

Addendum No. 2 to the Remedial Action Plan for a Limited Residential Closure

**Windiate Park
Flint, Michigan**

February 1998

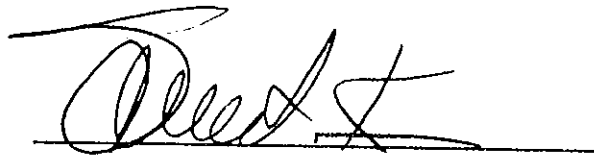


O'BRIEN & GERE
ENGINEERS, INC.

Final Report

**Addendum No. 2 to the Remedial Action
Plan
for a Limited Residential Closure**

*Windiate Park
Flint, Michigan*

A handwritten signature in black ink, appearing to read 'Swiatoslav W. Kaczmar', written over a horizontal line.

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February 1998



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Contents

1. Introduction	1
2. Site specifics	2
2.1. Site description	2
2.2. Background	2
2.3. Field investigation data	4
2.3.1. Soil investigations	5
2.3.2. Soil vapor sample investigation	7
2.3.3. Ground water investigations	7
2.3.4. Nature and extent of waste fill material	8
2.3.5. Identification of substances of potential concern (SOPCs)	8
3. Interim remedial measures (IRMs)	11
3.1. Soil cover IRM	11
3.2. Ground water removal and disposal IRM	12
4. Exposure pathway evaluation	13
4.1. Leaching of substances to ground water	13
4.2. Migration of substances to surface water	14
4.3. Inhalation of substances	14
4.4. Ingestion and direct contact	15
4.5. Exposure pathway summary	15
5. Remedial action	16
5.1. Property zoning	17
5.2. Future use	17
5.3. Attainment of closure criteria	17
5.4. Deed restrictions	18
5.5. Maintenance plan	19
5.6. Summary of remedial action	19

List of Tables

2-1	Summary of soil investigations	6
2-2	Summary of soil vapor investigation	7
2-3	Summary of ground water investigations	7

Tables located at end of report:

Soil analytical data:

4413 Milton Drive

- 1A Surface soil sample results (Kemron data) - July 1994
- 1B Surface soil sample results (MDEQ data) - July 1994
- 2A Geoprobe boring sample results (Kemron data) - July 1994
- 2B Geoprobe boring sample results (MDEQ data) - July 1994
- 3 Surface soil sample results ('b' round) - November 1994
- 4 Geoprobe boring sample results ('C' round) - June 1995
- 5 Geoprobe boring sample results ('E' round) - September 1996

4407 Milton Drive

- 6 Geoprobe boring sample results ('D' round) - May 1996
- 7 Geoprobe boring sample results ('D' round) - July 1996
- 8 Surface soil sample results ('D' round) - September 1996
- 9 Vertical profile boring results ('B' round) - September 1996

South Utility Easement

- 10 Surface soil sample results ('A' round) - August 1994

Soil vapor analytical data:

4407 Milton Drive

- 11 Soil vapor sample results - September 1996

Ground water analytical data:

4413 Milton Drive

- 12 Geoprobe boring sample results ('E' round) - September 1996

4407 Milton Drive

- 13 Geoprobe boring sample results ('D' round) - July 1996

List of Figures

- 1 Site Location Map
- 2 Site Plan
- 3 Surface Soil Sample Locations (4413/4407 Milton Drive)
- 4 Geoprobe Boring, Vertical Profile Boring, and Soil Vapor Sample Locations (4413/4407 Milton Drive)
- 5 Surface Soil Sample and Hand Auger Boring Locations (South Utility Easement)
- 6 Ground Water Sample Locations (4413/4407 Milton Drive)
- 7 Interim Remedial Measures

List of Appendices

- A Laboratory Report Forms (4413 Milton Drive data)
- B Laboratory Report Forms (4407 Milton Drive data)
- C Laboratory Report Forms (South Utility Easement data)
- D Soil Boring Logs (4413 Milton Drive)
- E Soil Boring Logs (4407 Milton Drive)
- F Soil Boring Logs (South Utility Easement)

