

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

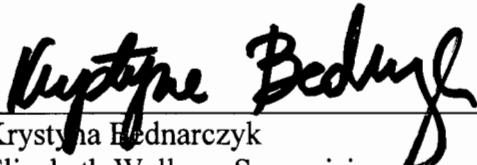
PEOPLE OF THE STATE OF ILLINOIS,)	
)	
Complainant,)	
)	
v.)	PCB No. 11-79
)	
INVERSE INVESTMENTS L.L.C.,)	
an Illinois limited liability company,)	
)	
Respondent.)	(VIA ELECTRONIC FILING)
)	

NOTICE OF FILING

TO: Jennifer T. Nijman	Bradley P. Halloran
Nijman Franzetti LLP	Hearing Officer
10 S. LaSalle Street, Suite 3600	Illinois Pollution Control Board
Chicago, Illinois 60603	100 West Randolph Street, Suite 11-500
	Chicago, Illinois 60601

PLEASE TAKE NOTICE that on November 7, 2011, the Complainant, PEOPLE OF THE STATE OF ILLINOIS, filed before the Illinois Pollution Control Board, its Response In Opposition To Respondent's Motion To Dismiss, a true and correct copy of which is attached hereto and hereby served upon you.

PEOPLE OF THE STATE OF ILLINOIS,
ex rel. LISA MADIGAN, Attorney
General of the State of Illinois

By: 

Krystyna Bednarczyk
Elizabeth Wallace, Supervising Attorney
Assistant Attorneys General
Environmental Bureau
69 W. Washington Street, Suite 1800
Chicago, IL 60602
(312) 814-1511

DATE: November 7, 2011

CERTIFICATE OF SERVICE

I, Krystyna Bednarczyk, an Assistant Attorney General in this case, do certify that I caused to be served this 7th day of November, 2011, the foregoing Notice of Filing and Complainant's Response In Opposition To Respondent's Motion To Dismiss, upon the persons listed on said Notice, electronically and by depositing same in an envelope, by first class postage prepaid, with the United States Postal Service at 100 West Randolph Street, Chicago, Illinois, at or before the hour of 5:00 p.m.



KRYSZYNA BEDNARCZYK

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PEOPLE OF THE STATE OF ILLINOIS,)	
by LISA MADIGAN, Attorney)	
General of the State Illinois,)	
)	
)	
Complainant,)	
)	
v.)	PCB No. 11-79
)	
INVERSE INVESTMENTS L.L.C.,)	
an Illinois limited liability company,)	
)	
Respondent.)	
)	

**PEOPLE’S RESPONSE IN OPPOSITION TO
RESPONDENT’S MOTION TO DISMISS**

NOW COMES Complainant, PEOPLE OF THE STATE OF ILLINOIS, by LISA MADIGAN, Attorney General of the State of Illinois, (“People”), and herein responds to Respondent’s, INVERSE INVESTMENTS L.L.C. (“Inverse”), an Illinois limited liability company, Motion to Dismiss. In support of this Response, the People state as follows:

I. INTRODUCTION AND BACKGROUND

On May 4, 2011, the People filed its one-count Complaint. In their Complaint, the People allege that from at least August 4, 2003, Inverse has been in violation of Section 12(a) of the Illinois Environmental Protection Act (“Act”) for “caus[ing] or threaten[ing] or allow[ing] the discharge of any contaminants into the environment . . . so as to cause or tend to cause water pollution in Illinois. 415 ILCS 5/12(a). In their Prayer for Relief, the People ask that the Illinois Pollution Control Board (“Board”) order Inverse to “cease and desist from committing further violations of Section 12(a) of the Act.”

Following three motions for extension of time to respond to the People's Complaint, Inverse filed its Motion to Dismiss on September 21, 2011, and, pursuant to Sections 101.500 – 101.506 of the Board's procedural rules, argued that the Complaint "fails to state a claim and is barred by affirmative matter defeating the claim." Respondent's Memorandum in Support of its Motion to Dismiss ("Motion"), p.1. The People received the Motion on September 26, 2011.

II. ARGUMENT

A. Respondent's undesignated motion results in prejudice to the People, and should be dismissed

Respondent fails to inform the Board or the State of the basis, pursuant to the Illinois Code of Civil Procedure, for its Motion to Dismiss ("Motion"). In ruling on a motion to dismiss, the Board adopts the standards set out in the Illinois Code of Civil Procedure. Illinois law dictates that a respondent must specifically designate whether a motion to dismiss is brought pursuant to Section 2-615 or Section 2-619 of the Illinois Code of Civil Procedure, 735 ILCS 5/2-615, 5/2-619. Eddings v. Dundee Township Highway Commissioner, 135 Ill.App.3d 190, 199 (1985). Undesignated motions to dismiss must be dismissed if prejudice results to the nonmovant. Eddings, 135 Ill.App.3d at 199. Thus, the Motion should be denied.

Because Respondent fails to designate the basis for its Motion, but attacks the pleading and introduces affidavits intended to defeat the Complaint, the State responds to Inverse's Motion under both standards.

B. Respondent's Motion to Dismiss should be denied under Section 2-615

A movant is not entitled to judgment as a matter of law under Section 2-615 when the challenged pleading is not "substantially insufficient at law." 735 ILCS 5/2-615 (2010). A motion brought pursuant to Section 2-615, 735 ILCS 5/2-615(e) (2010), facially attacks the legal sufficiency of a pleading. Kolegas v. Heftel Broadcasting Corp., 154 Ill.2d 1, 8 (1992). It is

required to point out the defects complained of and must specify the relief sought. 735 ILCS 5/2-615(a) (2010). If it relies on unsupported legal conclusions, as does Inverse's Motion, it must be denied. 735 ILCS 5/2-615 (2010).

The only matters to be considered in ruling on a 2-615 motion are the allegations of the pleading themselves. Urbaitis v. Commonwealth Edison, 143 Ill.2d 458, 475 (1991). The Complaint cannot be dismissed if a genuine issue of material fact is disclosed by the pleading, when matters subject to judicial notice and judicial admissions in the record are taken to be true. Gillen v. State Farm Mutual Automobile Insurance Co., 215 Ill.2d 381, 385 (2005) (citing M.A.K. v. Rush-Presbyterian-St. Luke's Medical Center, 198 Ill.2d 249, 255 (2001); Employers Insurance of Wausau v. Ehlco Liquidating Trust, 186 Ill.2d 127, 138 (1999)). .

- 1. Inverse's Motion to Dismiss should be denied pursuant to Section 2-615 because the People's Complaint pleads all facts necessary to sustain a cause of action under Section 12(a) of the Environmental Protection Act and provides Respondent with reasonable notice.**

Inverse contends that the People's pleading lacks sufficient facts of the alleged violations to reasonably allow it to prepare a defense. This assertion is false. The People's pleading cites the applicable statutory provision, which establishes the cause of action. The Complaint lays out the statutory requirements and alleges facts that demonstrate the statute's applicability.

- a. There is a continuing discharge of contaminants from the Site to groundwater as shown by soil and groundwater analytical results.**

Inverse argues that a "violation" cannot be committed after a spill or leak occurs. However, a release may take months or years from the date of a spill to reach groundwater, and may take even longer to cause the groundwater quality standards to be exceeded. It may be years before the violation of the Class I groundwater standards is discovered. Inverse would have the Board hold that any such violation ended, and is beyond redress by the Board, on the date a

suspected human carcinogen was last spilled into the environment at the Inverse Site. Such a reading is ludicrous as it would allow polluters to simply leave volatile organic compounds (“VOCs”), which exceed regulatory standards, such as the tetrachloroethene (“PCE”), trichloroethene (“TCE”), cis-1,2-dichloroethene (“cis-1,2-DCE”) and vinyl chloride (“VC”) present at the Site, unaddressed in the environment. Such a misguided application of Section 12(a) would also violate the Illinois Constitution, Article XI. That Article provides:

Section 1. Public Policy — Legislative Responsibility

The public policy of the State and the duty of each person is to provide and maintain a healthful environment for the benefit of this and future generations. The General Assembly shall provide by law for the implementation and enforcement of this public policy.

If it is true, as Inverse argues, that any amount of toxic chemicals can be placed into the environment, but no recourse to prevent the long term movement of the toxins can be obtained, such a provision would not be protective of the environment or public health, and would fail the essential requirement of Article XI. Inverse’s argument is simply not credible, as Section 2(c) of the Act requires. Section 2(c) provides:

The terms and provisions of this Act shall be liberally construed so as to effectuate the purposes of this Act as set forth in subsection (b) of this Section, but to the extent that this Act prescribes criminal penalties, it shall be construed in accordance with the "Criminal Code of 1961", as amended.

415 ILCS 5/ 2(c) (2010). To the contrary, Inverse suggests the Act should be liberally construed to protect the violator, which flies in the face of the stated goals of the Illinois Constitution and the Illinois Environmental Protection Act.

The People allege that there is a continued migration, a discharge, of these contaminants from the Site into groundwater below the Site, which contaminants continue to migrate off-Site

through groundwater. The facts alleged support a finding that Inverse is allowing a continued discharge of contaminants from the Site and through the groundwater into private drinking water wells. Specifically, the People allege that VOCs, contaminants under the Act, are present in soils at the Site and in groundwater at the Site. See Complaint at ¶16 and ¶¶21-22. The People further allege that these contaminants migrate, or discharge, from the Site into groundwater below the Site and then migrate, or discharge, downgradient off the Site and into drinking water wells through groundwater. See Complaint at ¶¶23-31. Respondent, in the Butler affidavit, admits the presence of these contaminants on its Site and does not dispute the presence of these contaminants off-Site. See, Motion, Butler Affidavit at ¶11. These facts support a finding that Inverse is allowing a continued discharge of contaminants from the Site and through the groundwater.

The Board has previously found that the State sufficiently pled a cause of action under Section 12(a) in like circumstances. In People v. John Chalmers, the Board set out the standard for a Section 12(a) violation:

the mere presence of a contaminant is insufficient to establish that water pollution has occurred or is threatened; it must also be shown that the particular quantity and concentration of the contaminant in question is likely to create a nuisance or render the waters harmful, detrimental, or injurious.

PCB 96-111 (January 6, 2000), slip op. at 8 (citing Jerry Russell Bliss, Inc. v. Illinois Environmental Protection Agency, 138 Ill. App. 3d 699, 704 (5th Dist. 1985)). There, the Board found sufficient the State's allegation that liquid livestock waste, a contaminant, was attributable to the Respondent because his was the only livestock farm in the watershed. PCB 96-111 (January 6, 2000), slip op. at 5-6. Here, the People allege that the VOCs, all contaminants, are attributable to the Respondent's Site because it is the only Site with historic uses that involve

these types of contaminants, and the VOCs are found in high levels in the soil of the Site.

Further, in Michel Grain, discussed in greater depth in Section C. below, the Board found sufficient the People's claim that the current owner of a contaminated property caused, threatened, or allowed water pollution by allowing contaminants to remain in the soil during his ownership and use of the Site. People v. Michel Grain Co. Inc. et al., PCB 96-143 (August 22, 2002), 2002 WL 2012414 at *4. The Board addressed the liability of current and former owners for historic contamination from an agrichemical business. The Board spoke definitively when it stated that "a respondent with control over a Site may be found in violation even if the respondent did not actively dispose of contaminants at the Site." Michel Grain Co., PCB 96-143 (August 22, 2002), 2002 WL 2012414 at *4.

The Board's decision in People v. CSX Transportation, Inc., PCB 07-016 (July 12, 2007), while not in response to a motion to dismiss but rather one for summary judgment, is also instructive. In CSX, the People alleged a violation of Section 12(a) where the presence of contaminants was observed following remediation by the Respondent. Id. slip op. at 2-3. The Board reasoned that a Section 12(a) violation existed where contaminants remained in the soil after remediation, where migration from soil to groundwater was likely, and where the contaminants left in the soil were at levels that posed a potential risk to groundwater. Id., slip op. at 16-17. The People have alleged identical facts against Inverse.

The question presented by a Section 2-615 motion is whether sufficient facts are contained in the pleading which, if proved, would entitle the People to relief. Urbaitis v. Commonwealth Edison, 143 Ill. 2d at 475. Taking all well-pleaded facts to be true, the Board can find that the People's pleading meets this standard. The Complaint alleges that the release of VOCs at the Inverse Site and the continuous migration, or discharge, of these contaminants into

groundwater continues to cause, threaten or allow “water pollution.” The People further allege that the discharges of VOCs, recognized carcinogens, into the environment render the groundwater harmful because the groundwater contaminant levels at or near the Site exceed Illinois Class I groundwater quality standards.

b. Inverse has control over the source of pollution

Since August 4, 2003, or a date better known to Inverse (the exact date is in dispute), Inverse has owned the Site. Respondent’s analytical data for soil and groundwater samples taken at the Site demonstrate that the Site is a source of pollution to groundwater. Inverse, as owner of the Site, has and continues to have control over the pollution source.

A respondent is liable under Section 12(a) unless the respondent can demonstrate that it “lacked the capability to control the source of pollution.” People v. A.J. Davinroy Contractors, 249 Ill. App. 3d 788, 794 (1993). Property owners are responsible for the pollution on their land unless the facts establish the owners either “lacked the capability to control the source” or “had undertaken extensive precautions” to prevent the pollution. Perkinson v. Illinois Pollution Control Board, 187 Ill. App. 3d 689, 695 (1989). The fact that Respondent is the owner of a contaminated parcel of land is undisputed. By asserting the completion of bioremediation at the Site in the Butler affidavit, attached to the Motion, Respondent demonstrates that it has the ability to control the source of pollution. Respondent’s admissions show the same or greater level of control the Board found sufficient in Davinroy and Perkinson.

Additionally, the People do not dispute that Inverse has performed activities aimed at controlling contamination at the source. See Remedial Objectives Report and Remedial Action Plan (“RAP”) submitted to Illinois EPA on February 26, 2007 (attached hereto as Exhibit 3). Samples taken over time, however, demonstrate that these activities have not been sufficient to

alleviate the immediate and significant risks posed to human health and the environment. See Affidavit of Andrew Catlin (attached hereto as Exhibit 1). Furthermore, Inverse's submissions of quarterly groundwater monitoring results to the SRP demonstrate that the levels of the contaminants of concern were initially decreasing, but are now rising. Id., and Inverse's quarterly groundwater monitoring results, submitted to Illinois EPA by letter dated August 18, 2011 (attached hereto as Exhibit 2). Because the measures taken have not been effective, contaminants of concern are still present in soil and groundwater at the Site in high levels and continue to discharge or migrate off-Site. Id.

Respondent would have the Board read out the portion of 12(a) that includes the term "threaten or allow water pollution" and focus only on causation. However, as confirmed by Respondent's own sample results taken at the Site, the fact that contaminants continue to discharge from the soil at the Site into groundwater and impact drinking water off-Site, demonstrates that Respondent continues to threaten or allow water pollution. Respondent has control over the Site while this occurs and it has the ability to control the source of pollution. Therefore, the Board, taking all well-pleaded facts alleged in the Complaint to be true, can find that Inverse is threatening or allowing a discharge of contaminants into waters of the State and is liable under Section 12(a) of the Act.

2. Inverse's Motion to Dismiss should be denied pursuant to Section 2-615 because the People's well-pleaded Complaint provides Respondent with reasonable notice

Under Illinois's fact pleading scheme, and to state a cause of action, "substantial allegations of fact" are necessary. 735 ILCS 5/2-601 (2010), Teter v. Clemens, 112 Ill.2d 252 (1986). Section 103.204(c)(2) of the Board's Procedural Regulations imposes further requirements. It provides, in pertinent part, as follows:

The dates, location, events, nature, extent, duration, and strength of discharges or emissions and consequences alleged to constitute violations of the Act and regulations. The Complaint must advise respondents of the extent and nature of the alleged violations to reasonably allow preparation of a defense.

35 Ill. Adm. Code 103.204(c)(2). The Board's procedural rules and Illinois's fact-pleading standards, however, do not impose on the Complainant the duty to plead evidentiary facts. See Cunningham v. City of Sullivan, 15 Ill. App. 2d 561, 567 (3d Dist. 1958).

The People pleaded sufficient facts, pursuant to Section 103.204(c)(2) of the Board's Procedural Regulations, to reasonably allow Respondent to prepare a defense. As discussed in Section II.B.1.a. and II.B.1.b above, the facts demonstrate that Inverse allowed the discharge of contaminants from its Site into the environment and caused actual water pollution. The People's well-pleaded Complaint meets and in fact exceeds, the Board's standard set forth in 35 Ill. Adm. Code 103.204(c)(2). People v. Michel Grain Co. Inc. et al., PCB 96-143 (August 22, 2002), 2002 WL 2012414 at *4. To require more of the Complainant in its Complaint would require the pleading of evidence. See Cunningham v. City of Sullivan, 15 Ill. App. 2d at 567; see also People ex rel. Fahner v. Carriage Way West, Inc., 88 Ill. 2d 300, 308 (1981).

The People's well-pleaded Complaint informed Respondent of the ultimate facts such that it could prepare a defense. In accordance with Illinois' fact pleading requirements the People pleaded that Inverse (1) caused, threatened or allowed the discharge of (2) a contaminant (3) into the environment (4) so as to cause or tend to cause water pollution. See Michel Grain, 2002 WL 2012414 at *4, (finding Complaint provided sufficient notice when it alleged violations of specific provisions of the Act and stated the manner and extent to which the Respondent allegedly committed the violations). Accordingly, the Respondent's Motion must be denied.

C. Respondent's Motion to Dismiss should be denied under Section 2-619

A Section 2-619 motion to dismiss "allow[s] for a threshold disposition of questions of law and easily proven issues of fact." Mio v. Alberto-Culver, 306 Ill. App. 3d 822, 824 (1999). A Section 2-619 motion admits the legal sufficiency of the Complaint and raises defects, defenses, or other affirmative matters that defeat the claim. Cohen v. McDonald's Corp., 347 Ill. App. 3d 627, 632 (2004). Under Section 2-619, a motion to dismiss should only be granted if after construing the pleadings and supporting documents in the light most favorable to the nonmoving party, the trial court finds that no set of facts can be proved upon which relief could be granted. Mio v. Alberto-Culver, 306 Ill. App. 3d at 825. The Board can find that the affirmative matters presented by Inverse do not defeat the claim, and facts alleged in the Complaint can support a finding of violation of Section 12(a) of the Act.

