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Site PIN _____

TIERED APPROACH TO CORRECTIVE ACTION SUPPLEMENTAL RIGHT-OF-WAY AGREEMENT

This Agreement is entered into this ^{21st} ~~14th~~ day of September, 2007 pursuant to the Municipal Code of the City of Chicago Section 2-30-030 ("Code") by and among Tenton, LLC ("Owner") and Tenton, LLC ("Operator"), together referred to herein as "Owner/Operator," and the City of Chicago ("City"), as follows:

WHEREAS, Owner/Operator is pursuing corrective action at a site and in the right-of-way adjacent to the site located at 2606 N. Elston Avenue ("Site") and legally described in **Attachment A**; and

WHEREAS, attached as **Attachment B** is a site map showing the known and probable area(s) of contaminant impacted groundwater in the right-of-way where, at the time of this Agreement, contaminants exceed the Tier 1 residential remediation objectives under 35 Ill. Admin. Code Section 742; and

WHEREAS, also attached as **Attachment C** is a table showing the concentration of contaminants in soil and groundwater within the area described in **Attachment B** and showing the applicable Tier 1 soil and groundwater remediation objectives for residential property that are exceeded; and

WHEREAS, also attached as **Attachment D** are TACO R-26 calculations demonstrating that groundwater associated with the residual site impacts will not migrate to the right-of-way at concentrations in excess of the applicable Class II cleanup criteria, however, there is a limited potential for residual soil impacts in the right-of-way based on soil sampling results adjacent to the right-of-way; and

WHEREAS, under 35 Ill. Admin. Code 742.1020, the use of risk-based, site-specific remediation objectives in the right-of-way require entry of the City into a Highway Authority Agreement Memorandum of Agreement ("Highway Authority Agreement"), in lieu of active remediation of the contaminant-impacted soil and/or groundwater; and

WHEREAS, the Owner/Operator has requested that the City enter into a Highway Authority Agreement in the form prescribed by the Illinois Environmental Protection Agency, set forth in **Attachment E**; and

WHEREAS, the City, as a condition of entering into the Highway Authority Agreement, requires certain covenants on the part of the Owner/Operator in exchange for its agreement to execute that form;

NOW, THEREFORE, the parties agree as follows:



Doc#: 0728834108 Fee: \$174.00
Eugene "Gene" Moore RHSP Fee: \$10.00
Cook County Recorder of Deeds
Date: 10/15/2007 02:58 PM Pg: 1 of 34

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1. The City agrees that it will prohibit by ordinance the use of groundwater as required by Paragraph 8 of the Highway Authority Agreement. This prohibition is ensured in Code Section 11-8-390. The City further agrees that it will limit access to soil as required by Paragraph 9 of the Highway Authority Agreement. This prohibition is ensured through operation of Code Section 10-20-100 et seq., and by requiring applicants for a public way work permit in the right-of-way described in Attachment B to consult the City and complete Form No. DOE.ROW.01 (or successor document), **Attachment F**, before obtaining a permit.
 - a. Where the pavement in the right-of-way is to be considered an engineered barrier, the Owner/Operator agrees to reimburse the City for maintenance activities requested by Owner/Operator. Except for ordinary maintenance performed on City roadways, the City does not agree to maintain the right-of-way, nor does it guarantee that the right-of-way will continue as a roadway or that the right-of-way will always be maintained as an engineered barrier.
 - b. This agreement does not in any way limit the City's authority to construct, reconstruct, repair or maintain and operate a right-of-way upon the property identified in the Highway Authority Agreement or to allow others to do the same. To that extent, the City reserves the right to identify, investigate, and remove contaminated soil and/or groundwater above Tier 1 residential remediation objectives from the right-of-way identified in the Highway Authority Agreement and to dispose of them as it deems appropriate in accordance with applicable environmental regulations so as to avoid causing a further release of the contaminants and to protect human health and the environment. The Owner/Operator shall reimburse the actual costs incurred by the City or others in so identifying, investigating, removing, storing, handling or disposing of contaminated soil and/or groundwater, and it shall not be a defense for Owner/Operator that those costs were not consistent with or required by Illinois Pollution Control Board or United States Environmental Protection Agency regulations, guidelines or policies. Prior to incurring any such costs, and unless there is an urgent reason otherwise, the City shall first give Owner/Operator thirty days notice and an opportunity to remove or dispose of contaminated soil and/or groundwater, at Owner/Operator's cost, to the extent necessary for the City's work. Such removal and disposal shall be in accordance with all applicable laws and regulations. Failure to give this opportunity to Owner/Operator shall not be a defense to a claim for reimbursement or that the work should not have been done. There is a rebuttable presumption that the contamination found in the right-of-way described in Attachment B arose from the release of contaminants at the Site. Should Owner/Operator not reimburse the costs identified here, this Agreement shall be null and void in addition to such other remedies as may be available to the City by law, and the City shall void the Highway Authority Agreement.