1. Introduction

This document serves as the second Addendum to the "Remedial Action Plan for a Limited Residential Closure" (RAP), dated February 1996 for the Windiate Park (Park) property in Flint, Michigan. This second Addendum (RAP Addendum No. 2) to the Park RAP presents information collected from environmental investigations performed on three parcels of land, two of which are intended to be annexed to the Park. These two parcels, 4407 and 4413 Milton Drive, were privately owned when the Park RAP was submitted to the MDEQ, but have since been acquired by GM with the intent that GM will donate the parcels to the City of Flint for purposes of annexation into the Park property. The third parcel, identified as the South Utility Easement, is owned by the City of Flint and is currently included in Windiate Park.

The objective of this RAP Addendum No. 2 is to present information that supports the inclusion of the three parcels of land in the Park RAP. This Report demonstrates that the environmental conditions which exist at the three parcels of land are consistent with the environmental conditions which exist in the Park. Similarly, the remedial actions (implemented as Interim Remedial Measures [IRMs]) completed in the Park as part of the Park RAP were consistent with the remedial actions (implemented as IRMs) completed at the three parcels. Therefore, the closure criteria described in the Park RAP are consistent with the closure criteria described in this Addendum No. 2, which support the inclusion of the three parcels in the Park RAP.

2. Site specifics

2.1. Site description

The three vacant parcels of land included in this RAP Addendum No. 2 are 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement. They are located within Section 29 and 30 of Township 7 North, Range 7 East in the City of Flint in Genesee County, Michigan. A Site Location Map is attached as Figure 1. Two of the parcels, 4407 Milton Drive and 4413 Milton Drive, are located adjacent to each other and adjoin the southwest area of the Park and the existing Windiate Park access way near Poe Street. The South Utility Easement parcel is an easement/Park access that adjoins the Park near the Milton Drive/Lowell Boulevard intersection. The Site Plan, Figure 2, identifies the location of the three parcels in relation to the Park.

The intended use for the three vacant parcels of land is for pedestrian access to the Park from Milton Drive. Two of the vacant parcels, 4413 Milton Drive and 4407 Milton Drive, are currently part of the Windiate Park/Dixieland Subdivision residential community, however the houses that once occupied each parcel have since been demolished. These two parcels are included in this RAP Addendum No. 2 since they are proposed to become part of Park property through annexation. The South Utility Easement parcel is currently part of the Park. This parcel was not included in the February 1996 Park RAP since the environmental conditions identified in the Park were not known to exist in the three parcels at that time.

2.2. Background

The Park RAP, supplemented with an Addendum to the Park RAP dated August 1996 (RAP Addendum), identified the final remedy to address the environmental conditions within the limits of the Park. The environmental conditions within the Park were previously addressed in a "Remedial Investigation/Feasibility Study" (Park RI/FS) dated February 1996. The Park RAP, which involves a Limited Residential/Recreational Closure with recreational deed restrictions, has been approved by the Michigan

Department of Environmental Quality (MDEQ) as expressed in a Notice of Intent to Approve dated July 19, 1996.

The Park RAP is one of two RAPs that address the environmental conditions in the Windiate Park/Dixieland Subdivision area. A RAP for residential properties (Residential RAP) located adjacent to and in the vicinity of the Park was submitted to the MDEQ in February 1997. A Closure Report for residential properties documenting the completion of the remedial actions (implemented as IRMs) outlined in the Residential RAP was submitted to the MDEQ in January 1998. As described in the Closure Report, the remedial actions completed at the residential properties provide for a "Generic (unrestricted) Residential" and a "Limited Residential" categorical cleanup. The environmental conditions for the properties described in the Residential RAP were previously addressed in a "Residential RI/FS" dated February 1997. The Park RAP (including the RAP addendum) and the Residential RAP are compliant with Part 201 of the Natural Environmental Resources Act, 1994 PA 451 (Part 201, PA 451) administered by the MDEQ.