As Inverse's undesignated Motion introduces affirmative matter through affidavits, Section 2-619(a)(9) also applies. An action may not be dismissed under Section 2-619(a)(9) on the ground that a claim asserted is barred by other affirmative matter, unless the affirmative matter avoids the legal effect of or defeats the claim. 735 ILCS 5/2-619(a)(9) (2010). The term "affirmative matter" includes a defense that completely negates the asserted cause of action. Serafin v. Seith, 284 Ill. App.3d. 577, 583 (1996). Affirmative matter asserted by the defendant must be apparent on the face of the Complaint or supported by affidavits or other evidentiary materials. 735 ILCS 5/2-619(a) (2010); Epstein v. Chicago Board of Education, 178 Ill. 2d 370, 383 (1997). If the subject matter of the asserted affirmative defense is disputed, the questions of fact are reserved for trial. Hagemann v. Illinois Workers' Compensation Com'm, 399 Ill.App.3d 197, 207 (3d Dist. 2010).

Respondent asserts two affirmative matters, intended to defeat the State's cause of action: innocent landowner defense and proportionate share liability defense. The fact of inheritance

does not absolve a person from liability under Section 12(a) of the Act, nor does voluntarily taking steps to ease the contamination at and from the Site. Furthermore, proportionate share liability, if it applies (which it does not), acts only to mitigate the extent of a party's liability for cleanup. It does not, however, defeat the People's Section 12(a) cause of action. The People have alleged that contaminants were discharged at the Site and that the contaminants were released into (and remain within) the soil and groundwater both on and off the Site. See Catlin Affidavit. Clearly, the facts alleged in the Complaint, and supported by the Affidavits of Michael Butler and Andrew Catlin, set forth a violation of Section 12(a) of the Act. The affirmative matter raised by Respondent does not avoid the legal effect of, nor does it defeat, the alleged violation of Section 12(a). At best, it raises defenses for the trier of fact to decide.

1. The "innocent landowner" defense does not apply to a finding of liability in an enforcement action

The "innocent landowner defense," while potentially a valid affirmative defense, does not apply to enforcement actions. In ruling on a respondent's motion to dismiss in Michel Grain, the Board unambiguously addressed the issue of whether proportionate share liability and the innocent landowner defense defeat an enforcement action brought pursuant to Section 12(a) of the Act. People v. Michel Grain Co., Inc. et al., PCB 96-143 (August 22, 2002) (alleged violations of Sections 12(a), 12(d), and 21(d) against former and current owners of a Site contaminated with fertilizers and agrichemicals). The Complaint alleged that underground drains at the property discharged numerous pollutants to contaminate soil at the facility and to enter waters of the State. The then current owner filed a motion to dismiss on three grounds. Like Inverse, the movant claimed that he was not the owner during the relevant time period and did not operate the business associated with the contaminants; that he was exempt from liability

for cleanup costs; and, that the Complaint lacked sufficient detail to allow him to prepare a defense.

In ruling on the motion to dismiss, the Board stated:

To be clear, Sections 22.2(j) and 58.9 potentially eliminate or limit Section 22.2(f) liability to pay for a cleanup. Neither a defense under Section 22.2(j) nor proportionate share liability under Section 58.9, however, prevents a finding of violation or the imposition of civil penalties, both of which the People seek here. For that reason alone, the Board cannot dismiss [the current owner] from this enforcement action based on his allegations that he purchased the Site in 'good faith' or that he did not cause the release. Moreover, the Board cannot now, with the current record, determine the applicability of either the innocent landowner defense or proportionate share liability.

Michel Grain Co., Inc. et al., PCB 96-143 (August 22, 2002), 2002 WL 2012414 at *4. Like Michel Grain, this litigation is predicated on an enforcement action, not the cost recovery action which was dismissed in People v. Waste Hauling Landfill, Inc. et al., PCB 10-009 (December 3, 2009) slip op. at 15. As such, Inverse's arguments and reliance on Waste Hauling are unavailing. (See Section II.C.3, below.) The Board must adopt the reasoning of Michel Grain and deny Respondent's Motion.

2. Whether or not Inverse is an "innocent landowner" under the Act is a question for the trier of fact

Even if the Board deviates from its earlier holdings and finds that Section 22.2(j)'s "innocent landowner" defense does apply, Inverse's claim should be reserved for a trier of fact, following discovery. American National Bank & Trust Co. v. Harcos Chemicals, Inc., 997 F. Supp. 994, 1001-02 (N.D. Ill. 1998). At this early stage of the litigation, without any discovery into the relationship between Inverse's manager, Richard Adams, and the Site prior to 2005 or the "former owner" (his father, Richard Adams, Sr. and later, his mother, Rita A. Adams) of the Site, it is impossible to determine whether Richard Adams (the son) had any involvement in the

operation of the Site during his family's many years of ownership. Defense counsel's disingenuous use of the "former owner" as a scapegoat does not disclose that the Site has been under the same family's ownership and/or control since at least 1958. See Deed from Glenn E. Peterson and Bernice E. Peterson to Richard Adams, dated November 5, 1958 (attached hereto as Exhibit 4); see also, Quit claim deed in trust whereby Rita A. Adams conveys the Site to First Midwest Bank, as Trust Number 13439 (attached hereto as Exhibit 5) and the Illinois Limited Liability Company Act Articles of Incorporation for Inverse Investments, LLC, filed with the Secretary of State on June 15, 2005, identifying Richard A. Adams II as manager of Inverse Investments, LLC (attached hereto as Exhibit 6). As the court in United States v. DiBiase Salem Realty Trust stated:

[p]recluding the innocent purchaser defense where a defendant essentially transfers the land to himself serves important policy objectives. Interpreting the statute to permit a "sham" transfer to free the defendant of liability would certainly frustrate the remedial purpose of the statute."

1993 WL 729662 (D. Mass. 1993) aff'd 45 F.3d 541 (1st Cir. 1995) (citing New York v. Shore Realty, 759 F.2d 1032, 1045 (2d Cir. 1985).

Furthermore, and despite Respondent's protestations to the contrary, property received by inheritance is not automatically excluded from liability for cleanup. See, e.g. U.S. v. 150 Acres of Land, 204 F. 3d 698, 705 (6th Cir. 2000) (stating an innocent landowner defense is precluded when contamination release continues after a person inherits or acquires a parcel of land); Soo Line R. Co. v. B.J. Carney & Co., 797 F. Supp. 1472, 1484 (D. Minn. 1992). Rather, the trier of fact must consider the evidence to determine if the three prongs of the "innocent landowner" defense are met. See 415 ILCS 5/22.2(j) (act or omission of a third party resulted in contamination; innocent landowner exercised due care with respect to the hazardous substance concerned, and innocent landowner took precautions against the consequences that could

foreseeably result from the third party's acts or omissions). Each of these prongs must be considered by the Board in its capacity as trier of fact.

3. Section 58.9 of the Act does not prevent a finding of liability; if applicable, it may impact a liable party's share of liability

Proportionate share liability defenses create burden of proof issues, not pleading requirements under the Act. See Proportionate Share Liability: 35 Ill. Adm. Code 741, R97-16 (December 17, 1998) and Cole Taylor Bank v. Rowe Industries et al. PCB 01-173 (June 2, 2002). Furthermore, the Board has considered proportionate share liability defenses in the context of Section 12(a) enforcement actions. See, discussion of Michel Grain, in Section II.C.1., above. "Sections 22.2(j) and 58.9 potentially eliminate or limit Section 22.2(f) liability to pay for a cleanup. ... [P]roportionate share liability under Section 58.9, [does not] prevent[] a finding of violation or the imposition of civil penalties." Michel Grain Co., Inc. et al., 2002 WL 2012414 at *4. In addition to the well-reasoned holding in Michel Grain, the Appellate Court's decision in People v. State Oil, 352 Ill. App. 3d. 813, 817, (2d Dist 2004), gives credence to the limited applicability of Section 58.9, when it stated:

Put simply, one must enter through a door before one can throw something out the window.... [Defendant] is not entitled to invoke the provisions of Title XVII unless Title XVII is applicable to it in the first place.

The Board, the trier of fact, must consider whether Respondent can get in the door of Title XVII to avail itself of Section 58.9.

Inverse cites to People v. Waste Hauling for the proposition that an enforcement action is barred by proportionate share liability. Respondent's reading of this case is misplaced. The Board's ruling in Waste Hauling is limited and distinguishable. The Waste Hauling Complaint alleged that respondents were liable for past, present, and future response costs incurred by the State pursuant to Section 22.2 of the Act and asked the Board to find respondents liable for the

State's response costs and for damages equal to treble the removal costs for the respondents' failure to comply with the Illinois EPA's Section 4(q) notice. 2009 WL 6506888 at * 1 and *3. Noting that the Complaint lacked any allegations regarding the Section 4(q) notice, the Board dismissed the Complaint without prejudice and allowed the State to refile a Complaint which satisfied Illinois' fact pleading standards. *Id.* at *13. As the People's Complaint is not predicated on a cause of action arising out of Section 22.2, Waste Hauling is inapplicable to the instant action. The affirmative matter of whether or not the proportionate share law applies in this matter does not defeat the State's Section 12(a) claim. If the Board finds it is applicable, it may only impact Respondent's share of liability.

4. Inverse's Affidavits Fail to Provide Adequate Evidentiary Support for its 2-619 Motion to Dismiss.

Supreme Court Rule 191, entitled Proceedings Under Sections 2--1005, 2--619 and 2--301(b) of the Code of Civil Procedure, provides in pertinent part, as follows:

affidavits submitted in connection with a motion for involuntary dismissal under section 2-619 of the Code of Civil Procedure...shall be made on the personal knowledge of the affiants; shall set forth with particularity the facts upon which the claim, counterclaim, or defense is based; shall have attached thereto sworn or certified copies of all papers upon which the affiant relies; shall not consist of conclusions but of facts admissible in evidence; and shall affirmatively show that the affiant, if sworn as a witness, can testify competently thereto. If all of the facts to be shown are not within the personal knowledge of one person, two or more affidavits shall be used.

(Emphasis added.) ILCS S. Ct. Rule 191 (2010).

Inverse fails to provide adequate foundation, as required by Supreme Court Rule 191, for numerous allegations made in the Adams and Butler affidavits attached to the Motions. The allegations contain legal conclusions and vague, self-serving conclusory statements wholly

unsupported by fact; they also lack particularity. Motion, Adams Affidavit, Paragraphs ¶¶ 3, 8-10; Motion, Butler Affidavit, Paragraphs ¶¶ 7-13. Respondent also fails to attach sworn or certified copies of the papers upon which affiant relied for their assertions. For example, see Motion, Adams Affidavit at ¶3 (small business protection claim fails to identify the purpose of this protection, when it was raised, what documents were submitted, whether this alleged “small business protection” is actually recognized by the Illinois EPA, the Act, or PCB Regulations); ¶8 (fails to plead any facts alleging how he spent “considerable resources” to address contamination nor what “extensive precautions” were taken); ¶¶ 9-10 (statements lack particularity regarding how Inverse allegedly spent the funds to investigate and remediate the Site” or what steps Inverse took to “ensure[] that no pollutants or contaminants of concern have been ... discharged, released or in any way associated with the property”). See also, Motion, Butler Affidavit, ¶¶ 7-13. The affiants also fail to append any papers on which they base their conclusions, as required by Supreme Court Rule 19. Accordingly, Respondent’s Motion lacks the evidentiary support required by Illinois law and must be denied.

Finally, to the extent that the Butler affidavit misrepresents the Site conditions, it must be stricken. In paragraph 11 of his affidavit, Inverse’s environmental consultant avers that the levels of contaminants at the source have decreased in response to the remedy. See, Motion, Butler Affidavit at ¶11. The statement is disingenuous. Inverse’s submissions of quarterly groundwater monitoring results to the Illinois EPA’s Site Remediation Program demonstrate that the levels of the contaminants of concern were decreasing, but are now back on the rise. See Ex. 1, Catlin Affidavit, and Ex. 2, Inverse’s quarterly groundwater monitoring results, submitted to Illinois EPA by letter dated August 18, 2011. Respondent has failed to introduce affirmative matter that defeats the State’s well-plead Complaint. Accordingly, the Motion must be denied.

IV. CONCLUSION

For all the reasons set forth in this Response, the People respectfully request that the Board enter an order denying Respondent's motion to dismiss with prejudice.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS
ex rel. LISA MADIGAN, Attorney General
of the State of Illinois,

MATTHEW J. DUNN, Chief
Environmental Enforcement/
Asbestos Litigation Division

ROSEMARIE CAZEAU, Chief
Environmental Bureau
Assistant Attorney General

By:



KRISTYNA BEDNARCZYK
ELIZABETH WALLACE
Assistant Attorneys General
Environmental Bureau
69 West Washington Street, 18th Floor
Chicago, Illinois 60602
(312) 814-1511

EXHIBIT 1

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PEOPLE OF THE STATE OF ILLINOIS,)	
by LISA MADIGAN, Attorney)	
General of the State Illinois,)	
)	
)	
Complainant,)	
)	
v.)	PCB No. 11-79
)	
INVERSE INVESTMENTS L.L.C.,)	
an Illinois limited liability company,)	
)	
Respondent.)	

AFFIDAVIT OF ANDREW CATLIN

Andrew Catlin, being first duly sworn on oath, deposes and states as follows:

1. I am a Licensed Professional Geologist, State of Illinois license number 196.000183. I am employed by the Illinois Environmental Protection Agency ("Illinois EPA") as a Project Manager.
2. I have been employed by the Illinois EPA since April, 1995.
3. As part of my duties, I am responsible for managing the voluntary site remediation project of the Inverse Investments LLC property at 3004 West Route 120 (Elm Street), in McHenry, Illinois ("Site"). The voluntary remediation of the Site is conducted as part of Illinois EPA's Site Remediation Program ("SRP").
4. I have been responsible for review of this project since October, 2003. I have personal knowledge of the facts stated herein.
5. Illinois EPA received an application to enroll the Site in the SRP from Richard Adams (deceased) on October 6, 2003.

6. As part of the SRP, Inverse has taken soil samples. The soil sample results, alleged in paragraph 15 of the Complaint, were submitted by Inverse to the SRP.

7. As part of the SRP, the Site undergoes regular groundwater monitoring which samples for the contaminants of concern. See, attached Table 3; Groundwater Analytical Results – Detected VOCs reported by Inverse (attached hereto as Exhibit 2).

8. Tetrachlorethene (“PCE”), trichloroethene (“TCE”), dichloroethene (“DCE”), and vinyl chloride (“VC”) are volatile organic compounds (“VOCs”) that are the identified contaminants of concern (“contaminants of concern”).

9. PCE is a source contaminant. TCE, DCE, and VC are breakdown products of PCE.

10. On February 26, 2007, Inverse submitted a Remedial Objectives Report and Remedial Action Plan (“RAP”) (attached hereto as Exhibit 3) which identified PCE, TCE, cis-1,2-DCE and VC contamination in groundwater at the Site.

11. The RAP reported that VOC concentrations exceeded Class I groundwater standards. The Class I groundwater standard for PCE is 0.005 ppm. The Class I groundwater standard for TCE is 0.005 ppm. The Class I groundwater standard for cis-1,2-DCE is 0.07 ppm. The Class I groundwater standard for VC is 0.002 ppm.

12. The RAP identified that groundwater flows from the Site toward the southwest.

13. Consistent with the transport of contaminants of concern to the southwest, the Illinois EPA observed the presence of such contaminants southwest and west of the Inverse site, as described in paragraphs 23 - 31 of the Complaint.

14. The concentrations of PCE and TCE, as reported by Inverse in Exhibit 2, demonstrate that the concentrations of these contaminants at MW3 and MW 4 were higher in August 2, 2011 than they were in January 19, 2006.

15. On August 2, 2011, the concentrations of PCE in groundwater at the Site ranged from 0.001 ppm to 12 ppm. The Class I groundwater standard for PCE is 0.005 ppm.

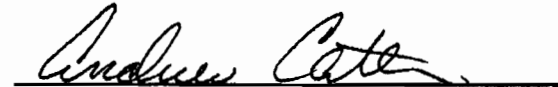
16. On August 2, 2011, the concentrations of TCE in groundwater at the Site ranged from 0.0005 ppm to 1.2 ppm. The Class I groundwater standard for TCE is 0.005 ppm.

17. On August 2, 2011, the concentrations of DCE in groundwater at the Site ranged from 0.001 ppm to 9.8 ppm. The Class I groundwater standard for cis-1,2-DCE is 0.07 ppm.

18. On August 2, 2011, the concentrations of VC in groundwater at the Site ranged from 0.0005 ppm to 2.4 mg/kg ppm. The Class I groundwater standard for VC is 0.002 ppm.

I declare under penalty of perjury that the foregoing is true and accurate.

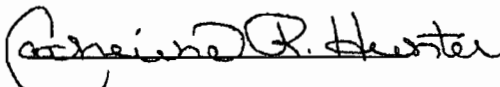
FURTHER AFFIANT SAYETH NOT.



Andrew Catlin

Sworn and subscribed before me

this 14 day of November, 2011



Notary Public



EXHIBIT 2

1860 Winchester Road
Suite 106
Libertyville, IL 60048

Tel 847-932-3529
Fax 847-816-3762

August 18, 2011

Mr. Andrew Catlin
Division of Remediation Management
Remedial Project Management Section
Illinois Environmental Protection Agency, Bureau of Land #24
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276



Re: 111060516/McHenry County
McHenry/Inverse Investments
Site Remediation Program/Technical Reports
Bonestroo File No.: 003680-09001-0

Dear Mr. Catlin:

Bonestroo, Inc. (Bonestroo) has prepared the attached table to serve as an update on ongoing sampling activities at Inverse Investments, 3004 West Elm, McHenry, Illinois (the Site).

Bonestroo has continuing to conduct periodic groundwater monitoring since the completion of remedial action. As planned, the remedial action consisted of the two-staged injection of an oxidant (RegenOx) followed by an accelerated bioremediation compound (HRC Advanced [HRC]) for remediation of PCE contamination in the soil and groundwater at the site. The RegenOx application was conducted from August to November of 2007. The HRC injection was completed in May to October of 2008.

We plan to continue quarterly monitoring to continue to assess the accelerated bioremediation. We will evaluate the remedial plan after additional data is collected.

Please also note a correction in data from 2009 in MW-4 and MW-5. We have determined that samples were mislabeled on two occasions due to the proximity of these wells. We have corrected the data tables to reflect this error. We believe the trend in data make it clear that the samples currently reflect the correct sampling locations.

Please contact the undersigned if you have any questions.

Sincerely,

BONESTROO

A handwritten signature in black ink, appearing to read "Michael C. Butler".

