the groundwater.

In our public health evaluations for this site, ATSDR looked at all of the potential exposure pathways of concern. We did not find that children would come in to contact with any chemicals from the site at levels of concern while playing outdoors.

As further noted in EPA's response to Betty Tate Comment #3, the school property is located outside the plume and situated on the opposite side of the groundwater divide. Therefore, the school swimming pool cannot be impacted by the Chevron gasoline release.

(17) "Will EPA take in consideration the long duration of the spill the contamination of vapors people have breath for years?"

This question is addressed to EPA, and EPA's response is included in their Response to Comments document. However, EPA also asked ATSDR to respond to this question because it is a health-related concern. ATSDR's public health evaluations for this site do consider the long duration of the spill in this community. As stated in our Health Consultation documents, we are aware that the gasoline service station that was the source of the gasoline spill in the community was constructed in 1954, and that since at least 1989, gasoline has leaked into the ground from the property. We understand that the exact date when the contamination began affecting the community is not known. As a result, we have estimated that exposures have occurred in the community since at least 1989, and for our evaluations of cancer risk we have assumed a lifetime of exposure to the chemicals found in the indoor air of this site.

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Attachment B - ATSDR Response

ATSDR Record of Activity
Technical Assist/Health Consultation

UID #: kvm4 Date: 05/ 10 / 2007 Time:_ am_ pm

Site Name: Chillum Perc (PCE) Site City:Chillum/Lamond Riggs County:Prince George State: MD/Washington, DC Cost Recovery #: 3AQ3

Requestor and Affiliation:(1)Andrew Fan (EPA-RPM) Phone: 215-814-3426
Address: 1650 Arch Street City: Philadelphia State:PA Zip Code: 19103

Contacts and Affiliation
ATSDR: Lora Werner; Karl V. Markiewicz, PhD; Clement Welsh, PhD

Narrative Summary: On April 19, 2007, the Agency for Toxic Substances and Disease Registry (ATSDR) received a request from the U.S. Environmental Protection Agency (EPA) Region III Waste and Chemical Management Division to determine the public health protectiveness of proposed clean-up levels for five volatile organic compounds (VOCs). The five chemicals are benzene, toluene, ethylbenzene, xylene, (BTEX) and methyl-t-butyl ether (MTBE).

Table 1: EPA's Proposed Clean-up Levels with Comparison Values (CVs).

Chemical	Proposed Level (ug/m3)	Acute CV (ug/m3)	Chronic CV (ug/m3)
benzene	8	30	10
toluene	5,000	4,000	5,000 (EPA RfC)
ethylbenzene	1,000	4,000 (intermediate)	1000 (EPA RfC)
xylene	100	9,000	200
MTBE	17	7,000	2,000

ATSDR CVs unless otherwise noted in Table 1.

Background: A gasoline plume (including benzene, toluene, ethylbenzene, xylene, & MTBE) originated at a service station in the Chillum section of Hyattsville, Md., and migrated into the nearby Lamond-Riggs Park neighborhood in the District of Columbia. Federal and state agencies have investigated the source of the gasoline plume since 1989. The release was initially addressed by the Maryland Department of the Environment (MDE). MDE required Chevron to install a pump and treat system which has been in operation since 1990. In April 2001, the gasoline plume was reported to have migrated into the District of Columbia. In October 2001, EPA assumed responsibility for the gasoline release investigation. In November 2002, EPA issued a Unilateral Order to Chevron that requires Chevron to investigate the extent of groundwater and vapor contamination, expand the operation of the existing pump and treat system, and identify interim or long-term measures to protect human health and the environment as needed. Subsequent investigation also discovered that perchloroethylene (PERC), a dry cleaner solvent, was also present in groundwater at elevated concentrations. At the request of EPA and community members, ATSDR has been evaluating environmental data and health concerns in the affected community since approximately 2003; please refer to previous ATSDR Health Consultations and Records of Activity for the Chillum site more background information on this site. In May 2007, EPA requested that ATSDR review the proposed indoor air cleanup levels for the gasoline constituents of concern at this site -- benzene, toluene, ethylbenzene, xylene, and MTBE. The specifics of future remediation plans at this site are still under negotiation.

Conclusion: The EPA proposed clean-up levels are at or below health-based comparison values and below levels known to result in adverse health effects. As such, ATSDR supports the EPA proposed clean-up levels for (benzene, toluene, ethylbenzene, xylene, & MTBE). Exposure to these chemicals individually or in combination at the proposed clean-up levels is not expected to cause adverse health effects in children or adults.

Preparer of Report:

Karl V. Markiewicz, Ph.D.
Division of Regional Operations
Agency for Toxic Substances and Disease Registry

Signature: KVMarkiewicz Date: 5/10/07

STATEMENT OF BASIS

Chevron Gasoline Release

At Chillum, Maryland

August 30, 2007

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LIST OF FIGURES

GLOSSARY

ACE – U.S. Army Corps of Engineer

ATSDR - The Agency for Toxic Substances and Disease Registry

BTEX - Benzene, toluene, ethylbenzene, and xylenes

COC – Contaminants of Concern

DOH – District of Columbia Department of Health

EPA- U.S. Environmental Protection Agency

FDRTC - Final Decision Document and Response to Comments

MCL - Maximum Contaminant Levels

MDE - Maryland Department of Environment

MTBE - Methyl tertiary-butyl ether

OSHA - Occupational Safety and Health Administration

PCE – Perchlorethylene, also known as Tetrachloroethylene

ppb – Parts per billion

RBC – Risk Based Concentrations

RCRA – Resource Conservation and Recovery Act

FDRTC - Final Decision Document and Response to Comments

SB – Statement of Basis

TI - technical impracticability

UAO - Unilateral Administrative Order

ug/l – Micro grams per liter

UST – Underground Storage Tank

VOC - Volatile organic compounds

I. INTRODUCTION

This Statement of Basis (SB) explains the United States Environmental Protection Agency's (EPA's) proposed remedy for the gasoline release originating from the gas station formerly owned by Chevron U.S.A. Inc. (Chevron) and located at 5801 Riggs Road in Chillum, Prince George's County, Maryland (the Facility) under the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6901 to 6939(e) (RCRA). After reviewing extensive groundwater, soil vapor, and indoor air sampling data generated by EPA, Chevron and the District of Columbia (District), EPA is proposing as the remedy for the Facility the expansion of the existing groundwater remediation system, the installation of vapor mitigation systems in homes impacted by subsurface vapor intrusion, and the implementation of institutional controls.

The purpose of this document is to solicit public comment on EPA's proposed remedy prior to making its final remedy selection for the Facility. The information presented in this SB can be found in greater detail in the work plans and reports submitted by the Facility to EPA, the District Department of Health (DOH), and the Maryland Department of Environment (MDE). To gain a more comprehensive understanding of the RCRA activities that have been conducted at the Facility, EPA encourages the public to review these documents which are found in the Administrative Record. The Administrative Record and index are available for public review at the EPA Region III Office in Philadelphia and the Lamond Riggs Branch Library located on 5401 South Dakota Avenue, N.E., Washington, D.C.