Prior to the remedial investigations (RI) performed in the Park, environmental investigations were performed at the 4413 Milton Drive parcel. These pre-RI activities were performed based on subsurface waste fill material found during excavation for an aboveground swimming pool at 4413 Milton Drive, and included surface soil and subsurface soil sampling and analysis.

Based on the 4413 Milton Drive pre-RI data, several additional soil investigations were performed at the three parcels as part of the Park RI and Residential RI programs. These investigations identified waste fill material and substances of potential concern (SOPCs) at 4413 Milton Drive (arsenic and lead) and 4407 Milton Drive (lead), as well as several other properties (separately addressed in the Residential RI/FS and RAP). Waste fill material was also encountered at the South Utility Easement parcel, however, no SOPCs were identified.

Since substances of potential concern (SOPCs) were identified at 4407 and 4413 Milton Drive (no SOPCs were identified at the South Utility Easement, however, waste fill was later identified), remedial actions were implemented as interim remedial measures (IRMs) as described in the Residential RAP. Prior to IRM activity, the houses at 4407 and 4413 Milton Drive were demolished to grade. The foundation walls were collapsed to 3 ft below grade (fbg) and the basements/crawl spaces were

filled with sand. The IRMs performed at the three parcels included excavation of surface soil and subsurface waste fill and/or installation of a soil cover (2 ft thickness minimum), and removal of isolated ground water impact via a recovery trench at 4407 Milton Drive.

This RAP Addendum demonstrates that these three vacant parcels of land meet the criteria for a "Limited Residential (with recreational deed restrictions)" closure, as referenced in Section 20120a of Part 201, PA 451. This "Limited Residential (with recreational deed restrictions)" closure is consistent with the closure outlined in the Park RAP.

This RAP Addendum No. 2 is submitted in accordance with Part 201, PA 451 and Section 3.2 "Changes to the RAP" from the February 1996 Park RAP. As identified in Section 3.2 of the Park RAP, the remedial action plan will be modified to address new data, if necessary.

2.3. Field investigation data

Environmental field investigations were performed at the three parcels in several phases between July 1994 and September 1996 prior to and associated with the Park and Residential RI programs. Investigations first identified subsurface waste fill material and SOPCs at the 4413 Milton Drive parcel in July 1994. The Park RI program was initiated during the same time period, followed by the Residential RI program.

Investigation results from activities completed at 4413 Milton Drive in July 1994 were previously submitted to the MDEQ in a "Surface and Subsurface Assessment Methods and Data" report dated August 1994. The data included in the report was used for screening purposes only due to various laboratory deficiencies during data generation procedures. However, split samples collected and analyzed by the MDEQ are included in this report and are considered representative data. In addition, soil and ground water analytical data collected at this parcel subsequent to the July 1994 sampling event are included in this report. It should be noted that ground water data from a September 1996 sampling event at 4413 Milton Drive (also included in this RAP Addendum) was previously submitted to the MDEQ in a letter report dated July 17, 1997.

Investigation results from activities completed at the 4407 Milton Drive parcel and the South Utility Easement parcel were previously described in the Residential RI/FS (and Residential RAP). However, subsequent to submittal of these reports, GM proposed to annex the two parcels to the Park. Therefore, the data from these two parcels is included in this RAP Addendum No. 2. Furthermore, ground water data from sampling events completed at 4407 Milton Drive were resubmitted to the MDEQ in the July 17, 1997 letter report (4413 Milton Drive ground water data was also included).

The following sections describe the sampling events completed at the three parcels as part of the Park RI and Residential RI activities (including pre-RI sampling).

2.3.1. Soil investigations

Environmental investigations, including surface soil sampling, geoprobe boring installation, soil boring (hand-auger) installation, and vertical profile soil sampling were conducted on nine separate occasions which included one or more of the three parcels. Four of the investigative phases were completed prior to submittal of the Park RAP (February 1996) and five of the investigative phases were completed subsequent to the Park RAP but before submittal of the Residential RAP (February 1997). The following Table 2-1 summarizes the soil investigations completed at 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement.