Michael C. Butler, PE, LEED AP
Client Service Manager

Attachment

Table 3
Groundwater Analytical Results - Detected VOCs
Inverse Investment, LLC
3004 West Elm, McHenry, IL

		Compounds of Concern					
		1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl chloride
TIER 1 GROUNDWATER REMEDIAION OBJECTIVES							
Class I Groundwater		0.007	0.07	0.1	0.005	0.005	0.002
Class II Groundwater		0.035	0.2	0.5	0.025	0.025	0.01
Monitoring Well ID	Date						
MW-1	1/19/2006	<0.0010	<0.0010	—	<0.0010	<0.0010	<0.0010
	11/14/2006	<0.002	<0.002	—	<0.002	<0.002	<0.002
	3/9/2009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
	8/6/2009	ND	ND	ND	ND	ND	ND
	11/19/2009	<0.1	<0.001	<0.001	0.0042	0.0013	<0.001
	3/11/2010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	7/21/2010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	11/17/2010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	8/2/2011	<0.001	<0.001	<0.001	0.0028	<0.0005	<0.0005
	3/9/2009	0.015	3.8E	0.078	0.11	0.03	1.4E
	8/6/2009	ND	8.6	0.053	0.098	0.019	1.7
	11/19/2009	<0.02	4.4	0.054	0.046	<0.02	1.1
	3/11/2010	<0.001	0.3	0.018	0.045	0.024	0.12
	7/21/2010	<0.001	0.25	0.011	0.019	0.013	0.19
	11/17/2010	<0.001	0.14	0.0067	0.017	0.004	0.23
	8/2/2011	<0.005	2.3	0.022	0.022	<0.0025	0.88
MW-3	1/19/2006	<0.0050	0.61	—	3	0.61	0.0076
	8/6/2009	ND	1.5	ND	5.7	1.6	ND
	11/19/2009	<0.02	1.1	<0.02	6.6	1.8	<0.02
	3/11/2010	<0.02	1	<0.02	5.3	1.2	<0.02
	7/21/2010	<0.010	1.1	<0.01	5.6	1.1	<0.01
	11/17/2010	<0.010	1.6	<0.01	5.3	1.2	<0.01
	8/2/2011	<0.020	1	<0.020	12	1.2	<0.010
	1/19/2006	<0.25	8	—	<0.25	<0.25	3.4
MW-4	11/14/2006	0.0183	9.53	—	0.954	0.772	5.28
	3/9/2009	<0.005	11 E	0.16	1.5 E	0.65 E	5.1 E
	8/6/2009	ND	15	ND	0.53	0.27	13
	11/19/2009	<0.1	14	<0.1	0.23	<0.1	9
	3/11/2010	0.031	17	0.02	0.68	0.34	8.9
	7/21/2010		19		1.4	0.37	9.4
	11/17/2010	<0.1	14	<0.1	0.68	0.035	4.2
	8/2/2011	<0.020	9.8	0.022	2.4	0.63	2.4
MW-5	3/9/2009	0.0074	2.7	0.066	4	0.86	0.17
	8/6/2009	ND	2.7	0.067	0.32	0.06	0.53
	11/19/2009	<0.005	1.4	0.036	0.22	0.056	0.25
	3/11/2010	0.0029	1.7	0.044	0.3	0.054	0.34
	7/21/2010	0.0016	0.96	0.035	0.12	0.21	0.47
	11/17/2010	<0.005	0.99	0.041	0.082	0.019	0.52
	8/2/2011	<0.001	0.75	0.013	0.46	0.079	0.1
	1/19/2006	<0.0010	0.023	—	0.002	0.011	<0.0010
MW-6	8/6/2009	ND	ND	ND	ND	ND	ND
	11/19/2009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	11/17/2010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	8/2/2011	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
MW-7	1/19/2006	<0.0010	0.01	—	0.011	0.25	<0.0010
	3/9/2009	<0.005	0.0097	<0.005	<0.005	<0.005	0.0031
	8/6/2009	ND	0.0074	ND	ND	ND	0.003
	11/19/2009	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001
	3/11/2010	<0.001	0.0075	<0.001	0.0024	<0.001	0.0016
	7/21/2010	<0.001	0.0083	<0.001	0.0024	<0.001	0.0016
	11/17/2010	<0.001	0.0045	<0.001	<0.001	<0.001	<0.001
	8/2/2011	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
Duplicate	11/14/2006	0.019	9.33	—	0.911	0.757	4.76
Trip Blank	11/14/2006	<0.002	<0.002	—	<0.002	<0.002	<0.002

Notes:

- 1) mg/kg = milligrams per kilogram
- 2) GRO = Groundwater Remediation Objective
- 3) Bold = Analytical result exceeds the bolded Tier 1 GRO
- 4) BDL or <0.002 = Concentration was not detected above the laboratory detection limit
- 5) N = No toxicity criteria is available for the route of exposure
- 6) NA = SRO not listed in 35 IAC Part 742
- 7) CW = Construction Worker
- 8) Shaded = Exposure Route SRO has been exceeded by analytical result

EXHIBIT 3



647 Academy Drive
Northbrook, IL 60062
Phone: 847-562-8577
Toll Free 888-680-8101
Fax: 847-562-8552
www.northernenvironmental.com

REMEDIAL OBJECTIVES REPORT
AND
REMEDIAL ACTION PLAN
CHLORINATED SOLVENT RELEASE

07/32832

1110605163
ADAMS, RICH
SR/TECH

3004 WEST ELM STREET
McHENRY, ILLINOIS

ORIGINAL

February 22, 2007

Prepared For:

Inverse Investments, LLC
P.O. Box 614
McHenry, Illinois

RECEIVED
FEB 26 2007
IEPA/BOL

Prepared By:

Northern Environmental Technologies, Incorporated
647 Academy Drive
Northbrook, Illinois 60062

Project Number: 05-2300-0572

M. Paul Karalius
Project Manager

Michael C. Butler, PE
Director

RELEASABLE

MAR 01 2007

REVIEWER MD



647 Academy Drive
Northbrook, IL 60062
Phone: 847-562-8577
Toll Free 888-680-8101
Fax: 847-562-8552
www.northernenvironmental.com

TABLE OF CONTENTS

<u>1.0 EXECUTIVE SUMMARY</u>	1
<u>2.0 INTRODUCTION AND BACKGROUND</u>	3
2.1 Site Description and Location	3
2.2 Area Geology/Hydrogeology	3
2.3 Previous Studies and Investigations	4
<u>3.0 EVALUATION OF TIER 1 REMEDIATION OBJECTIVES</u>	6
<u>4.0 DETERMINATION OF TIER 2 REMEDIATION OBJECTIVES</u>	7
4.1 Risked Based Corrective Action Equation	7
<u>5.0 EVALUATION OF TIER 2 REMEDIATION OBJECTIVES</u>	9
<u>6.0 REMEDIAL ACTION OBJECTIVES</u>	11
<u>7.0 SELECTION OF REMEDIAL OPTIONS</u>	12
7.1 Relevant Site Characteristics	12
7.2 Selection of Remedial Options	12
7.2.1 Excavation, Transportation and Disposal	12
7.2.2 iSOC	13
7.2.3 Accelerated Bioremediation Using HRC	14
7.2.4 Chemical Oxidation Using RegenOx™	14
7.3 Cost Evaluations and Comparison	15
<u>8.0 RECOMENDED REMEDIAL ACTION PLAN</u>	16
8.1 Scope of Work	16
8.1.1 Chemical Injection	17
8.1.2 Health and Safety Plan	17
8.1.3 Confirmation Sampling Plan	17
8.1.4 Additional Well Survey	17
8.1.5 Engineered Barriers and Institutional Controls	18
8.1.6 Environmental Land Use Control	18
8.2 Current and Post Remediation Use of the Property	19
<u>9.0 PROJECT SCHEDULE</u>	20
<u>10.0 CONCLUSIONS AND RECOMMENDATIONS</u>	21
<u>11.0 REFERENCES</u>	22



641 Academy Drive
Northbrook, IL 60062
Phone: 847-562-8577
Toll Free 888-880-8101
Fax: 847-562-8552
www.northernenvironmental.com

TABLE OF CONTENTS (Continued)

FIGURES

Figure 1:	Site Location and Local Topography
Figure 2:	Remediation Site Map
Figure 3:	Estimated Extent of VOCs in Soil
Figure 4:	Estimated Extent of VOCs in Groundwater
Figure 5:	Groundwater Flow Map
Figure 6:	Confirmation Sampling Plan

TABLES

Table 1:	Groundwater Table Elevation Data
Table 2:	Soil Analytical Results-Detected VOCs
Table 3:	Groundwater Analytical Results
Table 4:	Summary of Tier 1 and Tier 2 Remediation Objectives
Table 5:	Results of R26 Calculation
Table 6:	Engineer's Opinion of Project Cost

APPENDICES

Appendix A:	Tier 2 Calculations
	Appendix A1: SSL Equations
	Appendix A2: RBCA Equations
Appendix B:	Hydraulic Conductivity

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

1.0 EXECUTIVE SUMMARY

Northern Environmental has been retained by Inverse Investments, LLC to prepare a Remedial Objectives Report (ROR) and Remedial Action Plan (RAP) for the Site located at 3004 West Elm Street, McHenry, Illinois. This ROR/RAP was prepared in accordance with the Illinois Environmental Protection Agency (Illinois EPA) Title 35 Illinois Administrative Code (IAC) 740 Site Remediation Program (SRP) requirements for an ROR and RAP.

The ROR/RAP is prepared to address chlorinated solvent contamination at the Site. The goal of the ROR/RAP is to determine the remedial method by which cleanup of the Site can be achieved and to obtain Illinois EPA approval to implement the plan. The RAP also describes the process by which remediation objectives will be achieved and the "No Further Remediation" letter is obtained. The remedial action will be implemented following Illinois EPA approval of the RAP.

The chlorinated solvents tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride (VC) were detected at concentrations exceeding the applicable Tier 1 Soil Remediation Objectives (SROs). The potential exposure routes include: groundwater ingestion, soil inhalation, and soil ingestion. The maximum concentration of PCE also exceeds the soil saturation limit (Csat) in boreholes located in the west-central portion of the Site in the vicinity of Borings BH 13/17 and BH 14/16. PCE was the only compound detected at a concentration above Csat. PCE was detected at a maximum concentration of 560 ppm, which exceeds the Tier 1 Csat of 240 ppm.

The remedial objective for PCE at the Site is to remediate the contamination to below Csat (240 ppm). The volume of soil exceeding the Tier 1 Csat is approximately 161 cubic yards. Although the RAP identifies technologies designed to treat PCE contamination, other contaminants of concern will also be addressed as part of the remedial action.

Four remedial options were evaluated for the Site. The remedial methods evaluated were Excavation, Transportation and Disposal, iSOC, Bioremediation using HRC, and Chemical Oxidation using RegenOx. The proposed methods were evaluated based on the site-specific needs, cost, time, effectiveness, safety, and the impact the remediation technology would have on operations of the facility.

Bioremediation using HRC has been selected as the remedial option for the Site. Bioremediation using HRC will be used to reduce the PCE concentration below Csat (240 ppm). Although each method evaluated is fully capable of remediating the Site, Bioremediation using HRC appears to be the most effective remedial option to obtain the site-specific remedial objectives. There were notable differences in overall project costs, complexity of design, remediation time, safety and site disruption of each method. Bioremediation was selected based on cost, ability to implement, and the effectiveness of the technology to achieve the remediation objectives in a relatively short time frame. The cost of the remedial action using Bioremediation is estimated to be \$51,365.00. Confirmation sampling will be conducted to verify that the soil and groundwater remediation objectives are met.

Remedial Action will also consist of Engineered Barriers, Institutional Controls, and implementation of Environmental Land Use Controls (ELUC), if necessary. Engineered Barriers and Institutional Controls will be used on-Site to restrict exposure to remaining soil and groundwater contamination. Adjacent properties are currently zoned industrial/commercial. The

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

remedial action for adjacent properties may include the use of ELUCs as Institutional Controls to restrict the neighboring properties to industrial/commercial use. Where applicable, the Institutional Controls in the form of deed restrictions will also use the City of McHenry groundwater ordinance to restrict the installation of groundwater extraction wells and use of groundwater for potable water. The City of McHenry groundwater ordinance is currently not approved by the IEPA because it does not address existing wells. As such, the use of the deed restrictions in the form of ELUCs may be required to exclude potential exposure pathways to soil and groundwater contamination for these properties. The actual number of properties requiring ELUCs will be determined by modeling PCE based on any remaining contamination once the remedial action is completed.

Following completion of the remedial action and confirmation sampling, a Remedial Action Completion Report (RACR) will be submitted to the Illinois EPA for review and approval, and a NFR will be requested for the Site.

Northern Environmental has prepared this RAP in accordance with 35 IAC 740 Site Remediation Program and 35 IAC 742 Tiered Approach to Corrective Action Objectives requirements. This report meets the requirements of the Illinois EPA and the Fund for a Remedial Objectives Report and Remedial Action Plan.

▲ NORTHERN ENVIRONMENTAL

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

2.0 INTRODUCTION AND BACKGROUND

This ROR/RAP addresses the recognized environmental conditions (RECs) and related contaminants of concern identified at the Inverse Investments property located at 3004 West Elm Street, McHenry, Illinois (the Site). The ROR establishes the cleanup objectives for the site and the RAP describes the proposed remedy and evaluates the ability of the proposed remedy to achieve the remediation objectives. The organization and format of this ROR/RAP is generally consistent with the requirements and guidelines provided in 35 Illinois Administrative Code (IAC) 740 Site Remediation Program (SRP).

2.1 Site Description and Location

The property located at 3004 West Elm Street (Route 120), McHenry, Illinois is approximately 0.30 acres in size and is improved with a one-story brick-and-block building. The building encompasses approximately 0.11-acres of the Site. The area surrounding the building is asphalt paved. The Site location and local topography are shown on Figure 1.

The building on the Site is currently occupied by Enterprise Rent-A-Car. Prior to the current business, the Site was occupied by a tire store. Historically, the Site was occupied by an automotive repair shop and a drycleaner.

The Site is located in a mixed-use commercial, residential, and recreational area. The Site is bordered to the north by a VFW Park, to the east and west by commercial properties, and to the south by Elm Street. Beyond Elm Street to the south are commercial properties, followed by residential properties located approximately 500 feet south of the Site.

2.2 Area Geology/Hydrogeology

The Illinois State Geological Survey (ISGS) Circular, entitled "Potential for Contamination of Shallow Aquifers in Illinois", commonly known as the Berg Circular, was referenced to accurately locate the Site in relation to the regional subsurface soil formations that are believed to exist in the general vicinity of the Site. The Site appears to be in an "A2" designated area, which the Berg Circular describes as "Thick permeable sand and gravel, within 20 feet of surface."

During the site investigation activities conducted by The Green Environmental Group, Ltd. (Green) in August, September, and December 2002, and by Miller-Butler Environmental in November 2005, native clay with varying amounts of sand was encountered to a depth of approximately 15 feet below grade (fbg) across the Site. Native brown and gray sand was typically encountered from 15 fbg to the borehole termination depths (a maximum of 44 fbg).

The ground surface at the Site appears to be asphalt on grade. Visual observation of the topography indicates that run-off on the Site tends to flow to storm sewer drains located along West Elm Street.

Soil saturation conditions were observed in the boreholes advanced between 8.5 and 11 fbg. Measured groundwater depths in the groundwater monitoring wells at the site on February 17, 2006 ranged from 6.75 to 9.1 feet fbg, with an average depth to groundwater of 7.61 fbg. Based on the groundwater depth measurements, groundwater flow at the Site appears to be to the southwest.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

Soil boring and monitoring well logs from the investigation conducted by Miller-Butler Environmental in November 2005 are provided in the Supplemental Site Investigation Report (Miller-Butler, 2006) and the Focused Site Investigation Report (Green, 2003). Depth to groundwater measurements are summarized in Table 1. Groundwater elevations and groundwater flow direction are shown on Figure 5.

The hydraulic conductivity (K) at the Site has been determined to be approximately 2.10×10^{-4} feet per minute (ft/min) (1.07×10^{-3} centimeters per second (cm/s)).

Groundwater at the Site was evaluated to determine proper designation in accordance with IAC Title 35, Part 620.201. Ground water at the Site meets the criteria for Class I Potable Resource Ground Water because of the following:

- ▲ The hydraulic conductivity, as determined by a slug test, was not less than 1×10^{-4} cm/sec and is therefore not Class II groundwater.
- ▲ Unconsolidated sand or gravel greater than 5 feet in thickness was observed on the Site during site investigation activities.
- ▲ No groundwater ordinance is in effect in McHenry, Illinois.
- ▲ Groundwater at the Site does not meet the criteria for Class III Special Resource Groundwater or Class IV Other Groundwater.

2.3 Previous Studies and Investigations

The following previous studies were completed at the Site, based on the information provided in the Focused Site Investigation Report (Green, 2003) and Supplemental Site Investigation Report (Miller-Butler, 2006):

- ▲ August 28, 2002: Green completed an investigation consisting of three soil borings (BH-1 through BH-3) at the Site.
- ▲ September 19 and 23, 2002: Green completed an investigation consisting of six soil borings (BH-4 through BH-9) at the Site.
- ▲ October 9, 2002: Green completed an investigation consisting of the installation of three monitoring wells (MW-1 through MW-3) at the Site.
- ▲ October 17, 2002: Green completed groundwater monitoring and sampling at the Site.
- ▲ December 12 and 17, 2002: Green completed an investigation consisting of five soil borings (BH-10 through BH-14) and two monitoring wells (MW-4 and MW-5) at the Site.
- ▲ January 16, 2003: Green conducted groundwater monitoring and sampling activities on monitoring wells MW-4 and MW-5 at the Site.
- ▲ October 2, 2003: Green submitted a Focused Site Investigation Report (SIR) to the Illinois EPA.
- ▲ December 18, 2003: Illinois EPA issued a response to the SIR, requesting that additional soil and groundwater investigation be conducted.
- ▲ January 21, 2004: Green submitted a response to the Illinois EPA's December 2003 letter, proposing the additional soil and groundwater investigation, and promising additional information to be provided in an addendum report.
- ▲ March 24, 2004: Illinois EPA issued a response to Green's January 2004 letter, providing more detailed instructions for the locations and depths of the proposed soil borings and monitoring wells.
- ▲ July 29, 2005: Miller-Butler Environmental submitted a detailed Site Investigation Plan to the Illinois EPA.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

- ▲ October 25, 2005: Illinois EPA issued a response to the Site Investigation Plan, approving it with an additional request to sample all site monitoring wells.
- ▲ November 16 and November 17, 2005: Miller-Butler installed six soil borings (BH15 through BH 20) to determine vertical and horizontal extent of contamination at the Site, and to determine subsurface geology.
- ▲ March 1, 2006: Miller-Butler submitted a Supplemental Site Investigation Report.
- ▲ August 30, 2006: Illinois EPA conditionally approved the Supplemental Site Investigation Report.