The public may participate in the remedy selection process by reviewing this SB and documents contained in the Administrative Record and submitting written comments to EPA during the public comment period. Public participation is discussed in further detail in Section X, below. EPA will address all significant comments submitted in response to the proposed remedy described in this SB. EPA will make a final remedy decision and issue a Final Decision and Response to Comments after it considers information submitted during the public comment period. If EPA determines that new information or public comments warrant a modification to the proposed remedy, EPA may modify the proposed remedy or select other alternatives based on such new information and/or public comments.

II. FACILITY BACKGROUND

The Facility is located at the eastern corner of the intersection of Eastern Avenue and Riggs Road in Chillum, Maryland. The north side of the right-of-way of Eastern Avenue delineates the boundary between Prince George's County, Maryland and the District. The southern extent of the Facility property abuts the District.

Gulf Oil Corporation (Gulf) constructed a service station on the Facility property on or about 1954. Standard Oil Company of California merged with Gulf in 1984, and after restructuring, changed its name to Chevron. Chevron owned and operated the Facility until it was sold to an independent owner in 1993.

In October 1989, as required by the newly promulgated Underground Storage Tank (UST) regulations codified at 40 C.F.R. Part 280, Chevron conducted an UST tightness test on its underground storage tanks. The UST tightness test and subsequent investigations by Chevron under MDE oversight confirmed the release of gasoline from the Facility and the presence of gasoline product in groundwater. Since 1990, Chevron has been recovering gasoline product from the groundwater by operating a groundwater remediation system at the Facility.

In 2001, Chevron discovered that the gasoline contaminated groundwater (plume) had migrated into the District affecting a residential neighborhood known as Riggs Park. Because the plume impacts two separate political jurisdictions (the State of Maryland and the District), at the request of District Councilmember Adrian Fenty, who was later elected as Mayor of the District, EPA assumed the lead investigatory role for the Facility.

In December 2002, EPA issued a unilateral Administrative Order (Order), RCRA-03-2003-0006th, pursuant to Section 7003 of RCRA, 42 U.S.C. § 6973, to Chevron. The Order requires Chevron to perform interim measures to mitigate threats to human health and the environment; to perform a Site Investigation to determine the nature and extent of petroleum related contaminants in the groundwater; and to perform a Corrective Measure Study to evaluate alternatives for corrective action necessary to protect human health and the environment.

During the summer of 2002, as a result of the Site Investigation, perchlorethylene (PERC) was discovered in the gasoline plume. Since PERC is not a contaminant associated with gasoline, but rather is commonly associated with dry cleaning activities, EPA determined that PERC is not a Facility-related contaminant. The PERC contamination, therefore, is not within the scope of EPA's RCRA corrective action investigation and is not addressed in EPA's proposed remedy for the Facility. EPA's Superfund Removal program has taken the lead on investigating the PERC release.

III. SUMMARY OF GASOLINE RELEASE INVESTIGATION

As required by the Order, Chevron has collected soil, soil vapor, indoor air and groundwater samples, and has conducted pilot tests to upgrade the existing groundwater remediation system. Between 2001 and 2007, Chevron installed 232 temporary Geoprobe wells, 80 groundwater monitoring wells, 7 product recovery wells, and 4 soil vapor monitoring wells. Cumulatively, during the same period, Chevron has collected over 3000 groundwater samples, 300 soil samples, 250 soil vapor samples from 90 properties, 50 indoor and ambient air samples from 20 properties, and 14 basement sump samples.

Between 2002 and 2005, EPA's Superfund Removal program collected indoor air samples from 32 properties and installed 24 soil vapor wells for its PERC investigation; and the U.S. Army Corps of Engineer (ACE), on behalf of EPA, generated split /quality control data from over half the properties sampled by Chevron. In 2006, DOH initiated

an independent indoor air sampling effort, based on voluntary participation by the Riggs Park residents. During that investigation, DOH collected indoor air data from 97 homes in Riggs Park bounded geographically by four streets: Kennedy Street, Madison Street, Eastern Avenue, and Riggs Road. While EPA's proposed remedy does not address the DOH or PERC investigation, EPA has relied on data collected by both investigations to support its proposed remedy for the Facility.

Based on soil, soil vapor, indoor air and groundwater data collected through September 2005, EPA has delineated a shallow benzene plume and a shallow methyl tertiary-butyl ether (MTBE) plume as shown in Figures 2 and 3. The shallow benzene plume extends approximately 700 feet from the Facility into the District, and the shallow MTBE plume is about twice as long, extending about 1400 feet from the Facility into the District. For the purposes of this SB, the combined maximum boundary of both plumes will be referred to as the gasoline plume.

The primary direction of groundwater movement from the Facility is towards the southeast as evidenced by the southeasterly orientation of the plume that crosses the Maryland State line into the District. A clay body in the middle of Riggs Park has divided the plume into two lobes. Since the Riggs Park is serviced by public water and there are no known private groundwater wells in Riggs Park, there is no human health threat associated with consumptive uses of the contaminated groundwater. The primary health concern is that vapor can volatilize from the plume and migrate vertically through soil into basements through cracks, joints and utilities openings. This effect is referred to as subsurface vapor intrusion.

Subsurface vapor intrusion can impact only those homes located above the gasoline plume. Homes located outside the extent of the gasoline plume cannot be impacted by vapor intrusion from the plume. Therefore, EPA required Chevron to use the gasoline plume boundaries as a selection criterion for identifying homes to be sampled for subsurface vapor intrusion. DOH's indoor air sampling differs from Chevron's approach because DOH relied upon voluntary participation from residents within designated geographic boundaries which did not correlate with the plume boundaries.

EPA has statistically characterized the indoor air data collected from 97 homes by DOH in Figure 4. The data in Figure 4 indicate that there is elevation in benzene and MTBE vapor concentrations in homes above the gasoline plume as compared to homes situated outside the plume boundaries, suggesting that there is likelihood of subsurface vapor intrusion associated with the gasoline plume. Based on EPA's review of 151 indoor air samples collected by EPA, Chevron, and DOH, EPA has identified up to 5 homes above the gasoline plume where measured vapor concentrations have exceeded EPA's remediation standards as presented in Section VI, below. EPA has also statistically characterized the outdoor ambient air data collected by Chevron, DOH, and ACE in Figure 5. On average, outdoor benzene and MTBE concentrations are at levels of about one-third to equal that of indoor air concentrations.

IV. INTERIM MEASURES

In 1990, under MDE oversight, Chevron installed and began operating a skimmer system at the Facility to recover gasoline product from groundwater. In 1994, the system was modified into a dual phase extraction system to recover gasoline product from both groundwater and soil vapor. For the purposes of this SB, both the skimmer system and the dual phase extraction system, along with any modifications to those systems, are hereinafter collectively referred to as the groundwater remediation system or system.