Table 2-1. Summary of Soil Investigations

Parcel	Investigation	Date
4413 Milton Drive	Surface soil (MDEQ split) and geoprobe borings (MDEQ split)	July 1994
	Surface soil	November 1994
	Geoprobe boring	June 1995
	Geoprobe borings	September 1996
4407 Milton Drive	Geoprobe borings	May 1996
	Geoprobe borings	July 1996
	Vertical profile borings and surface soil	September 1996
South Utility Easement	Surface soil (MDEQ split)	August 1994
	Hand auger boring ¹	April 1997
¹ Visual observation only		

Sample locations at 4413 and 4407 Milton Drive from investigations summarized in Table 2-1 are shown on Figure 3 (surface soil samples) and Figure 4 (geoprobe boring, vertical profile boring, and soil vapor samples). Sample locations at the South Utility Easement from investigations summarized in Table 2-1 are shown on Figure 5 (surface soil sample and hand auger boring). The soil analytical data generated from these investigations are summarized in the following tables (attached at the end of this report):

- 4413 Milton Drive - Tables 1A through 5
- 4407 Milton Drive - Tables 6 through 9
- South Utility Easement - Table 10.

A copy of laboratory report forms from analytical data summarized in Tables 1 through 10 are included in Appendix A (4413 Milton Drive), Appendix B (4407 Milton Drive), and Appendix C (South Utility Easement). The results of the soil investigations identified in Table 2-1 are summarized in Sections 2.2.4 and 2.2.5 of this report.

Soil boring logs containing descriptions of the subsurface material from investigations summarized in Table 2-1 are included in Appendix D (4413 Milton Drive), Appendix E (4407 Milton Drive), and Appendix F (South Utility Easement).

2.3.2. Soil vapor sample investigation

A soil vapor sample investigation was conducted on one occasion at 4407 Milton Drive as identified on the following Table 2-2 (no soil vapor sample investigations were conducted at 4413 Milton Drive or the South Utility Easement).

Table 2-2. Summary of soil vapor investigation

Parcel	Investigation	Date
4407 Milton Drive	Soil vapor samples	September 1996

Soil vapor sample locations at 4407 Milton Drive are also shown on Figure 4, with results of analytical data summarized in Table 11.

2.3.3. Ground water investigations

Ground water investigations, performed by geoprobe methods using a hydraulic probe attached with a screened water sampler, were conducted on two separate occasions at 4413 and 4407 Milton Drive. The following Table 2-3 summarizes the ground water investigations completed at 4413 and 4407 Milton Drive (no ground water investigations were performed at the South Utility Easement).

Table 2-3. Summary of ground water investigations

Parcel	Investigation	Date
4407 Milton Drive	Geoprobe borings	July 1996
4413 Milton Drive	Geoprobe borings	September 1996

The sampling locations for the ground water investigations at both properties are shown on Figure 6. The ground water analytical data generated from the investigations are summarized in Table 13 (4413 Milton Drive) and Table 14 (4407 Milton Drive). A copy of laboratory report forms from analytical data summarized in Tables 12 and 13 are included, with the soil data, in Appendix A (4413 Milton Drive) and Appendix B (4407 Milton Drive). The results of the ground water investigations are summarized in Section 2.2.5 of this report.

2.3.4. Nature and extent of waste fill material

Subsurface waste fill material was identified at 4413 Milton Drive from geoprobe borings installed as part of pre-RI activities in July 1994 and as part of RI activities in September 1996. Subsurface waste fill material was identified at 4407 Milton Drive from geoprobe borings installed in May and July 1996, and from vertical profile borings installed in September 1996, as part of RI activities. Subsurface waste fill material was identified at the South Utility Easement from hand auger borings installed as part of RI activities in April 1997 and while performing IRMs on the adjacent property. The nature of the waste fill material is consistent with the waste fill described in both the Park RI/FS and the Residential RI/FS.

Subsurface waste fill at 4413 Milton Drive was generally observed between 2 fbg to 6 fbg, and extended horizontally from the Park property to underneath the former house at the parcel. Subsurface waste fill at 4407 Milton Drive was generally observed between 2 fbg to 11 fbg, and extended horizontally from the Park property to underneath the former house at the parcel. Figure 4 identifies the approximate extent of subsurface waste fill at 4413 and 4407 Milton Drive.