The investigations at the Site identified the following:

- ▲ The Site was formerly occupied by a drycleaning facility from 1970 to 1977.
- ▲ The Site was originally occupied by an automotive repair facility which was equipped with an in-ground hydraulic lift. The hydraulic lift and associated hydraulic oil reservoir were contained within a concrete vault reducing the possibility of a release to the Site.
- ▲ The chlorinated solvent contaminants of concern present above Tier 1 Soil Remediation Objectives (SROs) at the Site are PCE, TCE and cis-1,2-DCE. Potential exposure routes include soil inhalation, soil ingestion and groundwater ingestion. VOC contamination in soil appears to be present at concentrations exceeding Tier 1 SROs for inhalation and ingestion in the area encompassing BH-17 and BH-16. Tier 1 SROs for Class I groundwater have also been exceeded in soils across the western and northwestern portions of the Site.
- ▲ The chlorinated solvent contaminants of concern present above Tier 1 Groundwater Remediation Objectives (GROs) at the Site are PCE, TCE, cis-1,2-DCE and VC (VC). VOC contamination in groundwater appears to be present at concentrations exceeding Tier 1 GROs for Class I groundwater in all on-site monitoring wells with the exception of monitoring well MW-1.
- ▲ The maximum concentration of contaminants of concern in soil are 560 mg/kg PCE, 24 mg/kg TCE and 3.7 mg/kg cis-1,2-DCE.
- ▲ The maximum concentration of contaminants of concern in groundwater are 15 mg/L PCE, 2.6 mg/L TCE, 8 mg/L cis-1,2-DCE and 3.4 mg/L VC.
- ▲ Groundwater flow appears to be toward the southwest at an average of 10 feet per year (Green Environmental, 2003).
- ▲ Groundwater at the site is classified as Class I Potable Resource Water based on the geological and hydrogeological characteristics of the Site.
- ▲ Average depth to groundwater is 7.61 fbg.

There is currently no groundwater ordinance adopted by the City of McHenry. Potable water is obtained from municipal wells or from private wells installed on individual properties. Additionally, some residents are using private wells for potable water service

Northern Environmental has prepared this ROR/RAP to address contamination at the Site. This report meets the requirements of the Illinois EPA Title 35 IAC 740 Site Remediation Program (SRP). Based on the findings listed above and in accordance with Title 35, IAC Section 740, Northern Environmental has determined site-specific remediation objectives in accordance with Title 35, IAC Section 742 Tiered Approach to Corrective Action Objectives (TACO).

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

3.0 EVALUATION OF TIER 1 REMEDIATION OBJECTIVES

In compliance with state regulations (Title 35 IAC, Part 740), Tier 1 remedial objectives were evaluated to determine the potential volume of sediments requiring corrective action while still being protective of groundwater quality and human health and welfare. Class I ground water has been determined to be present at the Site in accordance with the criteria listed in Title 35 IAC, Part 620. In addition, the Site is zoned for industrial/commercial land use. Contamination was evaluated using Tier 1 Industrial/Commercial Remedial Objectives. The following are the contaminants of concern in Site soil and groundwater and their corresponding Tier 1 Remediation Objective exceedances.

Tier 1 remedial objectives for PCE were exceeded for the following exposure routes:

- ▲ Soil Component of Groundwater Ingestion for Class I Groundwater
- ▲ Industrial/Commercial Inhalation
- ▲ Industrial/Commercial Ingestion
- ▲ Construction Worker Inhalation
- ▲ Construction Worker Ingestion
- ▲ Soil Saturation Limit
- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for TCE were exceeded for the following exposure routes:

- ▲ Soil Component of Groundwater Ingestion for Class I Groundwater
- ▲ Industrial/Commercial Inhalation
- ▲ Industrial/Commercial Ingestion
- ▲ Construction Worker Inhalation
- ▲ Construction Worker Ingestion
- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for cis-1,2-DCE were exceeded for the following exposure routes:

- ▲ Soil Component of Groundwater Ingestion for Class I Groundwater
- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for VC were exceeded for the following exposure route:

- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for 1, 1-DCE were exceeded for the following exposure route:

- ▲ Groundwater Quality Objective for Class I Groundwater

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

4.0 DETERMINATION OF TIER 2 REMEDIATION OBJECTIVES

In accordance with Title 35 IAC 740.440 and Title 35 IAC 742.600, Tier 2 remediation objectives have been developed for all contaminants of concern and corresponding exposure routes exceeding Tier 1 remediation objectives. After the implementation of remedial action to reduce soil contamination to below the saturation limit for PCE at the Site, conditions will meet the requirements for use of Tier 2 evaluation in accordance with Title 35 IAC 742.600(e).

Site Specific Level (SSL) Equations and Risk Based Corrective Action (RBCA) equations were calculated using various input parameters. Input parameters used were default, chemical specific, and site specific values. For the Site, site specific values for parameters such as total organic carbon are similar to the default values presented in Title 5 IAC 742 Appendix C Table B. As such, Soil Remediation Objectives for specific contaminants of concern will be the Tier 1 Soil Remediation Objectives for Industrial/Commercial Inhalation and Ingestion and Construction Worker Exposure Routes.

4.1 Risked Based Corrective Action Equation

Tier 2 calculations were performed for the Site using RBCA Equation R26 to determine the potential concentration of contaminants in groundwater migrating from the Site. In addition, RBCA Equation R15 was performed to calculate the migration distances for the Soil Component of the Groundwater Ingestion. To perform this calculation, a maximum groundwater contamination resulting from the observed maximum soil concentration was calculated using RBCA Equation R 12. The calculated maximum groundwater concentration was used in Equation R15 to model the distance to the point of compliance with the Class I Groundwater Ingestion Remediation Objective. Calculations and variables used in Equation R26 and associated equations are included in Appendix A. The results of equation R26 are shown in Table 5.

Input Parameters

When selecting the input parameters for Equation R26, default parameters for a sandy/clay soil type were used because the soil contamination appears to have the highest concentrations in that particular unit. Input parameters that utilized site specific information that were field measured are; hydraulic gradient (i), fraction organic carbon (Foc), hydraulic conductivity (K), average soil moisture content (w), source width (Sw), source length (W), source thickness (Sd) and soil concentration (Csoil).

Hydraulic Gradient (i)

Two rounds of water levels were gathered to determine the hydraulic gradient and flow direction at the site. Groundwater levels were gathered in October 2002 and November 2006. Groundwater flow was mapped for both collection days, both showing similar flow direction and hydraulic gradient. Water levels at the Site are consistently around 6 ft. to 8 ft. bgs. Groundwater flow is to the southwest. The hydraulic gradient calculated for the Site is 0.0146.

Fraction Organic Carbon (Foc)

Default values for TOC were used for the calculations. The value selected for Foc is consistent with the values presented in 35 IAC 742 Appendix C. The default surface value of 0.006 g/g for surface soils was utilized in the RBCA equations.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

Hydraulic Conductivity (K)

In-situ hydraulic conductivity testing (slug testing) was performed on monitoring well MW 1. Two slug tests were performed with the results evaluated by AQUIFER, a computer based groundwater modeling program. The Bouwer – Rice method was used to evaluate the data for the site. Results of this analysis indicate a hydraulic conductivity of 2.1×10^{-4} ft/min (9.22 cm/day) and 2.16×10^{-4} ft/min (9.35 cm/day). An average value of 9.35 cm/day was used for the hydraulic conductivity. Data from the Hydraulic Conductivity test is presented in Appendix B.

Average Soil Moisture Content (w)

The soil moisture content value used for the RBCA equations is the default value presented in Title 35 IAC 742 Appendix C, Table D. The percent moisture is 10% for surface soils which was utilized as the average soil moisture content (w) value for RBCA equations.

Source Width (Sw), Length (W), Thickness (Sd), and Concentration (Coil)

Several boreholes near and surrounding the potential source of contamination were used to construct a contour map of the contamination. The source thickness was determined by examining contaminant concentrations and PID response. The maximum concentrations for the contaminants of concern are shown in Table 2 and Table 3. Only actual laboratory analytical values were utilized for the RBCA equation models.

The source plumes used in Equations R26 models represented the greatest remedial Tier 1 Objective exceeded at the Site. The highest concentration within the plume is conservatively assumed to be constant across the entire contour area.

The source length and width for the PCE contaminated area is shown in Figure 3. The source width and length contours were conservatively drawn to illustrate the maximum area to likely be present at the concentrations used in the modeling. For TCE, cis-1,2-DCE, and VC the plume size is assumed to be the size of the source contour area shown in Figure 3.

Calculations and variables used in the Equations R26 and associated equations are included in Appendix A. The results of equations are shown in Table 5.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

5.0 EVALUATION OF TIER 2 REMEDIATION OBJECTIVES

In compliance with state regulations (Title 35 IAC, Part 740), Tier 2 remedial objectives were evaluated to determine the potential volume of sediments requiring corrective action while still being protective of ground-water quality and human health and welfare. Tier 2 remediation objectives were developed as discussed in Section 4.0 of this report. A comparison of Tier 1 and Tier 2 remediation objectives for the required contaminant of concern and corresponding exposure route is included in Table 4. Using the applicable remediation objectives as shown in Table 1, exceedances of the following exposure routes still exist for contamination present:

Tier 1 remedial objectives for PCE were exceeded for the following exposure routes:

- ▲ Groundwater Quality Objective for Class I Groundwater
- ▲ Soil Component of Groundwater Ingestion for Class I Groundwater
- ▲ Industrial/Commercial Inhalation
- ▲ Industrial/Commercial Ingestion
- ▲ Construction Worker Inhalation
- ▲ Soil Saturation Limit

Tier 1 remedial objectives for TCE were exceeded for the following exposure routes:

- ▲ Soil Component of Groundwater Ingestion for Class I Groundwater
- ▲ Industrial/Commercial Inhalation
- ▲ Industrial/Commercial Ingestion
- ▲ Construction Worker Inhalation
- ▲ Construction Worker Ingestion
- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for cis-1,2-DCE were exceeded for the following exposure routes:

- ▲ Soil Component of Groundwater Ingestion for Class I Groundwater
- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for VC were exceeded for the following exposure route:

- ▲ Groundwater Quality Objective for Class I Groundwater

Tier 1 remedial objectives for 1, 1-dichloroethene were exceeded for the following exposure route:

- ▲ Groundwater Quality Objective for Class I Groundwater

Through the use of the SSL Equations, remedial values for several exposure pathways were evaluated, reducing the sizes of the contamination plumes, but none could be eliminated as possible concerns to the Site. The remedial objective for the Csat for PCE is 240 parts per million (ppm).

To determine the extent of impact of contamination remaining in groundwater in the area of the Site, Tier 2 calculations were performed for the Site using RBCA Equation R26. Using Equation R26, it was demonstrated that the maximum groundwater concentration for all contaminants of concern would fall below Tier 1 Groundwater Ingestion Remediation Objectives for Class I Groundwater within 351 feet of the source area due to the moderate-high groundwater flow velocity. The concentrations in Table 4 represent the soil remediation objectives for the Site. The results of the R26 calculations are presented in Appendix A.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

Water well logs for wells located in the vicinity of the Property were obtained during the investigation phase of the project. The EDR Illinois Water Well Report indicates that 51 wells are located within an approximately 1,000 foot radius of the Site and 171 wells are within 2,500 feet of the Site. Based on the limited information provided in the EDR Reports, 5 wells were installed to a depth between 17 feet and 50 feet (within a 1000 foot radius) and the remainder were installed to depths between 51 feet and 168 feet. EDR notes indicate wells were developed for domestic and commercial use.

Considering that remediation of the Site will be required and that the Tier 1 and Tier 2 remedial objectives for soil to attain Class I groundwater compliance do not differ significantly, a Remedial Action Plan is included in Section 8.0 of this report. The Remedial Action Plan considers active remediation to reduce contaminant concentrations below Csat and the use of engineered barriers and institutional controls in the form of Environmental Land Use Controls.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

6.0 REMEDIAL ACTION OBJECTIVES

The goal of the remedial action is to remediate the soil at the Site in order to achieve the remediation objectives and to obtain a No Further Remediation Letter for the Site. The contaminants of concern for the Site are presented in Section 4.0 and Section 5.0 of this report and their corresponding Tier 1 remedial objective exceedances

Through the use of the RBCA Equations, remedial values for several exposure pathways were elevated, reducing the sizes of the contamination plumes, but none could be eliminated as possible concerns to the Site.

Using Equation R26, it was demonstrated that the maximum groundwater concentration for all contaminants of concern would fall below Tier 1 Groundwater Ingestion Remediation Objectives for Class I Groundwater within 351 feet of the source area. This is due to the moderate-high groundwater flow velocity.

The remedial objective for PCE is to remediate the Site to below the Csat concentration of 240 ppm in accordance with the Title 35 IAC 742 Appendix A Table A. Based on data obtained from the Focused Site Investigation (Green, 2003) and the Supplemental Site Investigation (Miller-Butler, 2006), the area above Csat is 31 feet long by 14 feet wide and 10 feet thick. The zone of Csat contamination appears to be between 10 and 20 fbg. Approximately 161 cubic yards of soil exceed Csat.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

7.0 SELECTION OF REMEDIAL OPTIONS

7.1 Relevant Site Characteristics

There are several relevant site characteristics that were taken into consideration when evaluating remedial options for the Site. Relevant site characteristics are site features or conditions that have potential impacts on the remedial method selected and the overall success of the remediation. The observed site characteristics are summarized below:

Observed Site Characteristics

- ▲ Shallow groundwater table at approximately 7.61 feet bg.
- ▲ Soil contamination at the source at a maximum PCE concentration of 560 mg/kg.
- ▲ Soil contamination at a depth at the source of greater than 12 feet bg.
- ▲ Soil contamination up to ~ 20 feet bg.
- ▲ The site is occupied by commercial property.
- ▲ Previous investigations indicate 51 wells may be within 1000 feet of the Site.

All of the above site characteristics have the potential to significantly impact the remedial method selected for the Site and the success of the remedial action. Therefore, each of the above relevant site characteristics have been considered and are discussed in the selection of remedial methods discussed below.

7.2 Selection of Remedial Options

The goal of the Remedial Action is to remediate the site soil and groundwater in order to obtain a "No Further Remediation" letter for the Site.

Four remedial options were briefly evaluated for the Site. The remedial methods evaluated were Excavation, Transportation and Disposal, iSOC, Accelerated Bioremediation using HRC, and Chemical Oxidation with RengenOx™. The proposed methods were evaluated based on the site-specific needs of the Site. Cost, time, effectiveness, safety, site disruption and other issues were all considered when selecting the appropriate remedial method for the Site.

7.2.1 Excavation, Transportation and Disposal

Soil excavation and disposal is an applicable remediation technology for 3004 West Elm Street. The source area exceeding the saturation limit (approximately 161 cubic yards) would be excavated, transported and disposed of at a licensed hazardous waste disposal facility. The advantages and disadvantages of applying this remedial technology are summarized below.

Advantages:

- ▲ Site remediation can be completed approximately within two to three weeks.
- ▲ No remedial system to monitor.
- ▲ Works well for soil above or below the water table.
- ▲ Works well regardless of soil type.

Disadvantages:

- ▲ May be disruptive to site activities.
- ▲ Project costs can increase significantly if more excavation is required.
- ▲ Not all soil can be remediated via excavation especially under the exterior walls.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

- ▲ Cost could increase significantly if the excavation fills with groundwater that would need groundwater disposal.
- ▲ Excavation would not directly treat impacted groundwater.

A majority of the contaminated soil is located beneath the building with less than 25% of the contamination beneath the paved area outside the exterior of the building. The building is currently leased by Enterprise Rental Car and is an active facility with a garage and warehouse located in the rear of the facility. The contamination is located next to the wall separating the office space from the warehouse. Contamination at the Site is also found under the exterior wall of the facility. Due to the location of the contaminated soil and the geologic and hydrogeologic conditions of the Site, other technologies would need to be applied to fully remediate the site. Due to the sandy soils, the size of the excavation and measure to prevent damage to the foundation would increase the costs of the remedial action. Therefore, excavation and disposal beneath the building is not practical or able to be implemented due to the ongoing operations at the facility. As such, this technology will not be given further consideration.

7.2.2 iSOC

iSOC® is a bioremediation technology used for remediating a wide variety of contaminants including chlorinated compounds in groundwater or saturated porous media. It is a gas delivery system using a patented unique method of infusing supersaturated levels of dissolved gas into liquids. The technology relies on a mass transfer device constructed of a porous micro-fiber that provides a large surface area for mass transfer. The pressure at which gas is infused into the groundwater is such that efficient mass transfer takes place without sparging. The bio-remediation technology can be used as both an aerobic or anaerobic process. In the case of 3004 West Elm Street where chlorinated solvents are the contaminants of concern, hydrogen would be used under anaerobic conditions to remediate the Site. Generally, the iSOC® is installed in a 2-inch diameter (or larger) monitoring well and connected to a regulated supply of hydrogen. Gas is continuously infused over a period of several months to up to several years, as needed.

The advantages and disadvantages of applying the technology are summarized below.

Advantages:

- ▲ Can be used with a number of different gases for treatment of sites under anaerobic or aerobic conditions.
- ▲ Effective at remediating at all ranges of contaminant levels.
- ▲ Low annual operation and maintenance costs.
- ▲ Equipment setup is cost effective with low operation and maintenance.
- ▲ No power requirements, off-gases, pumps or hazardous byproducts.
- ▲ Can be used as a barrier for further contaminant migration.

Disadvantages:

- ▲ Hydrogen gas is flammable and precautions are necessary for handling and storage.
- ▲ Generally installed at the leading edge of a contaminant plume with biodegradation of contaminants occurring downstream of the infusion well.
- ▲ Two step process for degradation of PCE and daughter products.
- ▲ Health and safety measures need to be observed during application.

A majority of the contamination is located beneath the building with less than 25% of the contamination beneath the paved area outside the building. Although iSOC is an applicable

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

technology, the potential hazards associated with the use of hydrogen gas at an active facility would require special precautions and safety measures to ensure work areas are properly protected and ventilated. Due to the potential hazards associated with this alternative, this technology will not be considered further.

7.2.3 Accelerated Bioremediation Using HRC

Bioremediation using an extended release formula Hydrogen Release Compound (HRC) was evaluated to remediate the soils and groundwater impacted by the chlorinated solvent release at the Site. Based on manufacturer's calculations, one application of HRC will be needed to remediate the contamination at the Site. However, prior to implementation of a full scale system, a pilot test designed to remediate 24 percent of the Site will be conducted to verify the effectiveness of the system and to obtain the performance characteristics. During the full scale remedial action, 8 injection borings will be installed in the treatment area to a depth of 20 fbg. Injection of HRC will be applied from 10 to 20 fbg in the area where contamination exceeds Csat. Approximately 5,280 pounds of HRC will be added during the remedial action. After injecting the HRC compound, groundwater will be monitored to see the effect and progress of the bioremediation. Bioremediation using HRC has been successfully used at many underground storage tanks and industrial facilities to remediate hydrocarbons and chlorinated solvents. Total remediation time for one application using HRC is estimated to be 1 year. Advantages and disadvantages of applying this method are summarized below.