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2. The Owner/Operator agrees to indemnify and hold harmless the City, its agents and employees, and other entities using the right-of-way by a permit issued by the City, for all obligations asserted against or costs incurred by them associated with the release of contaminants of concern as described in **Attachment C**.
3. Violation of the terms of this Agreement by Owner/Operator, or its successor(s) in interest, may be grounds for avoidance of this Agreement, and avoidance by the City of the Highway Authority Agreement.
4. No violation of a permit by a third party shall constitute a breach of this Agreement by the City. Owner/Operator also agrees that its personnel, if any, at the Site will exercise due diligence in notifying those accessing contaminated soil in the right-of-way of their rights and responsibilities under this Agreement.
5. Should the City breach this Agreement, Owner/Operator's sole remedy is for an action for damages in the Circuit Court of Cook County. Any and all claims for damages against the City, its agents, contractors, employees or its successors in interest or others under permit from the City arising at any time are limited to an aggregate maximum of \$20,000.00. No other breach by the City, its successors in interest or others under permit, of a provision of this Agreement is actionable in either law or equity by Owner/Operator against the City or them and Owner/Operator hereby releases the City, its agents, contractors, employees and its successors in interest, or others under permit from the City for any cause of action it may have against them, other than as allowed in this paragraph, arising under this Agreement or environmental laws, regulations or common law governing the contaminated soil or groundwater in the right-of-way. Should the City convey, vacate or transfer jurisdiction of that right-of-way, Owner/Operator may pursue an action under this Agreement against the successors in interest, other than the City, or any of its departments, or State agency, in a court of law.
6. This Agreement (including attachments, addendums, and amendments) shall run with the land and be binding upon all assigns and successors in interest to the Owner/Operator of the Site. The Owner/Operator shall cause copies of this agreement and the executed Highway Authority Agreement to be recorded in the office of the Cook County Recorder of Deeds in the chain of title for the Site within 30 days of execution.
7. This Agreement is not binding on the City until it is executed by a duly authorized representative of the City, and prior to execution, this Agreement constitutes an offer by Owner/Operator. The duly authorized representatives of Owner and Operator have signed this Agreement, and this Agreement is binding upon them, their successors and assigns.
8. Written notice and other communications relating to this agreement directed to the City shall be sent to:

Commissioner
Department of Environment

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30 N. LaSalle Street
25th Floor
Chicago, IL 60602

9. Written notice and other communications relating to this agreement directed to Owner/Operator shall be sent to:

Ten Ton, LLC, c/o Harlem Irving Co.
4104 North Harlem Avenue
Chicago, Illinois 60634
Attn: Mr. Richard D. Filler – 773-625-3036]

IN WITNESS WHEREOF, the City of Chicago has caused this Agreement to be signed by its duly authorized representative:

BY:


Ms. Suzanne Maier-McKenna
Commissioner
Department of Environment

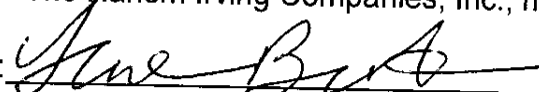
Date:

9/21/07

IN WITNESS WHEREOF, Owner, Tenton LLC has caused this Agreement to be signed by its duly authorized representative:

BY: The Harlem Irving Companies, Inc., manager

BY:


Attorney-in-fact


Date:

9-14-07

IN WITNESS WHEREOF, Operator, Tenton LLC has caused this Agreement to be signed by its duly authorized representative:

BY: The Harlem Irving Companies, Inc., manager

BY:


Attorney-in-fact

Date:

9-14-07

Revised October 26, 2006

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That part of Lot 7 in the Snow Estate Subdivision by Superior Court Partition of that part of the Southwest Quarter of Section 30, Township 40 North, Range 14 East of the Third Principal Meridian, lying North and East of the North Branch of the Chicago River, also Lots 2, 3, 4, 6, 7, 9 and 11 in the Assessor's Division of that part of the Southwest Quarter of Section 30 aforesaid, lying between railroad and river in Cook County, Illinois, according to the map recorded January 29, 1873 in Book 3 of Plats Page 91 described as follows:

Beginning at the Southeast corner of said Lot 7 where it abuts the land and right of way of the Chicago and Northwestern Railway Company; thence Northeasterly along the Southeasterly line of said Lot 7, 817 74/100 feet to center of highway; thence Northwesterly along the center of said highway, 132 feet; thence Southwesterly nearly parallel with the Southeasterly line of said Lot 7, 829 62/100 feet to lands of said railroad company, being a point 132 08/100 feet from the point of beginning; thence Southeasterly along the Southwesterly line of said Lot 7, 132 08/100 feet to the point of beginning (except however (1) that part condemned for railroad purposes in case 206259, entitled Chicago and Northwestern Railway Company against Virgil M. Brand, and others in the Superior Court of Cook County, Illinois, described as follows: commencing at the intersection of the Southeasterly line of Lot 7 with the Northeasterly line of the right of way of the Chicago and Northwestern Railway Company, and running thence Northwesterly along said Northeasterly line of said right of way 132 08/100 feet to the Southeasterly line of the land owned by Chicago and Northwestern Railway Company; thence Northeasterly on a line parallel with the Southeasterly line of said Lot 7, 63 50/100 feet; thence Southerly on a curved line convex to the West and having radius of 130 feet, a distance of 100 40/100 feet; and thence on a straight line tangent to said curve, 48 feet more or less to the point of beginning (2) that part of said Lot 7 conveyed by Chicago Telephone Company to Herman H. Heftier by deed dated February 27, 1918 and recorded March 16, 1918 as document 6288135 and described as follows: beginning at the intersection of the Southeasterly line of said Lot 7 with the Northeasterly line of the right of way of the Chicago and Northwestern Railway Company; thence Northeasterly along the Southeasterly line of said Lot 7, 61 19/100 feet; thence Westerly at an angle of 54 degrees 36 minutes with the Southeasterly line of said Lot 7, 88 feet more or less to the Southwesterly line of the property conveyed to the Chicago Telephone Company by deed from Virgil Brand, dated June 30, 1905 AD. and recorded July 1, 1905 in the Recorder's Office of Cook County, Illinois in Book 9085 of records, page 249 as instrument 3718660; thence Southeasterly along the Southwesterly line of the property so conveyed to Chicago Telephone Company by Virgil Brand by the Deed aforesaid, to the point of beginning (also excepting the Northeasterly 33 feet thereof taken for Elston Avenue), in Cook County, Illinois.

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200 North LaSalle Street • Suite 2600 • Chicago, IL 60601

**Attachment D to Supplemental ROW Agreement
TACO R-26 Calculations**

PROJECT MEMORANDUM – 09/13-07

**RE: Highway Authority Agreement
0316225018-Cook County
Chicago/Ryder Truck 1152
2606 North Elston Ave
Chicago, IL**

Summary & Objective

A Highway Authority Agreement between Tenton, LLC c/o Harlem Irving Companies and the City of Chicago is being sought as an integral part of obtaining a No Further Remediation (NFR) letter from the Illinois Environmental Protection Agency (IEPA) for the above referenced site. Included in this attachment are the R-26 calculations demonstrating that groundwater associated with the residual site impacts will not migrate off the site into the City of Chicago right-of-way (ROW). However, a highway authority agreement is being sought as a conservative measure due to the presence of an elevated PNA reading in the shallow soils adjacent to the Elston Avenue right-of-way.