Subsurface waste fill at the South Utility Easement was generally observed between 1 fbg to 4.5 fbg, and extended across the easement (from 4537 to 4543 Milton Drive property edges) and up to the sidewalk at Milton Drive. Figure 5 identifies the approximate extent of subsurface waste fill at the South Utility Easement.

2.3.5. Identification of substances of potential concern (SOPCs)

For purposes of screening, the SOPCs in soil are defined as substances for which the maximum detected concentrations exceed the lower of the MDEQ Generic Residential Direct Contact Value per Interim Operational Memorandum #8, Revision 4, (June 5, 1995) and #14, Revision 2 (June 6, 1995), or the Generic Soil Inhalation Criteria (SIC) for Ambient Air per the April 29, 1997 Addendum to Memorandum #8. However, in the case of arsenic, the applicable screening criteria are Site Specific Background Values as established in the Park RI/FS (subsurface soil) and Residential RI/FS (surface soil) Reports. Although MDEQ criteria and screening values were used as the basis for identifying the nature and extent of waste related substances, it must be recognized that exceedance of these criteria does not necessarily represent a threat to human health or the environment.

As described in the July 17, 1997 letter to the MDEQ, ground water analytical results at 4413 and 4407 Milton Drive indicated benzene concentrations above the Generic Residential Health-Based Drinking Water Values. However, the perched ground water beneath these parcels (as well as the ground water beneath the Park and surrounding residential properties) is not used for drinking water purposes and is not considered part of a usable aquifer (July 17, 1997 letter to MDEQ). Therefore, the applicable criteria are the Generic Ground Water Contact Criteria (GCC) per the January 17, 1997 Addenda to Interim Operational Memorandum #8. No ground water analytical results exceed the GCC values.

The following paragraphs describe SOPCs identified in various media.

Subsurface soil and waste fill - SOPCs were identified as substances for which maximum detected concentrations exceeded the lower of the Generic Residential Direct Contact Value or SIC criteria, or in the case of arsenic, the Site Specific Background value. Based on this comparison, SOPCs identified in the waste fill material at 4413 Milton Drive included arsenic and lead. SOPCs were not identified in the waste fill material at 4407 Milton Drive or the South Utility Easement. However, former SOPCs identified in the waste fill during previous Park RI activities included benzo(a)anthracene and benzo(a)pyrene, in addition to lead and arsenic.

Since waste fill material was found in the subsurface at 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement, for purposes described in this report, it will be assumed that the four SOPCs identified in waste fill in the Park also exist in the waste fill at the three parcels. Volatile organic compounds (VOCs) detected in the soil at 4413 and 4407 Milton Drive were below the MDEQ Generic SIC values for VOCs in ambient air (finite source, 5 meter thickness).

Surface soil and near surface soil - Lead was considered an SOPC in surface soil at 4413 and 4407 Milton Drive since lead concentrations exceeded the MDEQ Generic Residential Direct Contact criteria at each parcel. Arsenic was also identified as an SOPC in surface soil at 4413 Milton Drive since arsenic concentrations exceeded the Site Specific Background Value for surface soil. SOPCs were not identified in surface soil at the South Utility Easement.

Ground water - As described in the Residential RI/FS, benzene was identified as a substance which exceeded the April 12, 1996 draft

MDEQ Residential Ground Water Volatilization to Indoor Air (VIA) screening value at 4407 Milton Drive. However, benzene does not exceed the Generic GCC value, the applicable criteria for this parcel (as well as for 4413 Milton Drive and the South Utility Easement). No SOPCs were identified from a ground water investigation completed at 4413 Milton Drive.

Also, as described in the Park RI/FS, monitoring wells installed in the Park as part of the Park RI activities did not indicate levels of substances above Generic Residential Health Based Drinking Water Values from two rounds of sampling.