Advantages:

- ▲ Very effective at reducing contaminant levels in all soil types.
- ▲ Effective at remediating at all ranges of contaminant levels.
- ▲ Effective at remediating multiple contaminant types.
- ▲ Widely used and proven remedial technology.
- ▲ HRC compound remains active in soil and groundwater for months.
- ▲ Limited health and safety procedures need to be observed during application.
- ▲ Slow reaction allows HRC to remain in the soil longer to remediate residual contamination.

Disadvantages:

- ▲ Remediation time is longer, typically months to years.
- ▲ Monitoring costs are high.
- ▲ Multiple applications are usually needed
- ▲ Health and safety measures need to be observed during application.
- ▲ Highly dependent on soil and groundwater characteristics.

Accelerated Bioremediation using HRC is discussed further in Section 8.0.

7.2.4 Chemical Oxidation Using RegenOx™

RegenOx™ is a chemical oxidation technology for the treatment of organic contaminants including high concentration source areas in vadose zones and saturated soils. RegenOx™ is a proprietary compound developed to react with petroleum hydrocarbons and chlorinate compounds comparable to Fenton's Reagent but without the hazards associated with exothermic reactions. Chemical Oxidation with RegenOx™ will continue to perform approximately 30 to 60 days after injection.

A minimum of three applications of RegenOx™ will be needed in the area under the building

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

where contaminant concentrations exceed Csat. It is recommended that an injection well spacing of 8 feet on-center be used for each application. For a 31 foot by 14 foot area 12 injection points will be installed in 3 rows. The injection points will be screened from 10 feet to 20 feet. The total volume of chemical oxidant to be applied during the three applications is estimated to be 1,080 pounds (plus activator compound). After injecting the chemical oxidant, groundwater will be monitored to determine the effect and progress of remediation. The time to complete each injection and to verify the results of each application is estimated to be 60-90 days. The time to complete the remedial action is estimated to be approximately 1 to 1.5 years. Advantages and disadvantages of applying this method are summarized below.

Advantages:

- ▲ Very effective at reducing contaminant levels in all soil types.
- ▲ Effective at remediating at all ranges of contaminant levels.
- ▲ Effective at remediating multiple contaminant types.
- ▲ Widely used and proven remedial technology.

Disadvantages:

- ▲ More than three applications may be required.
- ▲ Remediation time is dependent of dispersion of chemical oxidant through silty fine sand/silty clay soils.
- ▲ Monitoring costs are high.
- ▲ Health and safety measures need to be observed during application.
- ▲ High Chemical Cost.

Chemical oxidation using RegenOx is discussed further in Section 8.0.

7.3 Cost Evaluations and Comparison

Cost estimates were obtained for two remedial options evaluated for the Site. The cost estimate for Bioremediation using HRC is estimated to be \$51,365.00. The cost estimate for Chemical Oxidation using RegenOx™ is estimated to be \$79,068.00. A comparison of the cost estimates for the two remedial options is presented in Table 6.

The cost estimates presented in Table 6 are based on current project information and are for the Client and the Illinois EPA to convey the probable range of project costs. Since the engineer has limited control over the cost of labor, materials, equipment and services provided by others, or over the contractor(s) method of determining prices, or over competitive bidding or market conditions, the Engineer's opinion of project costs are made on the basis of the engineers experience and judgment. The Engineer cannot and does not guarantee that proposals, bids or actual construction costs will not vary from the Engineer's opinion.

8.0 RECOMENDED REMEDIAL ACTION PLAN

Accelerated Bioremediation using HRC Advanced™ is recommended as the most appropriate remedial method for the Site. Compared to the alternative methods, Bioremediation using HRC is the recommended remedial option for the following reasons:

- ▲ More effective remedial method
- ▲ Less overall project cost
- ▲ Impact to operations at the facility is minimal
- ▲ Alternative methods in conjunction with the HRC may not be required

Although all of the remedial options are capable of achieving remediation objectives, Bioremediation using HRC would satisfy the Illinois EPA requirements, limit disruption to the business at the Site, and allows remediation objectives to be achieved in a relatively short period of time. In addition, the slow reaction process allows HRC to remain in the soil longer to react with any residual contamination that may be present. Chemical Oxidation with RegenOx can remediate the Site in a shorter amount of time but at a higher cost. Although excavation, transportation and disposal may remediate soils in a relatively short period of time, additional methods, such as chemical oxidation or bioremediation using HRC may be required in areas where contamination may not be accessible to conventional excavation methods. In addition, excavation beneath the building would be disruptive to the operation of the business within the building and additional precautions would be required to excavate near the foundation walls. ISOC is an applicable technology but specific precautions would be needed to avoid hazards associated with infusion of hydrogen gas.

Bioremediation using HRC solution will be used to remediate the soils and groundwater impacted by the chlorinated solvent release at the Site. One application of HRC will be needed to remediate the contamination at the Site. Approximately 5,280 pounds of HRC will be injected during the full scale operation. The application will consist of installing 8 injection points using a direct push technique (Geo-probe®). The actual number of points may vary based on preliminary screening results and the results from the pilot test proposed for the Site. The HRC solution will be injected into the subsurface from inside and outside the facility. For the pilot test, HRC injection will occur outside the facility to minimize disruption of the business operation. Extraction wells may be used to control HRC migration in the subsurface. Following the injection, additional boreholes will be drilled and sampled along with sampling of monitoring wells at the Site to confirm the reduction of contaminants in the subsurface soils and groundwater.

Following the confirmation sampling and receipt of the results, additional modeling will be conducted to determine potential migration of remaining contaminants based on the sample results. Based on those results, an evaluation will be made regarding subsequent remedial options.

The goal of the remedial action is to remediate the soil to below Csat of 240 mg/kg for PCE. Remedial Action will also consist of Engineered Barriers, Institutional Controls, and implementation of Environmental Land Use Controls (ELUC), if necessary.

8.1 Scope of Work

The scope of work will consist of pilot testing and sampling, remedial site preparation and the remedial action. Each phase of the project is described in detail below.

▲ NORTHERN ENVIRONMENTAL

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

8.1.1 HRC Injection

HRC Injection will be carried out in the one area noted on Figure 2. Injection will be done during a time that would minimize disruption to the operation of the facility. One application of HRC is proposed to remediate the contamination at the Site. Approximately 5,280 pounds of HRC will be injected during the full scale operation.

The application will consist of installing 8 injection points using a direct push technique (Geo-probe®). The actual number of points may vary based on preliminary screening using a photoionization detector and the pilot test results. The HRC solution will be injected into the subsurface from inside and outside the facility. Soil and groundwater confirmation sampling will be conducted to determine the effectiveness of the injection and monitor the progress of the remediation, and to document the reduction in contamination.

8.1.2 Health and Safety Plan

During the mixing and injection processes, proper safety level will need to be observed by all present within the remediation area. The on-site manager will define the remediation area. A health and safety plan for HRC handling and injection should be made and implemented by the contractor performing the remediation. The health and safety plan should be used during the entire remedial process for the Site.

8.1.3 Confirmation Sampling Plan

Following the injection event, soil and groundwater at the Site will be tested for VOCs. Soil and groundwater sampling will be conducted quarterly over five sampling events (at intervals of 3, 6, 9, 12 and 15 months) post-injection to allow the HRC to disperse and completely react with organic compounds and to determine the effectiveness of the injection. Confirmation sampling at these intervals will monitor the progress of the remediation. The reduction in contamination will be documented.

Groundwater monitoring wells may be used to determine the status of the injection and to determine if chemical reactions have stopped. Up to four soil borings will be advanced to a depth of 20 fbg to collect the samples. The soil samples will be collected from each boring at the interval with the highest concentration based on field screening with a Photoionization Detector (PID). All the collected samples will be field screened using the PID. One worst-case sample will be collected from each boring and preserved for laboratory analysis based on field screening analysis with a PID. If no contamination is apparent, the previously-sampled intervals where contamination had been detected will be used to evaluate the effectiveness of the remedial action. Samples will be collected, preserved and submitted for analysis by an Illinois certified laboratory to confirm the results of field screening in accordance with SW 846 Method 5035. Soil samples will be analyzed for volatile organic compounds (VOCs) using SW 846 Method 8260B in accordance with Title 35 IAC 740.415 (d)(3)(4)(5). The confirmation sampling plan is illustrated in Figure 6.

8.1.4 Additional Well Survey

In accordance with 35 IAC 742.805(4) and 742.810(b)(1), the contaminants of concern must meet the applicable Tier 1 Groundwater Remediation Objective within the minimum or designated maximum setback zone of an existing potable water supply well. The minimum setback zone of a potable water supply well is 200 feet.

Groundwater modeling using Equation R26 indicates the potential for migration of VC up to 351 feet (the maximum migration distance for all contaminants of concern). In accordance with 35 IAC

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

810(b)(1), the minimum setback zone of the nearest potable water supply is 200 feet from the edge of the contaminant plume. However, following the remedial action, R26 modeling will be conducted to verify the potential extent of migration for all contaminants of concern.

To verify the location of potable water supply wells potentially located within the minimum setback zone, an additional well survey will be conducted. To date the well record databases are those provided by EDR. It is proposed that an additional search be conducted to include:

- ▲ Illinois State Geologic Survey
- ▲ Illinois State Water Survey
- ▲ Illinois Department of Public Health
- ▲ Illinois EPA Division of Public Water Supply
- ▲ McHenry County Health Department
- ▲ City of McHenry
- ▲ The IEPA SWAP database will be used to search for private, public and community wells

8.1.5 Engineered Barriers and Institutional Controls

The use of engineered barriers and institutional controls will restrict exposure to the soil and groundwater contamination remaining after the remedial action. Deed restrictions and Environmental Land Use Controls (ELUCs) will be implemented to restrict the Site to specific land use and to restrict installation and use of potable groundwater.

It is proposed that groundwater remediation objectives be achieved through the implementation of Institutional Controls. Institutional Controls will consist of ELUCs with the affected neighboring property owners.

8.1.6 Environmental Land Use Control

A groundwater use deed restriction may be obtained for one or more off-site private properties that could potentially be impacted by the contamination. The Institutional Control would be in the form of an Environmental Land Use Control (ELUC) to impose land use limitations or requirements related to the contamination. Adjacent properties are currently zoned industrial/commercial. The remedial action for adjacent properties may include the use of ELUCs as Institutional Controls to restrict the neighboring properties to industrial/commercial use. Where applicable, the Institutional Controls in the form of deed restrictions will also use the City of McHenry groundwater ordinance to restrict the installation of groundwater extraction wells and use of groundwater for potable water. The City of McHenry groundwater ordinance is currently not approved by the IEPA because it does not address existing wells. As such, the use of the deed restrictions in the form of ELUCs may be required to exclude potential exposure pathways to soil and groundwater contamination for these properties. The actual number of properties requiring ELUCs will be determined by modeling PCE based on any remaining contamination once the remedial action is completed.

Once the ELUC is approved by the Illinois EPA and property owner the ELUC will be recorded with the County Registrars Office with the chain of title for the property. An executed copy of the ELUC will be submitted with the Remedial Action Completion Report. The off-site properties that would require a deed restriction would be properties within the boundary of the modeled groundwater exceedances. The ELUCs would be developed and executed following the remedial action.

▲ NORTHERN ENVIRONMENTAL

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

8.2 Current and Post Remediation Use of the Property

Current and post-remediation use of the property will remain the same. Property owners have indicated retail/commercial businesses will occupy the Site. There are no anticipated changes of the site layout. The post-remediation use of the property may be limited if engineered barriers and/or institutional controls are required for the Site to obtain a NFR Letter following the remediation. However, the limitations will not affect the property from existing under its current conditions. The potential limitations of a institutional control or engineered barrier would be defined following the remedial action and included in the No Further Remediation Letter.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

9.0 PROJECT SCHEDULE

Assuming that any permits can be readily obtained and that the Bioremediation using HRC can access all contamination exceeding the site remediation objectives, the remediation project can be completed in approximately a 1.5 to 2 years following approval of the RAP. Initial steps include coordination and implementation of the pilot test, and upon successful completion of the pilot, implementation of the full scale treatment system. If there are unforeseen delays or if additional HRC injection is needed to treat residual contamination, the project will take longer. Since the amount of residual contamination, if any, cannot be known at this time, we can not estimate the amount of additional time that may be required to complete the project if the designed injections do not attain the proposed remedial objectives.

We anticipate that the Corrective Action Completion Report will be submitted approximately 4 to 6 weeks following the completion of remedial action and post-remediation confirmation sampling. We also anticipate the Illinois EPA will issue a No Further Remediation Letter for the Site within 120 after submittal of the Corrective Action Completion Report, assuming that the remedial objectives are achieved and all required ELUCs are executed.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

10.0 CONCLUSIONS AND RECOMMENDATIONS

The property located at 3004 West Elm Street, McHenry, Illinois is currently occupied by Enterprise Rental Car. Inverse Investments has retained Northern Environmental Technologies, Incorporated to prepare a Remedial Objectives Report and Remedial Action Plan for the Site. Northern Environmental has prepared this Remedial Action Plan to address chlorinated solvent contamination at the Site. The goal of the Remedial Action Plan is to determine the best remedial method for the Site and obtain Illinois EPA approval to implement the plan. The goal of the remedial action will be to implement the approved Remedial Action Plan in order to meet the remedial objectives that have been established in Section 6.0 of this report and to obtain an NFR Letter for the Site. This report meets the requirements of the Illinois Environmental Protection Agency for a Remedial Objectives Report and Remedial Action Plan.

The following four remedial options were evaluated for the Site.

- ▲ Excavation, Transportation and Disposal
- ▲ iSOC
- ▲ Bioremediation using HRC
- ▲ Chemical Oxidation using RegenOx

Accelerated Bioremediation using HRC injection has been selected as the remedial option for the Site for the following reasons.

- ▲ Bioremediation using HRC is a cost effective remedial option.
- ▲ Bioremediation is relatively simple to design and implement.
- ▲ Minimal disruption to site operations.

The following are notable criteria for the design and implementation of the remedial action.

- ▲ It is assumed one application of HRC will be needed
- ▲ Application of the technology will consist of installing 8 injection wells.

Following the injection of the HRC solution, additional boreholes will be drilled and sampled, and existing monitoring wells sampled, to confirm the reduction of contaminants in the subsurface soils and groundwater.

The remedial objectives and remedial action plan developed by Northern Environmental, as well as the conclusions drawn and recommendations proposed, are based upon interpretation of the information available to Northern Environmental at the time of these activities. Northern Environmental assumes that the information provided by cited references is complete and correct. Northern Environmental believes that this report, remedial investigative work conducted, conclusions, and recommendations are consistent with Title 35 IAC 740.

▲ **NORTHERN ENVIRONMENTAL**

Inverse Investments, LLC, 3004 West Elm Street, McHenry, IL

February 22, 2007

11.0 REFERENCES

Green Environmental Group, Ltd., "Focused Site Investigation Report, October 3, 2003"

Miller-Butler Environmental Consulting, LLC "Supplemental Site Investigation Report," March 1, 2006

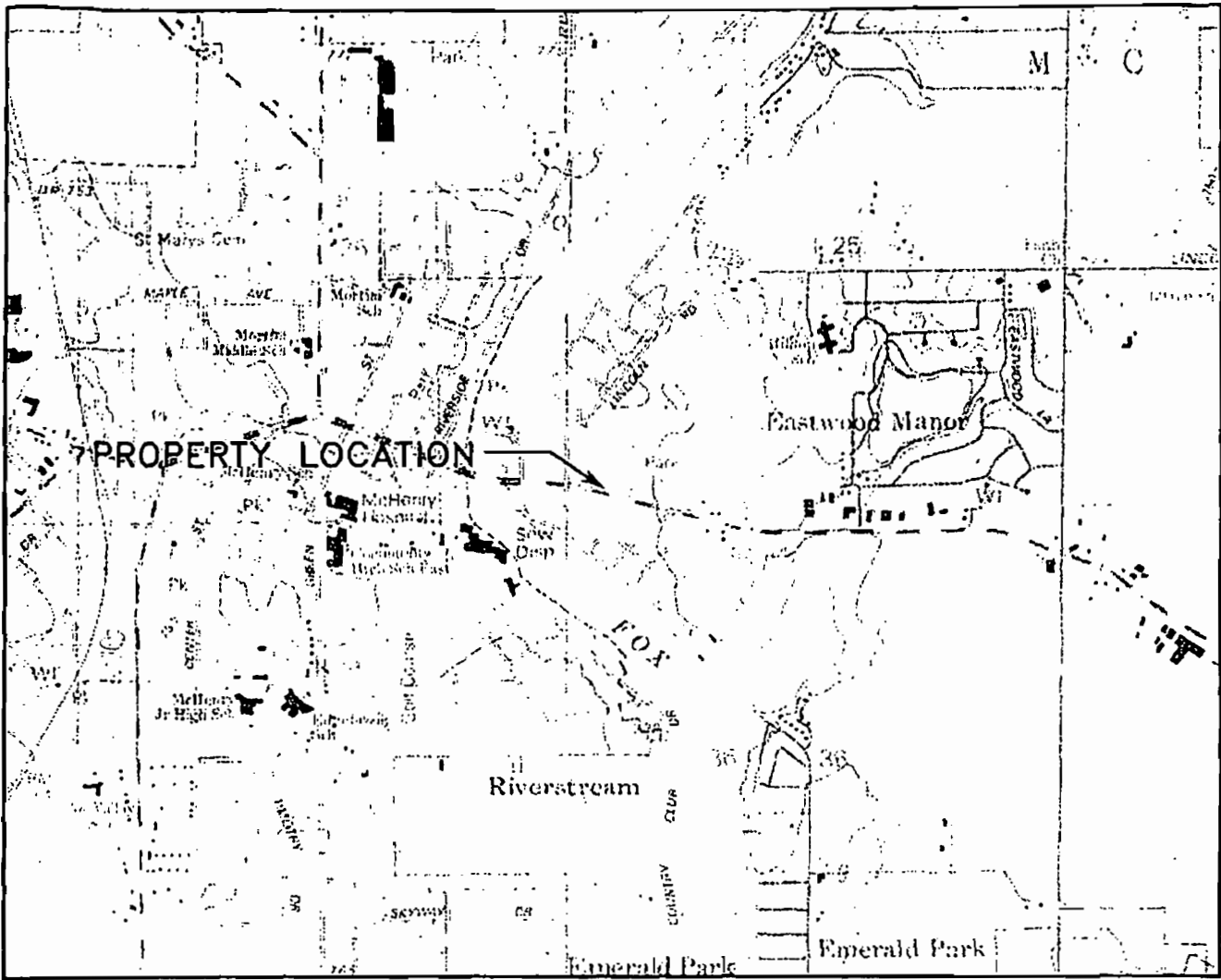
Illinois Environmental Protection Agency, "Groundwater Quality", Illinois Administrative Code, Part 620.