Between 1997 and 2000, Chevron conducted several shut-down tests of the groundwater remediation system to evaluate whether the system had met its objective of removing all gasoline product. The system was turned back on after each shut-down test because each test failed to demonstrate that the objective was met. In 2000, after the last failed shut-down test, Chevron conducted an additional site investigation during which it discovered additional gasoline product beneath the parking lot outside the Facility and a gasoline plume that had migrated into the District.

Under the interim measures provision of the Order, Chevron was required to upgrade the groundwater remediation system to recover the additional gasoline product sources discovered in the parking lot. Chevron completed the system upgrade in early 2005. This upgraded groundwater remediation system is currently pumping about 20 gallons per minute, versus about 2 gallons per minute the old system was pumping before the upgrade. The upgraded system has noticeably increased the capture zone and groundwater movement, thereby enhancing the remediation efficiency. As of March 2007, the system has recovered 4,800 gallons of gasoline product cumulatively since the beginning of its operation in 1990.

V. SCOPE OF REMEDIATION

EPA proposes to expand the existing groundwater remediation system and install vapor mitigation systems in homes impacted by subsurface soil vapor intrusion.

A. Groundwater Remediation Strategy

The gasoline plume is 1400 feet long and extends from the Facility to the intersection of Eighth Street and Nicholson Avenue (Figures 2 and 3). EPA proposes to remove all liquid phase hydrocarbons (gasoline product sources) that are present at or near the Facility, as depicted by Areas A and B in Figure 4. Although gasoline product has only been detected once in a monitoring well within Area B, non-mobile product is believed to be present in Area B soil within the water table fluctuation zone known as the "smear zone." Non-mobile product will not migrate with groundwater or enter wells in measurable or recoverable quantities. The objective of the remediation system is to eliminate all gasoline product sources, mobile and non-mobile, from further tainting the groundwater. EPA anticipates that once the sources are eliminated, the plume will be

self-cleaning due to rapid biodegradation of dissolved phase hydrocarbons (benzene, toluene, ethylbenzene, xylenes and MTBE).

B. Vapor Mitigation Strategy

Homes located above the gasoline plume are vulnerable to subsurface vapor intrusion coming from the plume and entering basements through cracks, joints and utilities openings. Extensive soil vapor and indoor air samples have been collected to evaluate the health impact from this pathway. Based on data collected to date, up to 5 homes above the plume have measured vapor concentrations exceeding EPA's remediation standards as identified in Section VI.B below. EPA proposes to have Chevron install a subslab depressurization system, commonly used in radon mitigation, to prevent vapor entry into residential basements impacted by the gasoline plume. The depressurization system operates by creating a slight vacuum beneath the subslab by drawing a slow stream of air through subslab venting pipes, thereby reversing the vapor movement gradient and direction.

VI. REMEDIATION STANDARDS

The contaminants of concern (COC) relating to the Facility are benzene, toluene, ethylbenzene, xylenes (BTEX) and MTBE. These COCs are present in groundwater and soil vapor within the gasoline plume boundaries.

A. Groundwater Remediation Standards

EPA proposes to cleanup groundwater to meet drinking water standards established by the Maximum Contaminant Levels (MCLs) promulgated at 40 C.F.R. Part 141 pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. Section 300g-1, except for MTBE. MTBE does not have a MCL. EPA's proposed remediation standard for MTBE is based on taste and odor thresholds adopted by the District and Maryland. EPA's proposed groundwater remediation standards are as follows:

Benzene	5 micrograms per liter (ug/l)
Toluene	1,000 ug/l
Ethylbenzne	700 ug/l
Xylenes	10,000 ug/l
MTBE	20 ug/l

B. Vapor Remediation Standards

EPA proposes to mitigate subsurface soil vapor intrusion into homes to meet the following remediation standards:

Benzene	8 micrograms per cubic meter (ug/m^3)
Toluene	5,000 ug/m^3
Ethylbenzene	1,000 ug/m^3
Xylenes	100 ug/m^3
MTBE	17 ug/m^3

EPA considered both the background concentrations of BTEX constituents and MTBE and the acceptable risk ranges for those contaminants in establishing the above remediation standards. According to EPA remediation guidelines, the acceptable risk range for cancer protection is between one in 10,000 to one in 1,000,000, and for non-cancer protection is a Hazard Quotient equaling one. Benzene is a known human carcinogen. The carcinogenic status of MTBE has not been established by EPA, however, EPA Region III conservatively treats MTBE as a possible carcinogen. All other petroleum compounds of concern, toluene, ethylbenzene and xylenes, are not considered to be carcinogenic by EPA.

EPA used the indoor air sampling data provided by DOH to identify the background concentrations of benzene and MTBE. DOH collected indoor air samples from 97 homes in 2006; 52 homes are located outside the plume boundaries and 45 homes are located above the plume. Based on statistical analyses of the indoor air data collected from the 52 homes located outside the plume, the mean background concentrations for benzene and MTBE are 2.7 ug/m^3 and 2.8 ug/m^3, respectively, with standard deviations of 2.7 ug/m^3 and 7.2 ug/m^3, respectively. Since these 52 homes are located outside the plume, the measured values cannot be affected by the gasoline plume and therefore represent local background concentrations.

In selecting remediation standards, EPA must consider implementation factors such as background concentrations. EPA is not aware of any practical technology that can reduce indoor air vapor concentrations to below background concentrations, or any measurement technique that can distinguish background concentrations from vapor intrusion concentrations if the two are numerically similar. A 95 percentile value (mean value plus two standard deviations) will provide confidence that the measured value is likely caused by vapor intrusion, and that technology will be available to reduce the elevated concentrations to background concentrations. Therefore, EPA selects the 95 percentile values; that is, 8 ug/m^3 and 17 ug/m^3, as the remediation standards for benzene and MTBE, respectively. Lifetime excess cancer risks associated with the selected standards are estimated to be 3.5×10^{-05} and 1.1×10^{-05} for benzene and MTBE, respectively, and are within the EPA acceptable risk range. These values are more stringent than the national background concentrations default in EPA's national data base for the J&E Vapor Intrusion Model, which lists the background concentrations for benzene and MTBE as 10 ug/m^3 and 18 ug/m^3, respectively.

For toluene, ethylbenzene and xylenes, the remediation standards were established by adopting the concentrations corresponding to a Hazard Quotient of one; that is 5000 ug/m^3, 1000 ug/m^3 and 100 ug/m^3, respectively. The measured background

concentrations of these compounds are far lower than the risk-based concentrations and will have no impact on the overall risk or attainment of the remediation goal. Therefore, the selected remediation standards for these compounds are purely risk-based without factoring in the background concentrations.

The Agency for Toxic Substances and Disease Registry (ATSDR), a division of the Center of Disease Control, has reviewed EPA's remediation standards. In a letter to EPA, dated May 10, 2007, ASTDR supports EPA's proposed remediation standards as appropriate and protective of human health.