3. Interim remedial measures (IRMs)

IRMs were performed at the three parcels to eliminate the potential for exposure and off-site migration of SOPCs. The IRMs performed at 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement included removal and disposal of waste fill prior to installation of a soil cover, and removal of isolated ground water impact via a recovery trench (4407 Milton Drive). IRMs performed at 4413 Milton Drive included surface soil removal and placement of a soil cover. Implementation of IRMs prior to approval of this RAP is not required by the MDEQ; however, the IRMs were voluntarily implemented by GM to expedite the remedial action process and are intended to be consistent with the final remedy for the parcels. A figure depicting IRMs performed at the three parcels is included as Figure 7.

The following sections describe the selected IRMs.

3.1. Soil cover IRM

The soil cover IRM at the three parcels included the placement, grading, compaction, and sodding of a layer of permeable soil over areas identified as having SOPCs remaining in the soil and/or waste fill. Prior to soil cover installation, some areas of the three parcels were excavated up to 2 fbg in order to achieve placement of a minimum of 24 inches of soil cover, and to tie the new soil cover into the existing grade.

The soil cover included a 6 inch layer of topsoil and sod. The soil cover was graded to provide for proper drainage and was tied into the soil cover previously placed over the adjacent Park and adjacent residential properties.

3.2. Ground water removal and disposal IRM

This IRM included excavation of a recovery trench at 4407 Milton Drive to allow for collection of ground water. Ground water which collected in the excavation was pumped out, temporarily stored, analyzed, and disposed. A ground water sample was collected from the trench following pumping and analyzed for the presence of benzene by Method 8020. The analytical results indicated levels of benzene below the MDEQ draft VIA screening levels (the performance criteria established in the Residential RI/FS). The benzene results are also below the GCC value. Approximately 1600 gal of ground water were removed and disposed. Additionally, waste fill encountered during excavation of the recovery trench was removed and properly disposed.

4. Exposure pathway evaluation

The SOPCs identified in Section 2.3.5 of this report were evaluated with regard to potential migration and exposure pathways at 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement. The following paragraphs discuss how protection against migration and exposure of SOPCs was attained following completion of the IRMs at the three parcels.

4.1. Leaching of substances to ground water

SOPCs were not identified (at levels exceeding the GCC criteria) in the seven ground water samples collected below waste fill material at 4413 and 4407 Milton Drive, thereby indicating that SOPCs in the waste fill are not migrating to the perched ground water in any significant amount.

In addition, as described in the Residential RI/FS, SOPCs were not identified in the three ground water samples collected at 4401 Milton Drive, located adjacent to 4407 Milton Drive.

Furthermore, the ground water monitoring well network in the Park is positioned such that ground water impacts at 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement, if ground water impacts exist, would likely be detected in down gradient monitoring wells in the Park. Ground water investigations completed at the monitoring wells located in the Park (discussed in Sections 5.4 and 6.3 of the Park RI/FS) demonstrated that although the fill material in the Park area has been in place for 40 to 50 yr under shallow water table conditions, no substances were detected in the ground water at concentrations exceeding Generic Residential Health Based Drinking Water Criteria.

Based on these investigations, it is evident that SOPCs in the material underlying the soil cover on the Park and adjacent residential properties have not leached to ground water and therefore it is unlikely they will leach to ground water in significant concentrations in the future. Therefore, this migration pathway is not a concern for 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement.

4.2. Migration of substances to surface water

Since surface water does not exist on or adjacent to 4413 Milton Drive, 4407 Milton Drive, or the South Utility Easement, the potential for migration to surface water does not exist. The presence of the soil cover (installed as part of IRM activities discussed in Section 3.1 of this report) on 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement prevents the potential for SOPCs to enter storm water catch basins in the vicinity of these parcels.

4.3. Inhalation of substances

SOPCs (excluding volatile substances) are not likely to be emitted to the atmosphere. The presence of the soil cover (installed as part of IRM activities discussed in Section 3.1 of this report) on 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement prevents the potential for SOPCs to become airborne, thereby eliminating the air exposure pathway.