Illinois Environmental Protection Agency, "Site Remediation Program", Illinois Administrative Code, Part 740.

Illinois Environmental Protection Agency, "Tiered Approach to Corrective Action Objectives", Illinois Administrative Code, Part 742.

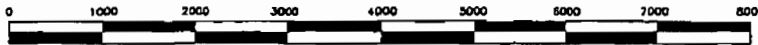
United States Geological Survey (USGS), Springfield, Illinois, 7.5 Minute Quadrangle Topographic Map, 1993.

FIGURES



SCALE IN FEET

1" = 2000'



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM



QUADRANGLE LOCATION



Northern Environmental SM
Hydrologists · Engineers · Surveyors · Scientists

647 ACADEMY DRIVE, NORTHBROOK, ILLINOIS
Phone: 888-680-8101 Fax 847-562-8552

WISCONSIN ▲ MICHIGAN ▲ ILLINOIS ▲ IOWA

**SITE LOCATION &
LOCAL TOPOGRAPHY**

INVERSE INVESTEMENTS, LLC
3004 WEST ELM STREET
MCHENRY, ILLINOIS

CREATION DATE: 01/17/07

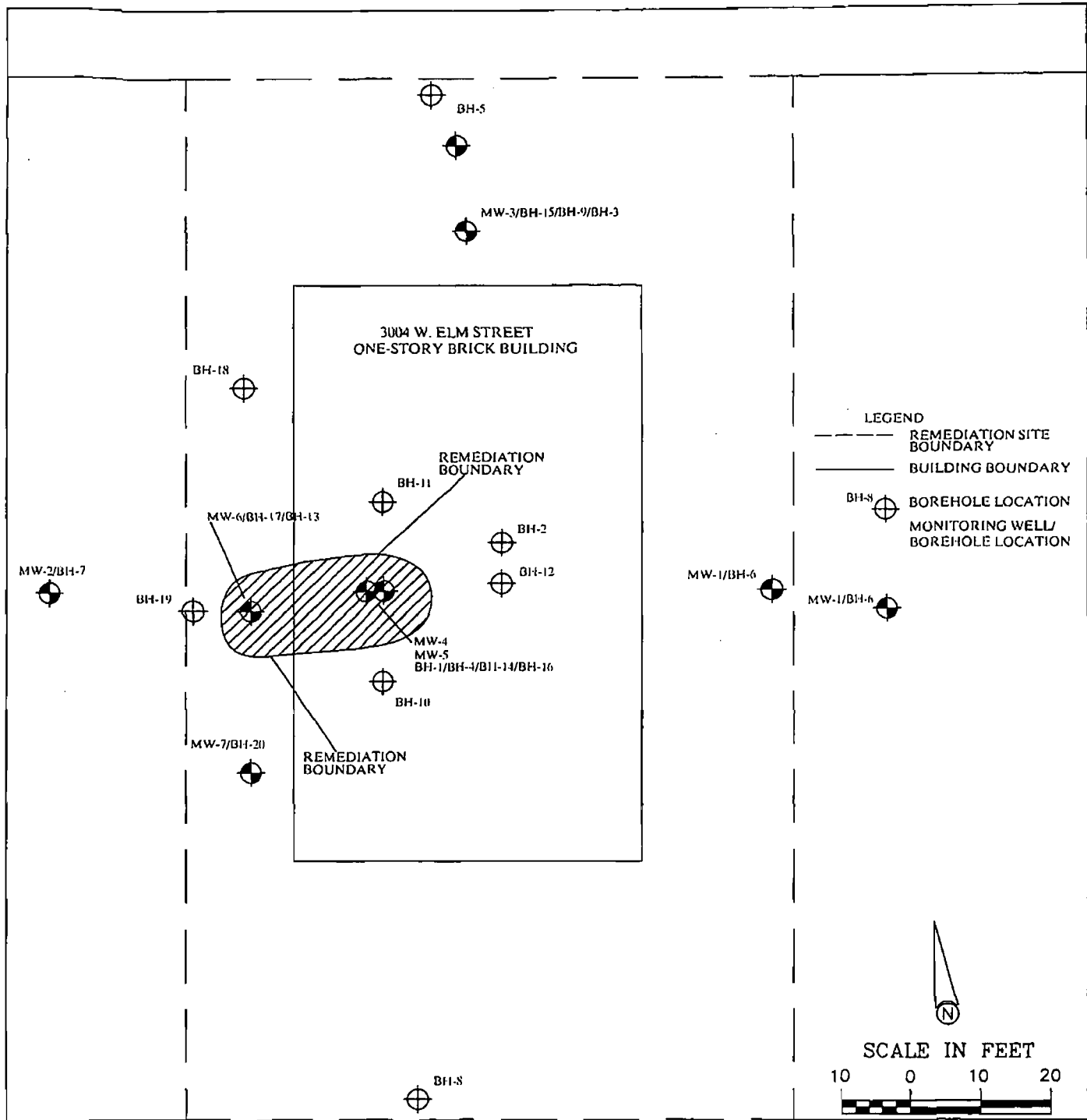
DRAWN BY: DMS

REVISION DATE: 00/00/00

THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE COPIED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.

PROJECT NUMBER: INV 05-2300-0572

FIGURE 1



ELM STREET (ROUTE 120)

Northern Environmental

Hydrologists • Engineers • Surveyors • Scientists
 647 Academy Drive, Northbrook, Illinois 60062
 Phone: 888-680-8101 Fax: 847-562-8552

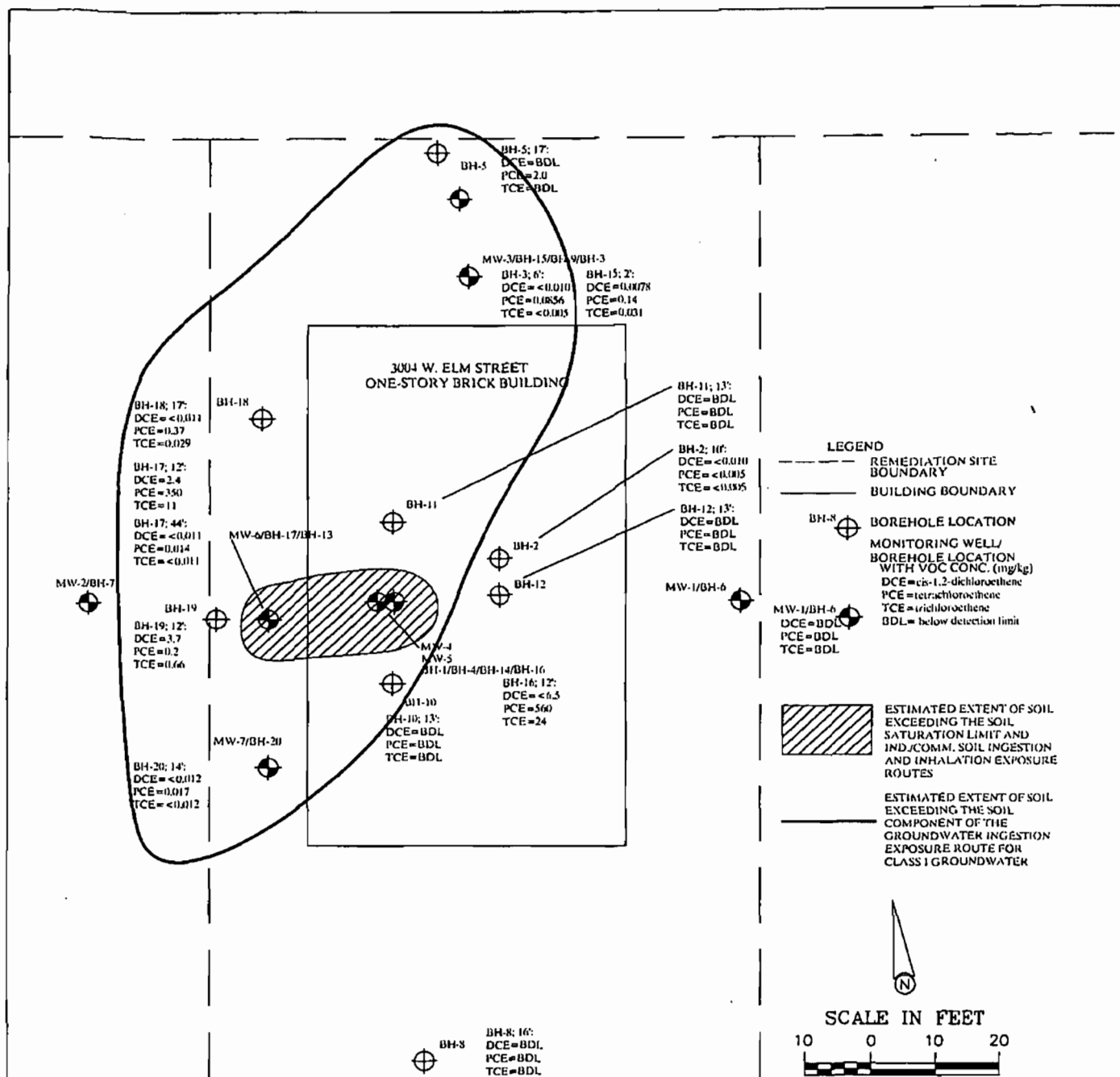
WISCONSIN MICHIGAN Δ ILLINOIS Δ IOWA

THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE REPRODUCED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.

REMEDIATION SITE MAP

INVERSE INVESTEMENTS, LLC
 3004 WEST ELM STREET
 MCHENRY, ILLINOIS

DATE: 01/18/07	DRAWN BY: MCB	TASK NUMBER: XXX	PROJECT NUMBER: INV 05-2300-0572	FIGURE 2
----------------	---------------	------------------	----------------------------------	----------



Northern Environmental
Hydrologists • Engineers • Surveyors • Scientists
647 Academy Drive, Northbrook, Illinois 60062
Phone: 888-680-8101 Fax: 847-562-8552

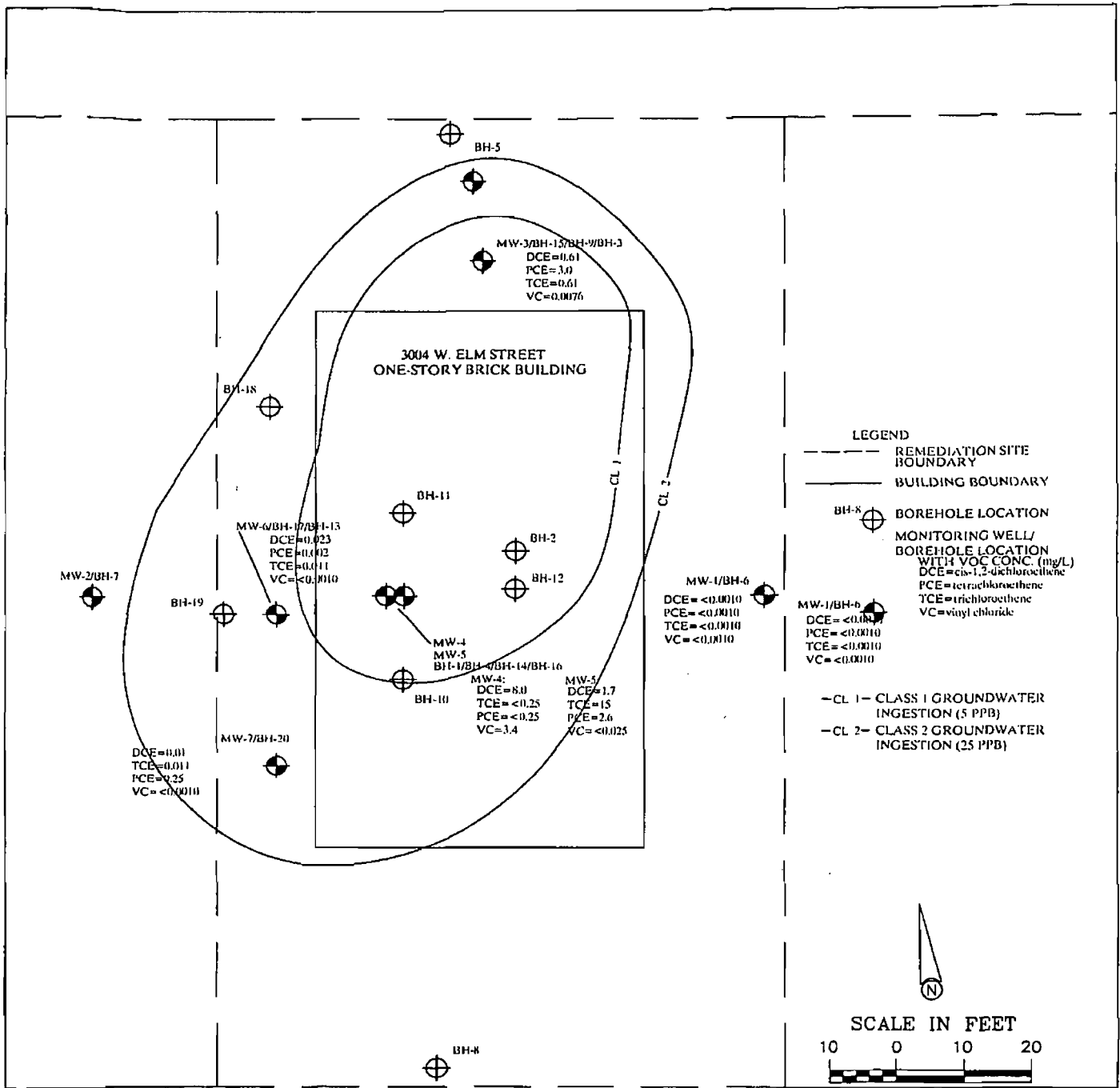
WISCONSIN MICHIGAN Δ ILLINOIS Δ IOWA

THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE REPRODUCED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.

DATE: 01/18/07 DRAWN BY: MCB TASK NUMBER: XXX PROJECT NUMBER: INV 05-2300-0572 FIGURE 3

**ESTIMATED EXTENT OF
VOC CONTAMINATION IN SOIL**

INVERSE INVESTMENT, LLC
3004 WEST ELM STREET
MCHENRY, ILLINOIS



ELM STREET (ROUTE 120)

Northern Environmental

Hydrologists • Engineers • Surveyors • Scientists

647 Academy Drive, Northbrook, Illinois 60062
 Phone: 888-680-8101 Fax: 847-562-8552

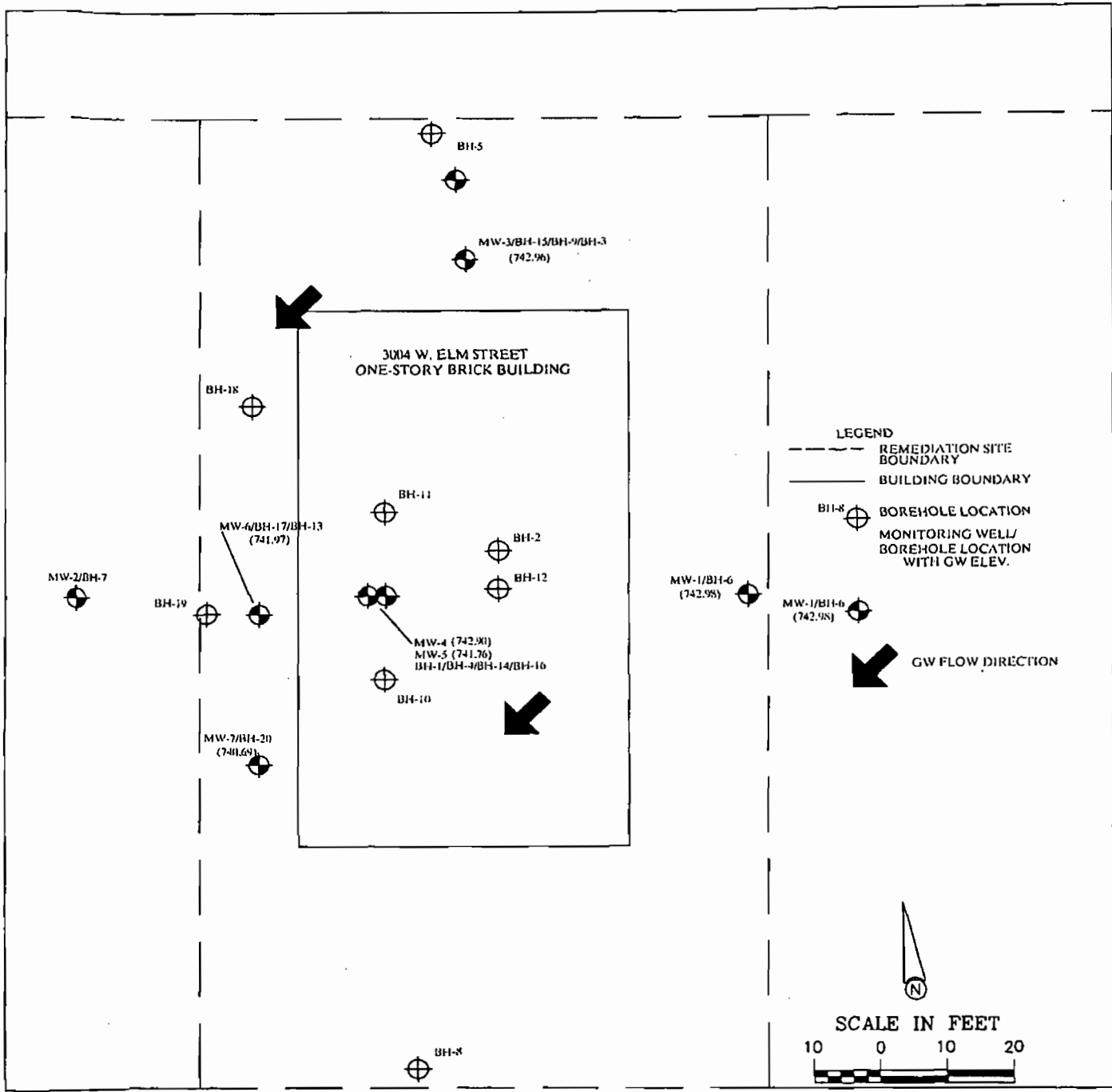
WISCONSIN MICHIGAN Δ ILLINOIS Δ IOWA

THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE REPRODUCED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.