VII. PROPOSED REMEDY

A. Expansion of Existing Groundwater Remediation System

EPA proposes to have Chevron continue to operate the existing groundwater remediation system in Area A, and expand the system into Area B by installing angle recovery wells. Groundwater and vapor extraction wells will be installed at an angle in the parking lot on the Maryland side for completion on the District side across Eastern Avenue up to the boundaries of private properties. EPA will determine the exact locations and number of angle recovery wells to be installed in the design phase subject to boring exploration. All new recovery wells will be connected to the existing groundwater treatment unit.

Although gasoline product has been detected only once in a monitoring well in Area B, non-mobile product is believed to be present in Area B soil within the water table fluctuation zone known as the "smear zone." It is also possible that mobile product is present beneath Eastern Avenue where traffic condition has restricted exploration in the past. Angle drilling can overcome that restriction. Although non-mobile product will not migrate with groundwater or enter wells in measurable or recoverable quantities, the residual product in the smear zone will continue to contaminate groundwater and soil vapor. The proposed angle recovery wells will enlarge the capture zone, accelerate groundwater movement, extract contaminated soil vapor, and enhance product degradation in Area B even if the product may not be recoverable.

Chevron will be required to operate the expanded system and provide adjustment or upgrades as appropriate in the future with the goal to restore groundwater to drinking water standards. If the goal of restoring drinking water standards is not attainable within a reasonable time frame from an engineering perspective, EPA may grant a technical impracticability (TI) waiver in accordance with EPA's Guidance for Evaluating TI for Groundwater Restoration (October 1993**).**

B. Installation of Vapor Mitigation System

EPA proposes to require Chevron to install a subslab vapor mitigation system, similar to a radon system, in all homes located above the gasoline plume where the measured indoor petroleum vapor concentrations have exceeded EPA's remediation

standards. EPA will provide Chevron with the addresses of homes where installation of such a system is necessary, or where retesting is necessary prior to installation of such a system. All installation and testing will be subject to home owner consent.

EPA proposes that Chevron install, maintain and provide annual testing of each system and reimburse the energy cost to the homeowners to run the system for as long as necessary to protect human health. A testing protocol will be established during the design phase of the system. EPA will evaluate the test results to determine the effectiveness of each system in reducing indoor air concentrations and preventing subsurface vapor intrusion. If the test results in accordance with EPA's approved protocol can demonstrate that the remediation standards for vapor intrusion have been met without further operation of the system, Chevron may request that EPA allow it to shut down of the system.

C. Institutional Controls

EPA proposes that institutional controls be implemented in order to prevent any activities which would interfere with or adversely affect the integrity and protectiveness of the final remedy. The institutional controls are necessary to ensure that contaminated groundwater is not used for consumptive purposes; the integrity and protectiveness of the groundwater remediation system is maintained; and subsequent purchasers of the Facility property are informed of the environmental conditions at the Facility and of EPA's final remedy for the Facility. During the design phase of the remedy, EPA will require Chevron to identify specific actions that will accomplish the institutional controls objectives.

Institutional controls may include, but may not be limited to:

1. A notice to be placed on the deed to the Facility property which would notify successors-in-interest that Chevron entered into the Order requiring it to implement the final remedy selected by EPA for the Facility.

2. Restrictive covenants between Chevron and the owners of properties on which components of the groundwater remediation system are placed ensuring that (a) Chevron and its successors, contractors, and authorized representatives have the ability to implement, facilitate and/or monitor the final remedy; (b) the properties will be used only for purposes that are compatible with EPA's final remedy; (c) the properties will not be used in a manner that will pose a threat to human health or adversely affect the environment and (d) no new wells are installed at the properties unless they are necessary to implement the final remedy.

VIII. EVALUATION OF PROPOSED REMEDY

This section provides a description of the criteria EPA used to evaluate the proposed remedy in accordance with EPA's guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three remedy threshold criteria as general goals.

In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria to determine which proposed remedy alternative provides the best relative combination of attributes.

A. Threshold Criteria

EPA's evaluation of the threshold criteria is as follows:

1. Protect human health and the environment

There are no human health threats associated with domestic uses of the contaminated groundwater originating from the Facility because groundwater is not used for drinking water purposes. Riggs Park is serviced by public water from a source not affected by Facility related contamination and there are no private wells located in the area. Several tap water samples were collected by EPA and the ACE for volatile organic compounds (VOCs) analyses and the results show that the community tap water is safe for consumption.

According to DOH, the public water supply for the District comes from the Potomac River or reservoirs and the District does not rely on groundwater for its water supply. There are no known private water supply wells in Riggs Park. The nearest water supply source for Riggs Park is the McMillan Reservoir, which is located approximately 5 miles southwest of Riggs Park. Even though there are no current consumptive uses of Facility-contaminated groundwater, the goal of EPA's proposed groundwater remediation is to restore groundwater to drinking water standards to be protective of potential future use. Until groundwater is restored to drinking water standards, EPA is proposing to require institutional controls, as necessary, to prevent consumptive use of the groundwater. EPA's proposed remedy also requires the implementation of institutional controls to prevent any activities which would interfere with or adversely affect the integrity or effectiveness of the remedial actions performed at the Facility.

The primary health concern of the contaminated groundwater under current conditions is vapor intrusion into basements. The proposed remedy will require Chevron to install a vapor mitigation system in each home where the measured vapor concentrations have exceeded EPA's vapor remediation standards. Based on extensive sampling, up to five homes above the gasoline plume have measured indoor air vapor concentrations above EPA's vapor remediation standards. The proposed groundwater remediation objective which is to restore groundwater to drinking water standards will also achieve the long-term goal to eliminate all subsurface vapor intrusion sources.

2. Achieve media cleanup objectives

The proposed groundwater remediation will achieve the media cleanup objectives by restoring groundwater to drinking water standards and by eliminating all subsurface vapor intrusion sources linking to Chevron's gasoline release.

The proposed vapor mitigation systems will achieve the media cleanup objective by preventing subsurface vapor intrusion into all homes affected by the gasoline plume. The vapor remediation standards presented in Section VI, above, are within EPA's acceptable risk range guideline.

3. Control the source(s)

The existing groundwater remediation system was designed to remove gasoline product sources in Area A. The proposed expansion of the system will further reduce the sources in Area B not previously captured by the existing system. EPA recognizes that no remedy will be fully effective unless there is cessation of future releases from the Facility. MDE has informed EPA that the current operation of the Facility is in compliance with the MDE's UST leak detection requirements. Therefore, adequate safeguards are in place at the Facility to prevent another major release. Moreover, should a release occur, the remediation system can act as a sentinel and emergency containment system.

B. Balancing Criteria

After satisfying the threshold criteria, EPA evaluates the following balancing criteria to demonstrate the suitability of the proposed remedy:

1. Long-term Reliability and Effectiveness

As of March 2007, the existing groundwater remediation system has recovered over 4,800 gallons of gasoline product since the beginning of its operation in 1990. Its effectiveness is evidenced by the fact that 7 of the 8 recovery wells currently in operation are outside the Facility, because the initial release has largely been depleted allowing abandonment of all but one of the original recovery wells located inside the Facility. Since the system was upgraded in 2005, it has drastically reduced benzene and MTBE concentrations in Area B wells, further demonstrating the effectiveness of the existing system. The proposed expansion of the system is expected to be more effective and efficient in remediating the sources in Area B.