Overview of Calculations:

The migration calculations present the worst-case contaminant migration scenarios and estimate the potential extent to which contaminants in excess of the applicable Tier I TACO soil and groundwater remediation objectives for residential properties may be exceeded in off-site areas.

- The groundwater calculations for contaminants the following contaminants: benzo(a)pyrene, benzo(a)anthracene, benzo(k)fluoranthene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and chrysene were calculated based on impacts identified in boring GP-4 (the closest boring to the ROW that exceeded the TACO Tier I groundwater protection criteria). This boring is located 80 feet from the City of Chicago right-of-way.
- The groundwater calculation for iron was calculated from boring GP-11, as it was the only boring/well which contained iron in excess of the Tier I TACO objectives. GP-11 is 500 feet from the City of Chicago right-of-way.

These calculations determined that there is no off-site migration of the aforementioned contaminants. The Groundwater migration calculations were not performed for borings GP-1 and GP-2, located adjacent to the City of Chicago right-of-way, since no contaminants were detected in these borings at levels in excess of the Tier I TACO groundwater protection objectives. However, since low levels of the PNAs were detected in these borings, Tenton has requested a Highway Authority Agreement as a precaution against PNA-impacted soils extending into the Elston Avenue right-of-way.

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
Receptor: Chicago River
Site Location: 2602 North Elston Avenue, Chicago, Illinois
Compound: Benzo(a)pyrene

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity	Ax=	<input type="text" value="243.84"/> cm	
Transverse dispersivity	Ay=	<input type="text" value="81.28"/> cm	
Vertical dispersivity	Az=	<input type="text" value="12.192"/> cm	
Specific discharge	U=	<input type="text" value="0.000110365"/> cm/day	
Sw/(4*SQRT(Ay*X))	B=	<input type="text" value="0.342326598"/>	
Sd/(2*SQRT(Az*X))	C=	<input type="text" value="0.580711444"/>	
Error function	erf(B)=	<input type="text" value="0.371701349"/>	To determine error function values,
Error function	erf(C)=	<input type="text" value="0.588496228"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B)= Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

Source: Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26
 Maximum error in computation = 1.5×10^{-7}

x=	0.3423266	0.58071144
p=	0.3275911	0.3275911
a1=	0.254829592	0.254829592
a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
a5=	1.061405429	1.061405429
t=	0.899164827	0.840169583
erf(x)=	0.371701349	0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
 Receptor: Chicago River
 Site Location: 2602 North Elston Avenue, Chicago, Illinois
 Compound: Benzo(a)anthracene

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the
 plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity	Ax=	<input type="text" value="243.84"/> cm	
Transverse dispersivity	Ay=	<input type="text" value="81.28"/> cm	
Vertical dispersivity	Az=	<input type="text" value="12.192"/> cm	
Specific discharge	U=	<input type="text" value="0.000123349"/> cm/day	
Sw/(4*SQRT(Ay*X))	B=	<input type="text" value="0.342326598"/>	
Sd/(2*SQRT(Az*X))	C=	<input type="text" value="0.580711444"/>	
Error function	erf(B)=	<input type="text" value="0.371701349"/>	To determine error function values,
Error function	erf(C)=	<input type="text" value="0.588496228"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B)= Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

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p=	0.3275911	0.3275911
a1=	0.254829592	0.254829592
a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
a5=	1.061405429	1.061405429
t=	0.899164827	0.840169583
erf(x)=	0.371701349	0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
Receptor: Chicago River
Site Location: 2602 North Elston Avenue, Chicago, Illinois
Compound: Benzo(b)fluoranthene

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity	Ax=	<input type="text" value="243.84"/> cm	
Transverse dispersivity	Ay=	<input type="text" value="81.28"/> cm	
Vertical dispersivity	Az=	<input type="text" value="12.192"/> cm	
Specific discharge	U=	<input type="text" value="0.000110365"/> cm/day	
Sw/(4*SQRT(Ay*X))	B=	<input type="text" value="0.342326598"/>	
Sd/(2*SQRT(Az*X))	C=	<input type="text" value="0.580711444"/>	
Error function	erf(B)=	<input type="text" value="0.371701349"/>	To determine error function values,
Error function	erf(C)=	<input type="text" value="0.588496228"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