In relation to volatile substances detected in the subsurface, field efforts performed as a component of the Residential RI included a soil vapor survey. The soil vapor survey detected levels of benzene, ethylbenzene, and xylene (BEX) vapors in subsurface soil at one parcel (4407 Milton Drive). However, as detailed in the soil vapor model appearing in Appendix M of the Residential RI/FS, the levels of BEX vapors which could become established within a dwelling at this property would be well below levels of concern. Furthermore, as the former house at 4407 Milton Drive has since been demolished, the criteria used for the soil vapor model is more conservative than for ambient air Generic SIC values (which is now applicable). Based upon the above, the inhalation exposure pathway does not exist for SOPCs on 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement.

4.4. Ingestion and direct contact

SOPCs are present in the subsurface soil and related waste fill material at 4413 and 4407 Milton Drive. However, excavation of surface soil combined with the presence of the soil cover (surface soil excavation and soil cover placement was implemented at the South Utility Easement also) eliminates the potential for ingestion and direct contact, thereby eliminating this exposure pathway. Furthermore, deed restrictions (discussed in Section 5.4 of this report) at the three parcels provide a means to prevent future inadvertent exposure above MDEQ criteria even though no risk has been identified, based on historical potential exposure.

4.5. Exposure pathway summary

As SOPCs may remain in the subsurface at the three parcels, the potential for exposure to these SOPCs was evaluated in the above sections. The presence of SOPCs above MDEQ criteria or screening values is not itself indicative of a threat to human health or the environment, but may indicate a need for further evaluation. The potential exposure pathways evaluated in the above sections concluded that acceptable conditions exist following implementation of the IRMs and that there are no concerns consistent with the conclusion in the Park RAP. The only complete pathway following IRM activities is the inhalation pathway, however levels of benzene remaining in the soil or ground water are below applicable MDEQ criteria and therefore the inhalation pathway is not a concern.

5. Remedial action

SOPCs were identified at 4413 and 4407 Milton Drive. SOPCs were not identified at the South Utility Easement. Since SOPCs were identified at 4413 and 4407 Milton Drive, remedial action was conducted to achieve the requirements of Part 201, Act 451 for a "Limited Residential" closure prior to annexing these parcels to the Park. No SOPCs were identified at the South Utility Easement, however, since waste fill material was identified in the subsurface, remedial action was also conducted to achieve a "Limited Residential" closure.

In preparation for annexation of two of the three parcels to the Park, remedial measures were conducted at the three parcels to achieve the following remedial action objectives:

- Prevent exposure to impacted media by recreational users of the Park
- Prevent migration of impacted media off-site.

The remedial action in the Park, which achieved the objectives above, included limited excavation and grading for the installation of a soil cover with topsoil and sod, the proposed implementation of deed restrictions, and the performance of routine maintenance activities on the soil cover. The remedial action implemented in the Park achieves the "Limited Residential" criteria with deed restrictions for recreational use, in accordance with Part 201, PA 451. This section demonstrates how the extension of the soil cover from the Park to 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement would also be protective to recreational users. Also discussed in this section are the zoning requirements, future use, attainment of closure criteria, proposed deed restrictions, and the maintenance plan.

5.1. Property zoning

The South Utility Easement parcel and the 4413 Milton Drive parcel are zoned for single family residential (including recreational). The 4407 Milton Drive parcel is zoned for two family residential. The three vacant parcels are identified on Figure 2.

In accordance with Section 20120(a)(6) of Part 201, PA 451, a property for which a remedial action plan is proposed must have zoning that is consistent with the proposed categorical criteria. A "Limited Residential" closure with deed restrictions limiting the property to recreational use is proposed for 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement, similar to the Park. Therefore, the limited residential (with recreational deed restrictions) closure proposed for the three parcels is consistent with the City of Flint's zoning designation. Deed restrictions will be implemented for the three parcels as outlined in Section 4.4 for the continued use of the property as a "Park".

5.2. Future use

The intended future use of 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement is recreational, which is consistent with the intended future use of the Park. The City of Flint is currently preparing plans for the enhancement of the Park and annexed parcels. Park enhancements considered include the installation of walking paths, basketball courts, picnic areas, child play areas, and trees/shrubs. One or more of these enhancements may be installed on portions of these three parcels.