The proposed vapor mitigation systems to be installed in those homes affected by vapor intrusion are proven technology adopted from the radon mitigation industry. Similar systems have been installed in millions of homes throughout the nation to mitigate radon intrusion. The proposed systems are expected to be equally reliable and effective because the mechanism to prevent vapor and radon intrusion is identical.

A monitoring plan has been in place whereby Chevron is required to submit quarterly progress reports to EPA, MDE and DOH to monitor the effectiveness of the groundwater remediation system, in addition to notification requirements to all agencies immediately if the operation of the system is disrupted. During the design phase of the remedy, EPA will require Chevron to update the groundwater remediation system

monitoring plan, and to propose a testing protocol to evaluate the effectiveness of the individual home vapor mitigation systems.

2. Reduction of Waste Toxicity, Mobility or Volume

The volume and mobility of the sources (liquid phase hydrocarbons) and the contaminated groundwater (dissolved phase hydrocarbons) have reached equilibrium and will begin to shrink as the remediation progresses. The sources are confined in Areas A and B, and the saturation level is so low that much of the product is non-mobile. Non-mobile product will not enter wells in measurable or recoverable quantities, and will not migrate with groundwater. Currently, only 4 monitoring wells and 7 recovery wells located in Area A contain measurable product, and none of the wells in Area B contains measurable product.

The volume and mobility of the contaminated groundwater have reached equilibrium as the shallow plumes have reached the maximum extent at the intersection of Eighth Street and Nicholson Avenue. Nicholson Avenue is a natural groundwater divide where an ancient creek, which is now replaced by a storm interceptor, existed. Eighth Street is also a groundwater divide for unknown reasons as evidenced by the fact that the plumes terminate on Eighth Street.

The objective of the groundwater remediation system is to aggressively deplete all product sources. EPA anticipates that once the sources are depleted from further contaminating the groundwater, the plume will be self-cleaning because dissolved phase hydrocarbons are known to biodegrade rapidly. However, the shrinking of the plume will not be apparent until the sources are further depleted in the next 5 to 10 years by the expanded groundwater remediation system.

3. Short-Term Effectiveness

The short-term effectiveness criterion is intended to address hazards posed during construction of the remedy. Short-term effectiveness is designed to take into consideration the impact on site workers and nearby residents such as potential for volatilization of contaminants, the spread of contamination through dust generation, and disposal and/or transportation of the wastes. Workers are required to comply with the Occupational, Safety and Health Administration rules and to follow the Health and Safety Plans submitted to EPA. No short-term hazards to the residents have been identified for the proposed remedy.

4. Implementability

The implementability criterion addresses various constraints such as regulatory constraints, ability to obtain access agreements, technological and practicability limitations, and intrusiveness to residents due to noise, traffic and aesthetic disruptions.

The existing groundwater remediation system has been operating for the last 17 years and no new regulatory requirements are anticipated. The proposed angle recovery wells will stop at private property boundaries so that the constraint to obtain access agreements from residents is eliminated. The proposed angle recovery wells will not interfere with the busy traffic on Eastern Avenue during testing, construction and future maintenance of the completed wells.

The vapor mitigation system proposed is a proven technology with no implementation constraints except for obtaining access agreements from homeowners to install, maintain and test the systems. Installation of the systems in private properties is contingent upon consent from homeowners.

5. Cost

The proposed remedy is cost effective in meeting the remediation objectives. Chevron has already expended capital costs in upgrading the groundwater remediation system. According to Chevron, the estimated cost to install the angle wells and connect to the existing groundwater remediation system is $280,000.

6. Community Acceptance

Community acceptance of EPA's proposed remedy will be evaluated based on comments received during the public comment period and will be described in the Final Decision and Response to Comments.

7. State Acceptance

State acceptance will be evaluated based on comments received from MDE and the District during the public comment period and will be described in the Final Decision and Response to Comments.

IX. OTHER ALTERNATIVES

EPA has evaluated four other alternatives which are not recommended for a variety of reasons. Each alternative is briefly described below with an explanation of the key reasons as to why it is not recommended.

A. Electrical Resistive Heating

This technology consists of heating the subsurface to the boiling point of water via electrical current flow between electrodes installed in Area B. Volatile constituents would be evaporated and stripped from the subsurface by the steam produced during heating. Vapors and steam would be collected using a soil vapor extraction system and would be treated prior to discharge to the atmosphere.

EPA does not recommend this alternative because of safety concerns and excessive disruption to the community. Although precautionary safety measures would be implemented to protect the homes above the remediation zone, the short-term risks outweigh the long-term benefit. It is unknown how the high temperature would affect existing foundations and utility materials as application of this technology has been known to melt PVC pipes. The operation of the electrodes is highly disruptive because the electrodes must be placed at close spacing on private properties and a trailer must be placed on one property to house the high voltage equipment for up to a year.

B. In-situ Chemical Oxidation

This technology involves the injection of an oxidizing agent through temporary wells into the subsurface to oxidize hydrocarbons on contact. The complete oxidation or mineralization of the BTEX would result in water and carbon dioxide as final end products.

EPA does not recommend this technology due to uncertainty of its effectiveness and disruption to residents. According to the Corrective Action Plan submitted by Chevron, pilot tests must be conducted on this technology prior to its full implementation. EPA does not recommend selection of an experimental technology for this phase of the clean up. Another obstacle of this technology is that it is highly intrusive as temporary Geoprobe wells must be installed at close spacing on private properties several times a year to inject the oxidizing agent.

An alternative and less intrusive application of this technology would be to inject the oxidizing agent through new horizontal or angle wells. However, the spacing of horizontal or angle wells would not be close enough for this technology to be effective.

C. Expansion of Existing System by Horizontal Wells

This alternative involves expansion of the existing groundwater remediation system by installing horizontal wells beneath Area B. The horizontal wells would be installed by directional drilling from the parking lot on the Maryland side for completion across Eastern Avenue in Area B on the District side.

EPA does not recommend this alternative due to difficulty in long-term maintenance of horizontal wells and the intrusiveness of the construction. A horizontal well is not a straight well, but has a mild curvature in the entrance and exit transition, and the bore hole tends to wriggle along a straight line. Maintaining a horizontal well can be challenging due to the difficulty in retrieving and reinstalling pump and sensors, and the redevelopment of aging wells. Another obstacle is that the construction is disruptive to properties downhill of Area B because the bore holes would need to exit at that location and enough horizontal space must be available to pull several hundred feet of well casing and screen through the bore holes.