Source: Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26

Maximum error in computation = 1.5×10^{-7}

x=	0.3423266	0.58071144
p=	0.3275911	0.3275911
a1=	0.254829592	0.254829592
a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
a5=	1.061405429	1.061405429
t=	0.899164827	0.840169583
erf(x)=	0.371701349	0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
Receptor: Chicago River
Site Location: 2602 North Elston Avenue, Chicago, Illinois
Compound: Benzo(k)fluoranthene

Concentration at the source (C_s)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the
plume coming from the source (X)= ft = cm

First order degradation constant (λ)= 1/day If benzene, $\lambda=0.0009$ /day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (θ)= cm³/cm³

Source width perpendicular to GW
flow direction in horizontal plane (S_w)= ft = cm

Source width perpendicular to GW
flow direction in vertical plane (S_d)= ft = cm (assuming complete mixing)

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity A_x = cm
 Transverse dispersivity A_y = cm
 Vertical dispersivity A_z = cm
 Specific discharge U = cm/day
 $S_w/(4 \cdot \text{SQRT}(A_y \cdot X))$ B =
 $S_d/(2 \cdot \text{SQRT}(A_z \cdot X))$ C =
 Error function $\text{erf}(B)$ = To determine error function values,
 Error function $\text{erf}(C)$ = see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual $\text{erf}(B)$ Actual $\text{erf}(C)$

Solutions:

C_x
 mg/l

Computation of $\text{erf}(x)$

Source: Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26

Maximum error in computation = 1.5×10^{-7}

x = 0.3423266 0.58071144
 p = 0.3275911 0.3275911
 a_1 = 0.254829592 0.254829592
 a_2 = -0.284496736 -0.284496736
 a_3 = 1.421413741 1.421413741
 a_4 = -1.453152027 -1.453152027
 a_5 = 1.061405429 1.061405429
 t = 0.899164827 0.840169583
 $\text{erf}(x)$ = 0.371701349 0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
 Receptor: Chicago River
 Site Location: 2602 North Elston Avenue, Chicago, Illinois
 Compound: Chrysene

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the
 plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax= cm
 Transverse dispersivity Ay= cm
 Vertical dispersivity Az= cm
 Specific discharge U= cm/day
 Sw/(4*SQRT(Ay*X)) B=
 Sd/(2*SQRT(Az*X)) C=
 Error function erf(B)= To determine error function values,
 Error function erf(C)= see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B)= Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

Source: Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26
 Maximum error in computation = 1.5×10^{-7}

x=	0.3423266	0.58071144
p=	0.3275911	0.3275911
a1=	0.254829592	0.254829592
a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
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t=	0.899164827	0.840169583
erf(x)=	0.371701349	0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
 Receptor: Chicago River
 Site Location: 2602 North Elston Avenue, Chicago, Illinois
 Compound: Dibenzo(a,h)anthracene

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the
 plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Source width perpendicular to GW
 flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW
 flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity Ax= cm
 Transverse dispersivity Ay= cm
 Vertical dispersivity Az= cm
 Specific discharge U= cm/day
 Sw/(4*SQRT(Ay*X)) B=
 Sd/(2*SQRT(Az*X)) C=
 Error function erf(B)= To determine error function values,
 Error function erf(C)= see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B)= Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

Source: Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26

Maximum error in computation = 1.5×10^{-7}

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p=	0.3275911	0.3275911
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a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
a5=	1.061405429	1.061405429
t=	0.899164827	0.840169583
erf(x)=	0.371701349	0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
Receptor: Chicago River
Site Location: 2602 North Elston Avenue, Chicago, Illinois
Compound: Indeno(1,2,3-cd)pyrene