ESTIMATED EXTENT OF VOC CONTAMINATION IN GROUNDWATER

INVERSE INVESTEMENTS, LLC
 3004 WEST ELM STREET
 MCHENRY, ILLINOIS

DATE: 01/18/07	DRAWN BY: MCB	TASK NUMBER: XXX	PROJECT NUMBER: INV 05-2300-0572	FIGURE 4
----------------	---------------	------------------	----------------------------------	----------



ELM STREET (ROUTE 120)

Northern Environmental
 Hydrologists • Engineers • Surveyors • Scientists
 647 Academy Drive, Northbrook, Illinois 60062
 Phone: 888-680-8101 Fax: 847-562-8552

WISCONSIN MICHIGAN Δ ILLINOIS Δ IOWA

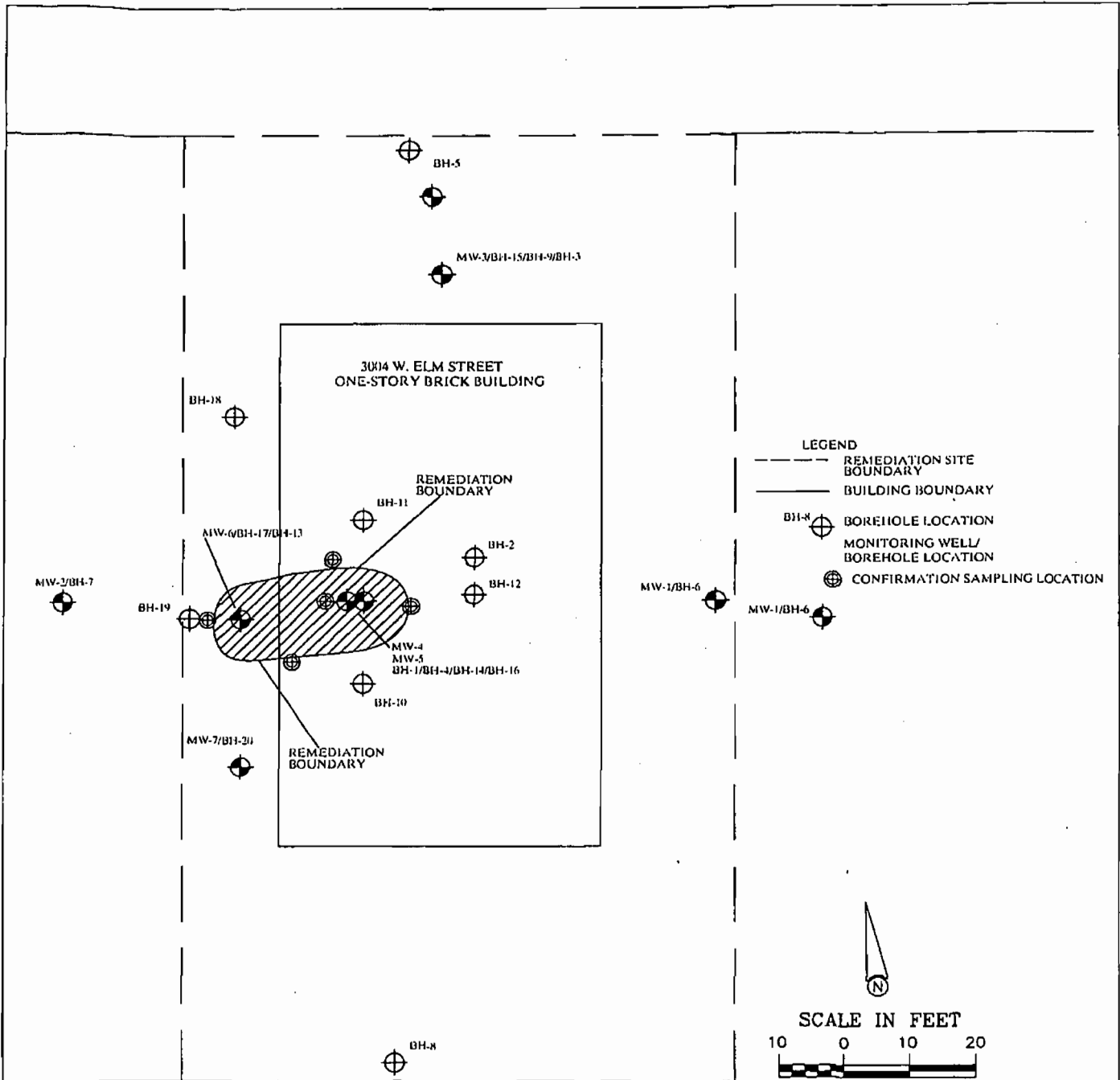
THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE REPRODUCED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.

DATE: 01/18/07 DRAWN BY: MCB TASK NUMBER: XXX

GROUNDWATER FLOW MAP
 FEBRUARY 17, 2006

INVERSE INVESTMENTS, LLC
 3004 WEST ELM STREET
 MCHENRY, ILLINOIS

PROJECT NUMBER: INV 05-2300-0572 FIGURE 5



ELM STREET (ROUTE 120)

Northern Environmental

Hydrologists • Engineers • Surveyors • Scientists
 647 Academy Drive, Northbrook, Illinois 60062
 Phone: 888-680-8101 Fax: 847-562-8552

WISCONSIN MICHIGAN Δ ILLINOIS Δ IOWA

THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE REPRODUCED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.

CONFIRMATION SAMPLING PLAN

INVERSE INVESTEMENT, LLC
 3004 WEST ELM STREET
 MCHENRY, ILLINOIS

DATE: 01/19/07	DRAWN BY: DMS	TASK NUMBER: XXX	PROJECT NUMBER: INV 05-2300-0572	FIGURE 6
----------------	---------------	------------------	----------------------------------	----------



TABLES

Table 1
Groundwater Table Elevation Data
Inverse Investement, LLC
3004 West Elm, McHenry, IL

Well No.	Ground Surface Elevation	Riser Elevation	Date	Depth to Groundwater	Groundwater Elevation
MW-1	749.91	749.73	10/17/02	6.67	743.06
			2/17/06	6.75	742.98
			11/13/06	5.78	743.95
MW-2	750.42	749.94	10/17/02	7.13	742.81
			2/17/06	NA	NA
			11/13/06	NA	NA
MW-3	750.14	749.84	10/17/02	6.80	743.04
			2/17/06	6.88	742.96
			11/13/06	7.21	742.63
MW-4	750.27	749.93	1/16/03	7.68	742.25
			2/17/06	7.03	742.90
			11/13/06	6.28	743.65
MW-5	750.27	749.84	1/16/03	8.00	741.84
			2/17/06	8.08	741.76
			11/13/06	7.19	742.65
MW-6	750.38	749.79	-	-	-
			2/17/06	7.82	741.97
			11/13/06	7.08	742.71
MW-7	750.46	749.79	-	-	-
			2/17/06	9.1	740.69
			11/13/2006	7.14	743.32

Table 2
Soil Analytical Results - Detected VOCs
Inverse Investment, LLC
3004 West Elm, McHenry, IL

Compounds of Concern										
			Acetone (mg/kg)	Benzene (mg/kg)	Carbon Disulfide (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	Ethylbenzene (mg/kg)	Tetrachloroethene (mg/kg)	Trichloroethene (mg/kg)	Total Xylenes (mg/kg)
TIER 1 INDUSTRIAL/COMMERCIAL SOIL REMEDIATION OBJECTIVES										
<i>Mig. to Class I Groundwater</i>			16	0.03	32	0.4	13	0.06	0.06	150
<i>Mig. to Class II Groundwater</i>			16	0.17	160	1.1	19	0.3	0.3	150
<i>Soil Inhalation</i>			100000	1.6	720	1200	400	20	8.9	320
<i>Soil Inhalation (CW)</i>			100000	2.2	9	1200	58	28	12	320
<i>Soil Ingestion</i>			200000	100	200000	20000	200000	110	520	1000000
Sample Location	Sample Date	Sample Depth								
BH-15	11/16/2005	2'	0.062	0.0015	0.0015	0.0078	0.0012	0.14	0.031	0.0038
BH-16	11/16/2005	12'	<160	<6.5	<6.5	<6.5	<6.5	560	24	<19.
BH-17	11/16/2005	12'	<12.	<0.48	<0.48	2.4	<0.48	350	11	<1.4
BH-17	11/16/2005	3'	0.52	<0.0011	<0.0011	<0.0011	<0.0011	0.0052	<0.0011	<0.0034
BH-17	11/16/2005	44'	0.22	<0.0011	<0.0011	<0.0011	<0.0011	0.014	<0.0011	<0.0034
BH-18	11/16/2005	17'	<0.028	0.0011	<0.0011	0.0067	<0.0011	0.37	0.029	<0.0034
BH-19	11/16/2005	12'	7.2	<0.040	<0.040	3.7	<0.040	0.2	0.66	<0.12
BH-20	11/16/2005	14'	0.38	<0.0012	<0.0012	<0.0012	<0.0012	0.0017	<0.0012	<0.0036

Notes:

- 1) mg/kg = milligrams per kilogram
- 2) SRO = Soil Remediation Objective
- 3) Bold = Analytical result exceeds the most restrictive Tier 1 SRO
- 4) BDL or <0.002 = Concentration was not detected above the laboratory detection limit
- 5) N = No toxicity criteria is available for the route of exposure
- 6) NA = SRO not listed in 35 IAC Part 742
- 7) CW = Construction Worker
- 8) Shaded = Exposure Route SRO has been exceeded by analytical result

Table 3
Groundwater Analytical Results - Detected VOCs
Inverse Investment, LLC
3004 West Elm, McHenry, IL

		Compounds of Concern				
		1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl chloride
TIER 1 GROUNDWATER REMEDIATION OBJECTIVES						
Class I Groundwater		0.007	0.07	0.005	0.005	0.002
Class II Groundwater		0.035	0.2	0.025	0.025	0.01
Monitoring Well ID	Date					
MW-1	1/19/2006	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	11/14/2006	<0.002	<0.002	<0.002	<0.002	<0.002
MW-3	1/19/2006	<0.0050	0.61	3	0.61	0.0076
MW-4	1/19/2006	<0.25	8	<0.25	<0.25	3.4
MW-5	1/19/2006	<0.025	1.7	15	2.6	<0.025
	11/14/2006	0.0183	9.53	0.954	0.772	5.28
MW-6	1/19/2006	<0.0010	0.023	0.002	0.011	<0.0010
MW-7	1/19/2006	<0.0010	0.01	0.011	0.25	<0.0010
Duplicate	11/14/2006	0.019	9.33	0.911	0.757	4.76
Triplicate	11/14/2006	<0.002	<0.002	<0.002	<0.002	<0.002

Notes:

- 1) mg/kg = milligrams per kilogram
- 2) GRO = Groundwater Remediation Objective
- 3) Bold = Analytical result exceeds the bolded Tier 1 GRO
- 4) BDL or <0.002 = Concentration was not detected above the laboratory detection limit
- 5) N = No toxicity criteria is available for the route of exposure
- 6) NA = SRO not listed in 35 IAC Part 742
- 7) CW = Construction Worker
- 8) Shaded = Exposure Route SRO has been exceeded by analytical result

Table 4. Summary of Tier I and Tier II Remediation Objectives, 3004 West Elm Street, McHenry, Illinois

Exposure Routes		Compounds and Observed Maximum Concentrations in mg/kg							
		PCE Maximum Conc. = mg/kg		TCE Maximum Conc. = mg/kg		Cis 1,2 DCE Maximum Conc. = mg/kg		Vinyl Chloride Maximum Conc. = mg/kg	
		Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
SSL Soil Component of Groundwater Remedial Objectives		0.06		0.06		0.4		0.01	
Industrial Commercial Remedial Objectives	Soil Ingestion	110		520		20,000		7.9	
	Soil Inhalation	20		8.9		1,200		1.10	
Construction Worker Remedial Objectives	Soil Ingestion	2400		1200		20,000		170	
	Soil Inhalation	28		12		1200		1.10	
Soil Saturation Limit		240		1300		1200		1200	

Notes:

1. All concentration above are in mg/kg.
 2. Bolded numbers are the applicable remedial objectives
- = Tier II Remedial Objectives were not developed.

Table 5 Results of Equation R26 Calculations, Inverse Investements, LLC, McHenry, Illinois

Compound	Center of Source Location	C source (mg/L)	Class I Objective (mg/l)	Distance to Class I Objective (feet)
Tetrachloroethylene	MW 5	0.954	0.005	77.60
Trichloroethylene	MW 5	0.772	0.005	135.40
Cis 1,2 Dichloroethylene	MW 5	9.53	0.07	191.55
Vinyl Chloride	MW 5	5.28	0.002	351.05
1,1-Dichloroethylene	MW 5	0.0183	0.007	2.31

Notes:

Class I objective = The Tier I Class I ground water remedial objective
 Distance to Class I = The maximum distance a compound will migrate in ground objective water from the source area
 C source = The concentration observed in groundwater at the Site

Table 6. Engineers Opinion of Project Costs, Inverse Investments, LLC, McHenry, Illinois

(This table is not intended for budgeting purposes, but is to be used only for relative cost comparison)

	Option 1 Chemical Oxidation with RegenOX	Option 2 Accelerated Bioremediation with HRC Advanced
Pilot Test or Bench Scale Study or Preliminary Testing		
Engineering Costs		
Illinois EPA/Client/Contractor Coordination	\$3,000.00	\$3,000.00
Work/Sampling Plan	\$2,500.00	\$2,500.00
Permitting	\$600.00	\$600.00
Final Design, Drawings and Specifications	\$4,000.00	\$4,000.00
Bidding and Negotiation	\$1,000.00	\$1,000.00
Construction Phase		
Installation	\$12,000.00	\$4,000.00
Coordination	\$3,000.00	\$1,500.00
System Operation and Maintenance/Monitoring	\$7,500.00	\$8,000.00
Corrective Action Completion Report	\$5,000.00	\$5,000.00
Subtotal	\$38,600.00	\$29,600.00
Contractor Costs		
Contractor Workplan Preparation	\$0.00	\$0.00
Extraction/Injection Well System Equipment & Installation	\$0.00	\$0.00
System Installation/Application	\$12,927.00	\$4,000.00
System Operation	\$0.00	\$0.00
Electrical/Gas Hookup	\$0.00	\$0.00
Remedial Equipment Rental Fees	\$1,000.00	\$1,000.00
Chemical Injection Well Installation	\$0.00	\$0.00
Chemical-Oxidizer / HRC	\$14,039.00	\$6,125.00
Soil Drum Disposal	\$0.00	\$0.00
Energy Costs	\$0.00	\$0.00
O&M Lab Analysis	\$4,000.00	\$4,800.00
Subtotal	\$31,966.00	\$15,925.00
Confirmation Sampling/Testing		
One Round (5 boreholes, 2 wells)		
Engineering	\$1,500.00	\$1,500.00
Equipment	\$1,500.00	\$500.00
Laboratory	\$2,520.00	\$840.00
Drilling	\$3,000.00	\$3,000.00
Subtotal	\$8,520.00	\$5,840.00
TOTALS	\$79,086.00	\$51,365.00

Notes:

1. System Operation and Maintenance Cost is for one year for Bioremediation.
2. RegenOX injection costs for unaccessible contamination are not included.
3. RegenOX cost is for three applications
4. Cost for Bioremediation parameter analysis is not included in operation and maintenance
5. Cost for VOC analysis for 2 two groundwater samples is included in operation and maintenance for Bioremediation and RegenOX



APPENDICES

RBCA EQUATION R26 FOR THE GROUNDWATER INGESTION EXPOSURE ROUTE

Dissolved Concentration Along the Centerline of the Plume in the direction of the Nearest Point of Concern

INVERSE INVESTMENTS, LLC
3004 W. ELM STREET, MCHENRY, IL
INV 05-2300-0572

COC	Location	Direction of Point of Concern	Csource (mg/L)	X (cm)	ax (cm)	ay (cm)	az (cm)	A (1/day)	K (cm/d)	I (cm/cm)	DT (cm ³ /cm ³ soil)	U (cm/d)	Sw (cm)	Sd (cm)	Error Term 1	Error Term 2	erf1	erf2	C(x) (mg/L)	Tier 1 GRD (mg/L)
Tetrachloroethylene	MW-5	SW-downgradient	0.954	2350	235	78.3333333	11.75	0.00096	9.35	0.0146	0.43	0.31746312	3291.84	200	1.91810109	0.60179301	0.993324	0.605266	0.00471481	0.005
Trichloroethylene	MW-5	SW-downgradient	0.772	4100	410	136.666667	20.5	0.00042	9.35	0.0146	0.43	0.31746312	3291.84	200	1.0993994	0.34493014	0.880003	0.374312	0.00513809	0.005
cis-1,2-dichloroethylene	MW-5	SW-downgradient	9.53	5800	580	193.333333	39	0.00024	9.35	0.0146	0.43	0.31746312	3291.84	200	0.77716165	0.24302902	0.728264	0.269776	0.00233562	0.07
vinyl chloride	MW-5	SW-downgradient	5.28	10700	1070	350.000000	53.5	0.00024	9.35	0.0146	0.43	0.31746312	3291.84	200	0.42176519	0.13216949	0.455482	0.14706	0.00179310	0.002
1,1-dichloroethylene	MW-5	SW-downgradient	0.0103	70	7	2.33333333	0.35	0.0053	9.35	0.0146	0.43	0.31746312	3291.84	200	04.3933937	20.2030509	1	1	0.00635968	0.007

INPUT PARAMETERS:

Symbol	Units	Explanation	Source	Equation (if Applicable)
Csource	mg/L	COC groundwater concentration at the source.	Concentration measured at the Site	
X	cm	Distance along the centerline of the groundwater plume from the source to the point of compliance.	Site-specific Measurement	
ax	cm	Longitudinal Dispersivity	35 IAC Pan 742, Appendix C, Table C, Equation R16	R16: ax = 0.10*X
ay	cm	Transverse Dispersivity	35 IAC Pan 742, Appendix C, Table C, Equation R17	R17: ay = ax/3
az	cm	Vertical Dispersivity	35 IAC Pan 742, Appendix C, Table C, Equation R18	R18: az = ax/20
A	1/day	First Order Decay Constant	35 IAC Pan 742, Appendix C, Table E, Chemical-Specific	
K	cm/day	Hydraulic Conductivity	Site-specific Field Measurement	
I	cm/cm	Hydraulic Gradient	Site-specific Field Measurement	
DT	cm ³ /cm ³ soil	Total Soil Porosity	Site-specific Field Measurement, or Default Value given in 35 IAC Pan 742, Appendix C, Table B	
U	cm/day	Specific Discharge	35 IAC Pan 742, Appendix C, Table C, Equation R19	R19: U = (K*I)/DT
Sw	cm	Source Width Perpendicular to Groundwater Flow Direction in the Horizontal Plane	Site-specific Field Measurement	
Sd	cm	Source Width Perpendicular to Groundwater Flow Direction in the Vertical Plane	Site-specific Field Measurement or default	
erf1	unitless	Mathematical Error Function	35 IAC Pan 742, Appendix C, Table G	
erf2	unitless	Mathematical Error Function	36 IAC Pan 742, Appendix C, Table G	