5.3. Attainment of closure criteria

Based on the investigations described in Section 2.2. of this report, SOPCs were detected in the material underlying the soil cover at 4413 Milton Drive, and 4407 Milton Drive. Ground water investigations conducted at 4413 and 4407 Milton Drive and in the Park area demonstrated that the fill material has not adversely impacted the ground water.

In accordance with Part 201, PA 451, to obtain closure of a site the SOPCs remaining in the soil must be protective considering migration and exposure

pathways pertinent to the site. In general, the potential migration and exposure pathways include: leaching of substances from soil to ground water, migration of substances in soil to surface water, inhalation of substances, direct contact with substances, and ingestion of substances.

Based on the analysis of these migration and exposure pathways discussed in Section 2.2.4 of this Report, the closure criteria are achieved with the presence of the soil cover at 4413 Milton Drive, 4407 Drive, and the South Utility Easement. Additionally, the implementation of deed restrictions on the three parcels supplemented with maintenance of the soil cover provides added protection against exposures to the impacted media remaining in the subsurface. These measures prevent uncontrolled excavation activities and provide for reparation of potential damages to the soil cover.

5.4. Deed restrictions

Land use restrictions will be implemented for 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement consistent with those for the Park. In accordance with Rule 299.5719, the land use restrictions will be detailed in a restrictive covenant recorded by the City of Flint and approved by MDEQ that will include:

- Restrictions on site activities which may potentially affect the integrity of the soil cover or interfere with maintenance activities
- A requirement to provide notice to the MDEQ of the intent to convey property, such as; conveyance of title, easement, or other
- Permission for the MDEQ to access the Park and to inspect records
- Descriptions of applicable land use or resource criteria use restrictions, including:
 - the prohibition of uncontrolled excavation or other activities which may potentially damage the soil cover
 - the notification of the MDEQ prior to performing sampling and analysis of impacted materials in the event transportation and/or disposal is performed.

- the prohibition of any extraction or usage of ground water beneath the Park.
- ▶ Notice that the property will be restricted to recreational use.

The deed restrictions will be implemented indefinitely. Modifications to the deed restrictions will be submitted to the MDEQ for prior approval. The agreement between GM and the City of Flint and the agreement between GM, the City of Flint, and the Genesee County Drain Commission or any other utility as discussed in Section 4.2 of the Park RAP will remain in effect as modified to accommodate the three parcels.

5.5. Maintenance plan

The maintenance activities outlined in Section 5 of the Park RAP will also be implemented for 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement. In summary, these maintenance activities will be performed by the City of Flint in conjunction with the same activities in the Park proper and include inspections of the soil cover, regular mowing, hedging, and fertilizing at the three parcels.

5.6. Summary of remedial action

SOPCs were identified at 4413 Milton Drive and 4407 Milton Drive. SOPCs were not identified at the South Utility Easement. In preparation for the annexation of the two parcels to the Park (the South Utility Easement is already owned by the City of Flint), remedial action was performed to attain the closure criteria necessary for a "Limited Residential" closure with recreational deed restrictions, the same categorical closure approved by the MDEQ for the Park. Evaluation of the potential migration and exposure pathways pertinent to the three parcels indicate that the closure criteria have been achieved with the installation of the soil cover and implementation of deed restrictions and maintenance on these three parcels, consistent with the conclusions for the Park. Removal of impacted ground water at 4407 Milton Drive also provides added protection against potential migration and exposure pathways.

Subsequent to completion of the remedial actions outlined in this RAP Addendum No. 2, the environmental conditions remaining at 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement are consistent with the environmental conditions which remain in the Park. Based on the evaluation of the potential migration and exposure pathways and attainment of closure criteria necessary for a "Limited Residential" closure, the remedial action objectives identified in Section 4 have been achieved with the remedial action implemented for 4413 Milton Drive, 4407 Milton Drive, and the South Utility Easement.