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (i)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Source width perpendicular to GW flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity	Ax=	<input type="text" value="243.84"/> cm	
Transverse dispersivity	Ay=	<input type="text" value="81.28"/> cm	
Vertical dispersivity	Az=	<input type="text" value="12.192"/> cm	
Specific discharge	U=	<input type="text" value="0.000110365"/> cm/day	
Sw/(4*SQR(Ay*X))	B=	<input type="text" value="0.342326598"/>	
Sd/(2*SQR(Az*X))	C=	<input type="text" value="0.580711444"/>	
Error function	erf(B)=	<input type="text" value="0.371701349"/>	To determine error function values,
Error function	erf(C)=	<input type="text" value="0.588496228"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

Source. Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26

Maximum error in computation = 1.5×10^{-7}

x=	0.3423266	0.58071144
p=	0.3275911	0.3275911
a1=	0.254829592	0.254829592
a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
a5=	1.061405429	1.061405429
t=	0.899164827	0.840169583
erf(x)=	0.371701349	0.588496228

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DOMENICO SOLUTE TRANSPORT MODEL CALCULATION EQUATION R26

Exposure Pathway: Groundwater Ingestion Exposure Route
Receptor: Chicago River
Site Location: 2602 North Elston Avenue, Chicago, Illinois
Compound: Iron

Concentration at the source (Cs)= g/cm³w/g/cm³w or mg/L/mg/L

Distance along centerline of the
plume coming from the source (X)= ft = cm

First order degradation constant (lambda)= 1/day If benzene, lambda=0.0009/day.
(No Data)

Aquifer hydraulic conductivity (K)= cm/sec = cm/day

Hydraulic gradient (I)= cm/cm

Total soil porosity (theta T)= cm³/cm³

Source width perpendicular to GW
flow direction in horizontal plane (Sw)= ft = cm

Source width perpendicular to GW
flow direction in vertical plane (Sd)= ft = cm (assuming complete mixing)

Porosity
 Gravel=0.25
 Sand=0.32
 Silt=0.40
 Clay=0.36

Calculated Parameters

DO NOT ENTER VALUES HERE!

Longitudinal dispersivity	Ax=	<input type="text" value="1524"/> cm	
Transverse dispersivity	Ay=	<input type="text" value="508"/> cm	
Vertical dispersivity	Az=	<input type="text" value="76.2"/> cm	
Specific discharge	U=	<input type="text" value="0.000110365"/> cm/day	
Sw/(4*SQRT(Ay*X))	B=	<input type="text" value="0.054772256"/>	
Sd/(2*SQRT(Az*X))	C=	<input type="text" value="0.092913831"/>	
Error function	erf(B)=	<input type="text" value="0.061742259"/>	To determine error function values,
Error function	erf(C)=	<input type="text" value="0.104541178"/>	see F46 & K46 in the linear interpolation section.

Actual B value= Actual C value=

Automatic calculations : Actual erf(B) Actual erf(C)=

Solutions

Cx
 mg/l

Computation of erf(x)

Source: Abramowitz, M. and I. A. Stegun, 1972, Handbook of Mathematical Functions, Dover Publications, New York, page 299, formula 7.1.26

Maximum error in computation = 1.5×10^{-7}

x=	0.05477226	0.09291383
p=	0.3275911	0.3275911
a1=	0.254829592	0.254829592
a2=	-0.284496736	-0.284496736
a3=	1.421413741	1.421413741
a4=	-1.453152027	-1.453152027
a5=	1.061405429	1.061405429
t=	0.982373369	0.970461346
erf(x)=	0.061742259	0.104541178

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HIGHWAY AUTHORITY AGREEMENT

This Agreement is entered into this ^{21st} 14th day of September, 2007 pursuant to 35 Ill. Adm. Code 742.1020 by and between the (1) Tenton, LLC ("Property Owner") and (2) City of Chicago – Department of Transportation ("Highway Authority"), collectively known as the "Parties."