D. Installation of an Independent Recovery and Treatment System in Riggs Park

This alternative involves installation of conventional recovery wells in Area B connected to an independent treatment system which would be constructed in Riggs Park. The housing for the treatment system is considered a commercial building which will require a zoning waiver from the District to be placed in a residential area.

EPA does not recommend this alternative because of the concern that an independent recovery system can overpower the existing system by pulling the plume from the Maryland side further into the District, and excessive disruption to the community. There are also numerous implementation obstacles to overcome, such as obtaining a zoning waiver, acquiring a private property for placement of the treatment building, securing a separate power source, installing recovery wells and underground piping at private properties for tie-in with the treatment system and discharge to the storm sewer, and noise, esthetic, emission and traffic interference during construction and long-term operation of the system in a residential neighborhood.

X. PUBLIC PARTICIPATION

A repository of documents generated from all investigations of this Facility is maintained at the following location:

Lamond Riggs Branch Library
5401 South Dakota Avenue, N.E.
Washington D.C. 20011

On August 30, 2007, EPA placed an announcement in the Washington Times and Washington Post to notify the public of EPA's proposed remedy and of the location of the Administrative Record. The Administrative Record, including this SB, is available for review during business hours at the following two locations:

U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103
Telephone Number: (215) 814-3426
Attention: Mr. Andrew Fan (3WC23)

and

Lamond Riggs Branch Library
5401 South Dakota Avenue, N.E.
Washington D.C. 20011
Phone: (202) 541-6255

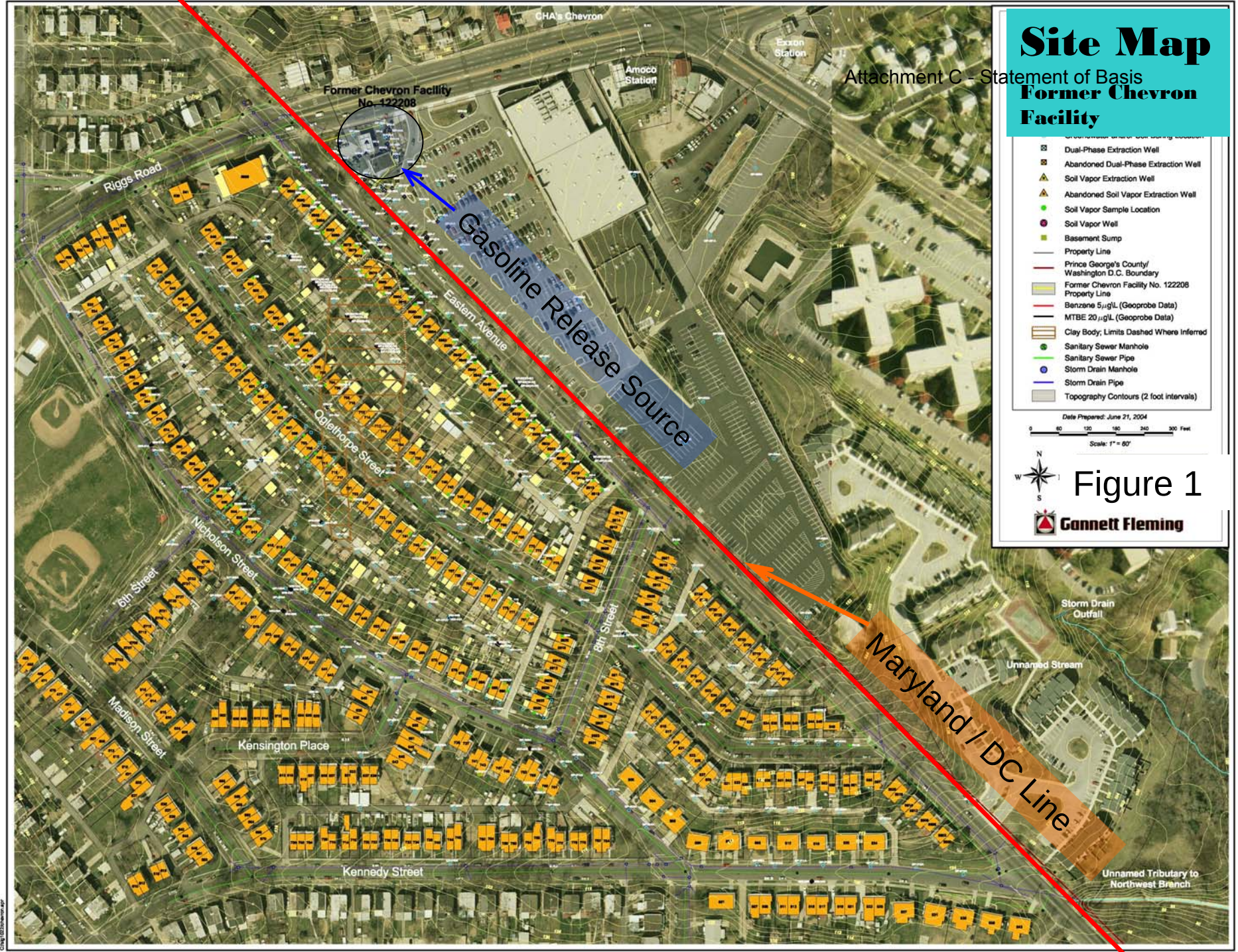
EPA is requesting comments from the public on the remedy proposed in this SB. The public comment period will last sixty (60) calendar days beginning August 30, 2007 and ending October 29, 2007. Comments on, or questions regarding, EPA's identification of a proposed remedy may be submitted to:

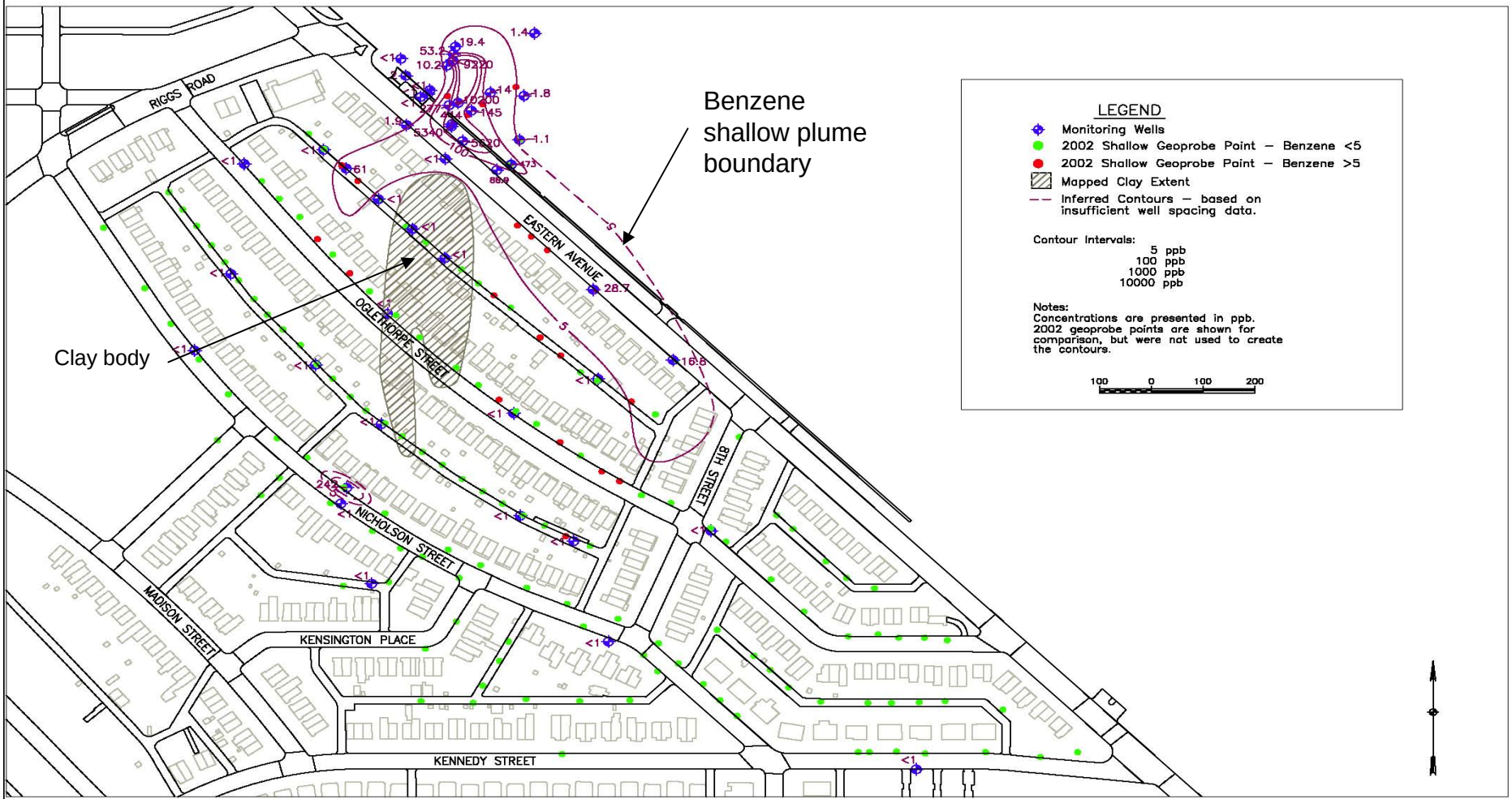
Mr. Andrew Fan (3WC23)
U.S. EPA, Region III
1650 Arch Street
Philadelphia, PA 19103
Phone: (215) 814-3426
FAX: (215) 814-3113
Email: fan.andrew@epa.gov

During the sixty-day public comment period, EPA will hold a public meeting on EPA's proposed remedy if sufficient public interest indicates that a meeting would be valuable for distributing information and communicating ideas. Requests for a public hearing must be received by EPA by close of business on October 29, 2007. EPA will determine by October 29, 2007, if a public hearing is warranted. After October 29, 2007, any interested parties may contact Mr. Andrew Fan at the EPA address or telephone number above to find out whether or not a public hearing will be held. Handicapped persons with a need for special services should contact Mr. Fan far enough in advance of any hearing to enable the services to be secured.

After evaluation of all comments, EPA will prepare a Final Decision Document and Response to Comments (FDRTC) that identifies final selected remedy. The FDRTC will address all significant written comments and any significant oral comments generated at the public meeting and will be made available to the public. If, on the basis of such comments or other relevant information, significant changes are proposed to be made to the corrective measures identified by EPA in this SB, EPA may seek additional public comments.

EPA anticipates that the final remedy will be implemented using available legal authorities including, but not necessarily limited to, RCRA Section 7003, 42 U.S.C. 6973.


Site Map
Attachment C - Statement of Basis
Former Chevron Facility
Dual-Phase Extraction Well
Abandoned Dual-Phase Extraction Well
Soil Vapor Extraction Well
Abandoned Soil Vapor Extraction Well
Soil Vapor Sample Location
Soil Vapor Well
Basement Sump
Property Line
Prince George's County/ Washington D.C. Boundary
Former Chevron Facility No. 122208 Property Line
Benzene 5 µg\L (Geoprobe Data)
MTBE 20 µg\L (Geoprobe Data)
Clay Body; Limits Dashed Where Inferred
Sanitary Sewer Manhole
Sanitary Sewer Pipe
Storm Drain Manhole
Storm Drain Pipe
Topography Contours (2 foot intervals)
Date Prepared: June 21, 2004
Scale: 1" = 60'
Figure 1
Gannett Fleming
CHA's Chevron
Exxon Station
Amoco Station
Former Chevron Facility No. 122208
Riggs Road
Gasoline Release Source
Eastern Avenue
Oglethorpe Street
Nicholson Street
5th Street
6th Street
Madison Street
Kensington Place
Kennedy Street
Maryland / DC Line
Storm Drain Outfall
Unnamed Stream
Unnamed Tributary to Northwest Branch