WHEREAS, Tenton, LLC is the owner or operator of one or more leaking underground storage tanks presently or formerly located at 2606 North Elston, Chicago, Illinois ("the Site");

WHEREAS, as a result of one or more releases of contaminants at the above referenced Site ("the Release(s)"), soil and/or groundwater contamination at the Site exceeds the Tier 1 residential remediation objectives of 35 Ill. Adm. Code 742;

WHEREAS, the soil and/or groundwater contamination exceeding Tier 1 residential remediation objectives extends or may extend into the Highway Authority's right-of-way;

WHEREAS, the Owner/Operator or Property Owner is conducting corrective action in response to the Release(s);

WHEREAS, the Parties desire to prevent groundwater beneath the Highway Authority's right-of-way that exceeds Tier 1 remediation objectives from use as a supply of potable or domestic water and to limit access to soil within the right-of-way that exceeds Tier 1 residential remediation objectives so that human health and the environment are protected during and after any access;

NOW, THEREFORE, the Parties agree as follows:

1. The recitals set forth above are incorporated by reference as if fully set forth herein.
2. The Illinois Emergency Management Agency has assigned incident number(s) 86-1226 and H2006-0374 to the Release(s).
3. Attached as **Exhibit A** is a scaled map(s) prepared by GaiaTech, Inc. on behalf of Tenton, LLC that shows the Site and surrounding area and delineates the current and estimated future extent of soil and groundwater contamination above the applicable Tier 1 residential remediation objectives as a result of the Release(s).
4. Attached as **Exhibit B** is a table(s) prepared by GaiaTech, Inc. on behalf of Tenton, LLC that lists each contaminant of concern that exceeds its

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Tier 1 residential remediation objective, its Tier 1 residential remediation objective, and its concentrations within the zone where Tier 1 residential remediation objectives are exceeded. The locations of the concentrations listed in **Exhibit B** are identified on the map(s) in Exhibit A.

5. Attached as **Exhibit C** is a scaled map prepared by GaiaTech, Inc. on behalf of Tenton, LLC showing the area of the Highway Authority's right-of-way that is governed by this agreement ("Right-of-Way"). Because Exhibit C is not a surveyed plat, the Right-of-Way boundary may be an approximation of the actual Right-of-Way lines.
6. Because the collection of samples within the Right-of-Way is not practical, the Parties stipulate that, based on modeling, soil contamination exceeding Tier 1 residential remediation objectives does not and will not extend beyond the boundaries of the Right-of-Way. However, based on modeling results groundwater may at some future date, impact the Right-of-Way.
7. The Highway Authority stipulates it has jurisdiction over the Right-of-Way that gives it sole control over the use of the groundwater and access to the soil located within or beneath the Right-of-Way.
8. The Highway Authority agrees to prohibit within the Right-of-Way all potable and domestic uses of groundwater exceeding Tier 1 residential remediation objectives.
9. The Highway Authority further agrees to limit access by itself and others to soil within the Right-of-Way exceeding Tier 1 residential remediation objectives. Access shall be allowed only if human health (including worker safety) and the environment are protected during and after any access. The Highway Authority may construct, reconstruct, improve, repair, maintain and operate a highway upon the Right-of-Way, or allow others to do the same by permit. In addition, the Highway Authority and others using or working in the Right-of-Way under permit have the right to remove soil or groundwater from the Right-of-Way and dispose of the same in accordance with applicable environmental laws and regulations. The Highway Authority agrees to issue all permits for work in the Right-of-Way and make all existing permits for work in the Right-of-Way subject to the following or a substantially similar condition:

As a condition of this permit the permittee shall request the office issuing this permit to identify sites in the Right-of-Way where a Highway Authority Agreement governs access to soil that exceeds the Tier 1 residential remediation objectives of 35 Ill. Adm. Code 742. The permittee shall take all measures necessary to protect

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human health (including worker safety) and the environment during and after any access to such soil.

10. This agreement shall be referenced in the Agency's no further remediation determination issued for the Release(s).
11. The Agency shall be notified of any transfer of jurisdiction over the Right-of-Way at least 30 days prior to the date the transfer takes effect. This agreement shall be null and void upon the transfer unless the transferee agrees to be bound by this agreement as if the transferee were an original party to this agreement. The transferee's agreement to be bound by the terms of this agreement shall be memorialized at the time of transfer in a writing ("Rider") that references this Highway Authority Agreement and is signed by the Highway Authority, or subsequent transferor, and the transferee.
12. This agreement shall become effective on the date the Agency issues a no further remediation determination for the Release(s). It shall remain effective until the Right-of-Way is demonstrated to be suitable for unrestricted use and the Agency issues a new no further remediation determination to reflect there is no longer a need for this agreement or until the agreement is otherwise terminated or voided.
13. In addition to any other remedies that may be available, the Agency may bring suit to enforce the terms of this agreement or may, in its sole discretion, declare this agreement null and void if any of the Parties or any transferee violates any term of this agreement. The Parties or transferee shall be notified in writing of any such declaration.
14. This agreement shall be null and void if a court of competent jurisdiction strikes down any part or provision of the agreement.
15. This agreement supersedes any prior written or oral agreements or understandings between the Parties on the subject matter addressed herein. It may be altered, modified or amended only upon the written consent and agreement of the Parties.

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16. Any notices or other correspondence regarding this agreement shall be sent to the Parties at following addresses:

Manager, Division of Remediation Management
Bureau of Land
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, IL 62974-9276


Tenton, LLC
4104 North Harlem Avenue
Chicago, Illinois, 60634

Raul Valdivia, Ph.D.
Chief Engineer, Storage Tank Section
30 North LaSalle Street, Suite 2500
Chicago, Illinois 60602

IN WITNESS WHEREOF, the Parties have caused this agreement to be signed by their duly authorized representatives.

CITY OF CHICAGO

Date: 9/20/07

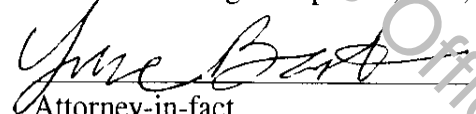

Ms. Suzanne Malec-McKenna
Commissioner
Department of Environment

[Property Owner or Owner/Operator]

Tenton LLC

Date: 9-14-07

By: The Harlem Irving Companies, Inc., manager

By: 
Attorney-in-fact

Its: SENIOR CONSULTANT
Title

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CITY OF CHICAGO DEPARTMENT OF ENVIRONMENT FORM NO. DOE.ROW.01

Notice is hereby given that the site you have requested information on is recorded with the City of Chicago Department of Environment as potentially having environmental contamination on the site and adjacent right-of-way. This environmental contamination could present a threat to human health and safety in connection with work performed at the site, or in the adjacent right-of-way, if proper safeguards are not employed.

A file containing detailed information regarding the aforementioned environmental Contamination is available for review at the Department of Environment at 30 N. LaSalle St., 25th Floor, Chicago, Illinois 60602 during normal business hours (8:30 AM - 4:30 PM, Monday through Friday). Contact Rahmat Begum (312) 744 - 3152 for an appointment. This file must be reviewed and the remainder of this form completed before the permit can be issued. **Please note that for some locations, additional health and safety procedures may be required by law.**

Please complete the following:

Permit No. _____

Date _____

Site Address _____

Work Location (describe exact site location):

I have reviewed and understand the documents, maintained by the Department of Environment, regarding environmental contamination of the site and adjacent right-of-way. Further, I will ensure that all work at the subject site and adjacent right-of-way, and any Monitoring required including but not limited to petroleum contamination, will be performed in a manner that is protective of human health and the environment and in compliance with all applicable local, state, and federal laws, rules, and regulations, especially those pertaining to worker safety and waste management. I will ensure that the results of any monitoring and/or surveying conducted shall be provided to the Department of Environment within two (2) weeks of their completion.

Signature _____

Name (print) _____

Company _____

Address _____

Phone No. _____

Nature of Work

Prime Contractor/Contact _____

Address _____

Phone _____

Safety Officer/Phone _____

Signed by Department of Environment _____

Date _____

Please return this completed form to the City of Chicago Department of Transportation at 30 N. LaSalle St., Room 1101, Chicago, Illinois 60602 during normal business hours (8:30 AM - 4:30 PM, Monday through Friday).

Revised Dec. 7, 2006

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OVERSIZED EXHIBIT

FORWARD TO PLAT COUNTER FOR SCANNING

RECORDED DATE _____

CASHIER # / NAME _____