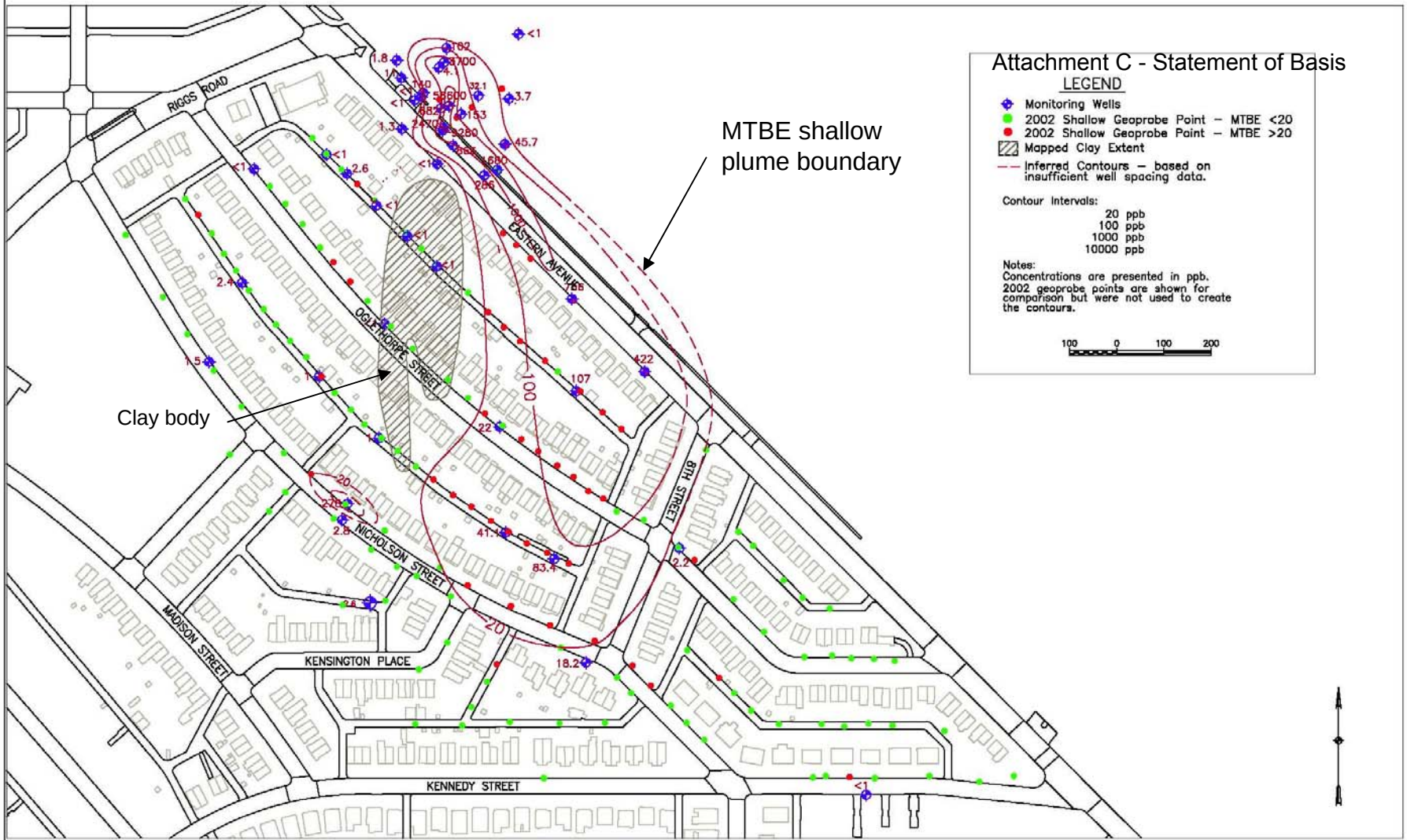


U.S. Army Corps of Engineers
10 S. Howard Street
Baltimore, Maryland 21040

PREPARED BY: PAD | DATE: December 2004

Figure 2

Benzene Shallow Plume May–June 2004 Data from Shallow Wells



U.S. Army Corps of Engineers
10 S. Howard Street
Baltimore, Maryland 21040

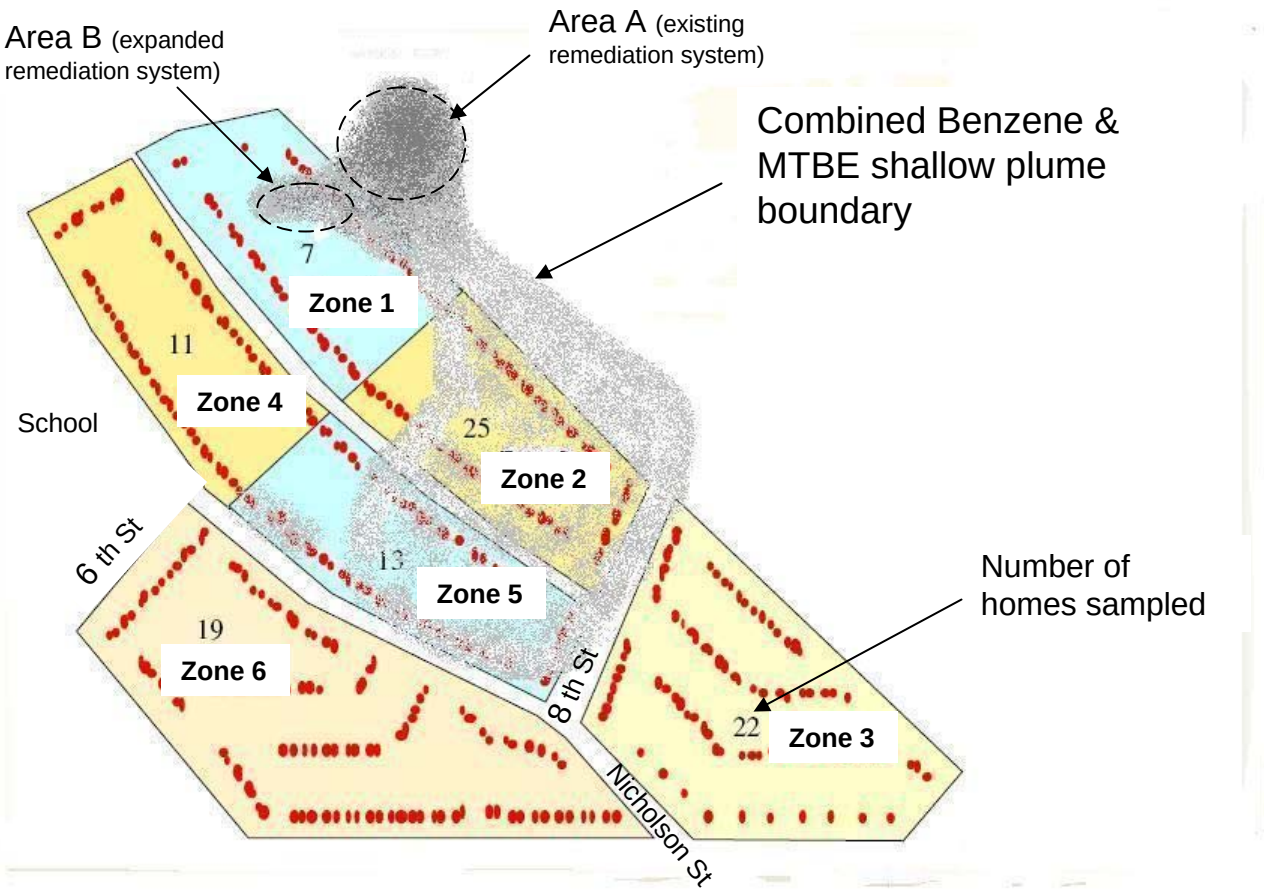
PREPARED BY: PAD

DATE: December 2004

Figure 3

MTBE Shallow Plume
May–June 2004 Data from Shallow Wells

Figure 4		Benzene	(ug/m^3)	MTBE	(ug/m^3)
DOH indoor air sampling data 2006	Number of Samples	Average	95%	Average	95%
Outside plume (Zones 3,4,6)	52	2.7	**8.0**	2.8	**17.2**
Above plume (Zones 1,2,5)	45	3.0	10.7	3.5	25.8



Outdoor Ambient Air

Figure 5		Benzene	(ug/m^3)	MTBE	(ug/m^3)
	Number of Samples	Average	95%	Average	95%
DOH 2006 outdoor air data (Zones 3,5,6)	22	0.9	1.3	0.3	0.5
Chevron 2005 outdoor air data (Zone 5)	12	0.8	1.4	2.9	3.5
ACE 2005 outdoor air data (Zone 5)	12	0.8	1.2	2.7	6.1
McMillan Reservoir Station 1 (2006 DOH data) about 5 miles from Riggs Park	61	4.6		2.5	
McMillan Reservoir Station 2 (2006 DOH data) about 5 miles from Riggs Park	30	6.2		27.1	