EQUATION R26:

$$C(x) = C_{source} \cdot \left(\exp\left(-\frac{X}{2ax}\right) \cdot \left[1 - \frac{1}{4} \left(\frac{ax}{U} \right)^2 \right] \right)^{0.5} \cdot \text{erf1}\left(\frac{Sw}{4 \cdot \left(ay \cdot X \right)^{0.5}}\right) \cdot \text{erf2}\left(\frac{Sd}{2 \cdot \left(az \cdot X \right)^{0.5}}\right)$$

RBCA EQUATION R26 FOR THE GROUNDWATER INGESTION EXPOSURE ROUTE

Dissolved Concentration Along the Centerline of the Plume in the direction of the Nearest Point of Concern

INVERSE INVESTMENTS, LLC
3004 W. ELM STREET, MCHENRY, IL
INV 05-2300-0572

COC	Location	Direction of Point of Concern	Csource (mg/L)	X (cm)	ax (cm)	ay (cm)	az (cm)	A (1/dy)	K (cm/d)	I (cm/cm)	DT (cm ² /cm ³ soil)	U (cm/d)	Sw (cm)	Sd (cm)	Error Term 1	Error Term 2	erf1	erf2	C(x) (mg/L)	Tier 1 GRO (mg/L)
Tetrachloroethylene	MW-5	SW-downgradient	0.954	2350	235	78.3333333	11.75	0.00096	9.35	0.0146	0.43	0.31746512	3201.84	200	1.91810109	0.60170301	0.893324	0.805266	0.00471481	0.003
Trichloroethylene	MW-5	SW-downgradient	0.772	4100	410	136.666667	20.5	0.00042	9.35	0.0146	0.43	0.31746512	3201.84	200	1.0903994	0.34493014	0.880003	0.374312	0.00513809	0.005
Cis-1,2-dichloroethylene	MW-5	SW-downgradient	9.53	5800	580	193.333333	29	0.00024	9.35	0.0146	0.43	0.31746512	3201.84	200	0.77710185	0.24382892	0.728764	0.269776	0.06923562	0.07
vinyl chloride	MW-5	SW-downgradient	5.28	10700	1070	356.666667	53.5	0.00024	9.35	0.0146	0.43	0.31746512	3201.84	200	0.42128510	0.13216949	0.455482	0.14796	0.00170346	0.002
1,1-dichloroethylene	MW-5	SW-downgradient	0.0183	70	7	2.33333333	0.35	0.0053	9.35	0.0146	0.43	0.31746512	3201.84	200	64.3933037	20.2030509	1	1	0.0063968	0.007

INPUT PARAMETERS:

Symbol	Units	Explanation	Source	Equation (if Applicable)
Csource	mg/L	COC groundwater concentration at the source.	Concentration measured at the Site	
X	cm	Distance along the centerline of the groundwater plume from the source to the point of compliance.	Site-specific Measurement	
ax	cm	Longitudinal Dispersivity	35 IAC Pan 742, Appendix C, Table C, Equation R18	R10: ax = 0.10 * X
ay	cm	Transverse Dispersivity	35 IAC Pan 742, Appendix C, Table C, Equation R17	R17: ay = ax/3
az	cm	Vertical Dispersivity	35 IAC Pan 742, Appendix C, Table C, Equation R18	R18: az = ax/20
A	1/dy	First Order Degradation Constant	35 IAC Pan 742, Appendix C, Table E, Chemical-Specific	
K	cm/d	Hydraulic Conductivity	Site-specific Field Measurement	
I	cm/cm	Hydraulic Gradient	Site-specific Field Measurement	
DT	cm ² /cm ³	Total Soil Porosity	Site-specific Field Measurement, or Default Value given in 35 IAC Pan 742, Appendix C, Table B	
U	cm/d	Specific Discharge	35 IAC Pan 742, Appendix C, Table C, Equation R19	R19: U = (K*I)/DT
Sw	cm	Source Width Perpendicular to Groundwater Flow Direction in the Horizontal Plane	Site-specific Field Measurement	
Sd	cm	Source Width Perpendicular to Groundwater Flow Direction in the Vertical Plane	Site-specific Field Measurement of Defaults	
erf1	unitless	Mathematical Error Function	35 IAC Pan 742, Appendix C, Table G	
erf2	unitless	Mathematical Error Function	36 IAC Pan 742, Appendix C, Table G	

EQUATION R26:

$$C(x) = C_{source} * \exp\left(\frac{K \cdot I \cdot a_x}{U}\right) * \left(1 - \frac{1}{2} + \frac{1}{2} \left(\frac{4 \cdot a_x \cdot I}{U}\right)^{0.5}\right) * \text{erf1}\left(\frac{S_w}{4 \cdot \left(\frac{a_y \cdot X}{U}\right)^{0.5}}\right) * \text{erf2}\left(\frac{S_d}{2 \cdot \left(\frac{a_z \cdot X}{U}\right)^{0.5}}\right)$$

RBCA EQUATION R15 FOR THE SOIL COMPONENT OF THE GROUNDWATER INGESTION EXPOSURE ROUTE

Dissolved Concentration Along the Centerline of the Plume in the direction of the Nearest Point of Concern

INVERSE INVESTMENTS LLC
3004 W. ELM STREET, MCHENRY, IL
INV 05-2300-0572

COC	Location	Direction of Point of Concern	Csource (mg/L)	X (cm)	σ_x (cm)	σ_y (cm)	σ_z (cm)	λ (1/day)	K (cm/d)	i (cm/cm)	θT (cm ³ /cm ³ soil)	U (cm/d)	Sw (cm)	Sd (cm)	Error Term 1	Error Term 2	erf1	erf2	C(x) (mg/L)	Tier 1 GRO (mg/L)
Tetrachloroethylene	BH-16	SW - downgradient	439.684265	73	7.3	2.43333333	0.385	0.00096	9.35	0.0146	0.43	0.31746512	2804.16	200	7.89311315	7.50606871	1	1	0.00438824	0.005
Trichloroethylene	BH-16	SW - downgradient	18.7790228	86	8.6	2.85666667	0.43	0.00042	9.35	0.0146	0.43	0.31746512	2804.16	200	5.68718226	5.40832883	1	1	0.00456866	0.005
Tetrachloroethylene	BH-17	SW - downgradient	274.802666	72	7.2	2.4	0.38	0.00096	9.35	0.0146	0.43	0.31746512	2804.16	200	8.11385889	7.71504038	1	1	0.00435034	0.005
Trichloroethylene	BH-17	SW - downgradient	8.6070521	83	8.3	2.76666667	0.415	0.00042	9.35	0.0146	0.43	0.31746512	2804.16	200	6.10573378	5.80635796	1	1	0.00481041	0.005
cis-1,2-Dichloroethylene	BH-19	SW - downgradient	6.40987928	88	8.8	3.26666667	0.49	0.00024	9.35	0.0146	0.43	0.31746512	2804.16	200	4.37867514	4.16493126	1	1	0.00548622	0.07
cis-1,2-Dichloroethylene	BH-19	SW - downgradient	9.88189722	100	10	3.33333333	0.5	0.00024	9.35	0.0146	0.43	0.31746512	2804.16	200	4.20524	4	1	1	0.00544588	0.07

INPUT PARAMETERS:

Symbol	Units	Explanation	Source	Equation (if Applicable)
Csource	mg/L	COC groundwater concentration at the source.	Equation R12/R14 Results	
X	cm	Distance along the centerline of the groundwater plume from the source to the point of compliance.	Site-specific Measurement	
σ_x	cm	Longitudinal Dispersivity	35 IAC Part 742, Appendix C, Table C, Equation R16	R16: $\sigma_x = 0.10 \cdot X$
σ_y	cm	Transverse Dispersivity	35 IAC Part 742, Appendix C, Table C, Equation R17	R17: $\sigma_y = \sigma_x/3$
σ_z	cm	Vertical Dispersivity	35 IAC Part 742, Appendix C, Table C, Equation R18	R18: $\sigma_z = \sigma_x/20$
λ	1/day	First Order Degradation Constant	35 IAC Part 742, Appendix C, Table E, Chemical-Specific	
K	cm/day	Hydraulic Conductivity	Site-specific Field Measurement	
i	cm/cm	Hydraulic Gradient	Site-specific Field Measurement	
θT	cm ³ /cm ³ soil	Total Soil Porosity	Site-specific Field Measurement, or Default Value given in 35 IAC Part 742, Appendix C, Table B	
U	cm/day	Specific Discharge	35 IAC Part 742, Appendix C, Table C, Equation R19	R19: $U = K \cdot i / \theta T$
Sw	cm	Source Width Perpendicular to Groundwater Flow Direction in the Horizontal Plane	Site-specific Field Measurement	
Sd	cm	Source Width Perpendicular to Groundwater Flow Direction in the Vertical Plane	Site-specific Field Measurement or defaults	
erf1	unitless	Mathematical Error Function	35 IAC Part 742, Appendix C, Table G	
erf2	unitless	Mathematical Error Function	35 IAC Part 742, Appendix C, Table G	

EQUATION R15:

$$C(x) = C_{source} \cdot \exp\left\{-\frac{K}{2\sigma_x} \left[1 - \left(1 + \frac{4\lambda \sigma_x U}{K}\right)^{0.5}\right] \operatorname{erf}1\left[\frac{Sw}{4(\sigma_y X)^{0.5}}\right] \operatorname{erf}2\left[\frac{Sd}{(2 \cdot \sigma_z X)^{0.5}}\right]\right\}$$

Waterloo Hydrogeologic
 180 Columbia St. W.
 Waterloo, Ontario, Canada
 ph. (519) 746-1798

slug test analysis
 BOUWER-RICE's method

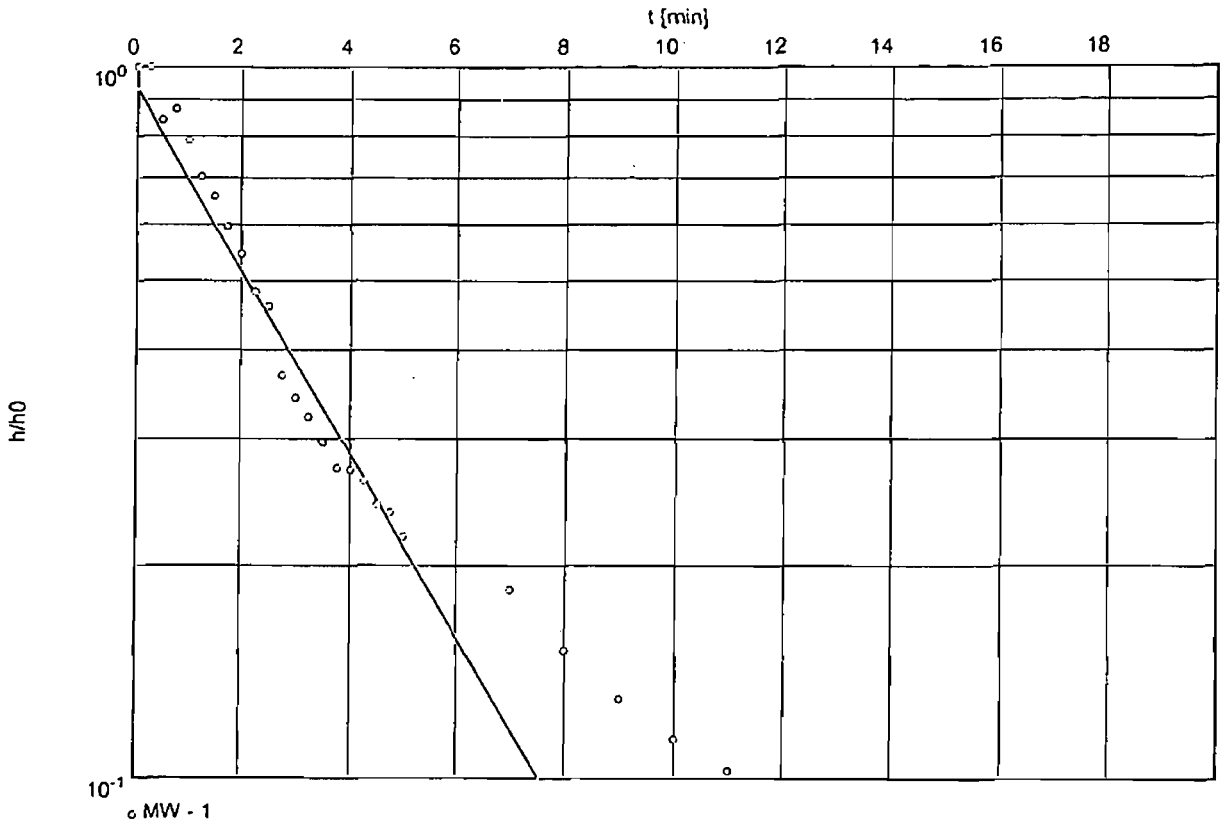
Project: INV 05-2300-0572

Evaluated by: DMS Date: 17.01.2007

Slug Test No. Test # 1

Test conducted on: 14/11/06

MW - 1



Hydraulic conductivity [ft/min]: 2.10×10^{-4}

Waterloo hydrogeologic
 180 Columbia St. W.
 Waterloo, Ontario, Canada
 ph. (519) 746-1798

slug test analysis
 BOUWER-RICE's method

Project: INV 05-2300-0572

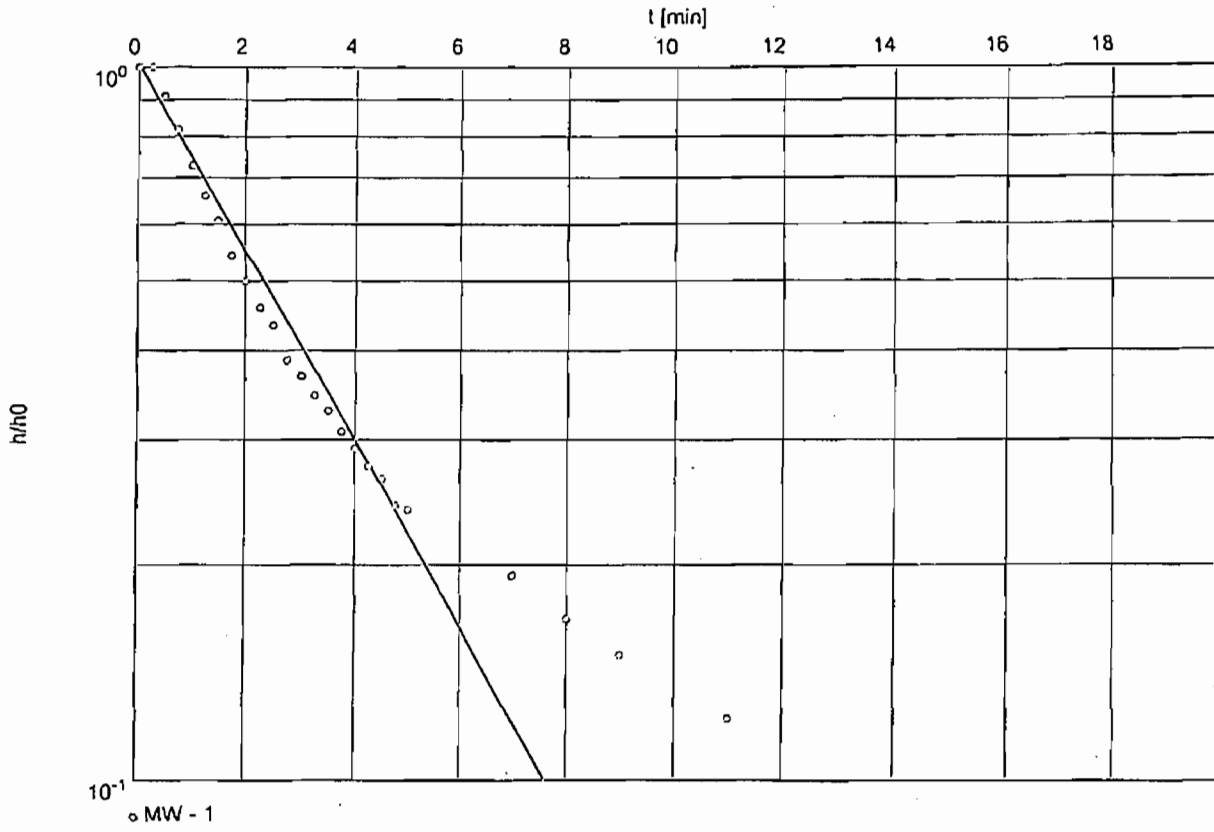
Evaluated by: DMS

Date: 17.01.2007

Slug Test No. Test # 2

Test conducted on: 14/11/06

MW - 1



Hydraulic conductivity [l/min]: 2.16×10^{-4}

EXHIBIT 4

WARRANTY DEED-STATUTORY
BOOK 581 PAGE 442

FORM NO. 78

110605163 - McHENRY County
McHENRY / Adams, Rich
SRP / Tech

This Indenture Witnesseth, That the Grantors

GLENN E. PETERSON and BERNIECE E. PETERSON, his wife

of the City of McHenry in the County of McHenry
and State of Illinois for and in consideration of the sum of
TEN (\$10.00)-----DOLLARS

in hand paid, Convey and Warrant to

RICHARD A. ADAMS, a bachelor

of the of County of and
and State of the following described Real Estate, to wit:-

Lot thirteen (13) in Conway's Subdivision, a subdivision of
part of the West Half of the Southwest Quarter of Section 25,
Township 45 North, Range 8 East of the Third Principal
Meridian, according to the Plat thereof recorded August 16,
1923 as Document No. 60164 in Book 4 of Plats, page 99, in
McHenry County, Illinois.



situated in the Township of McHenry in the County
of McHenry in the State of Illinois, hereby releasing and waiving all
rights under and by virtue of the Homestead Exemption Laws of the State of Illinois

RELEASABLE

NOV 04 2007

REVIEWER MD

Witness their hands and seals this 5th day of November A. D. 1958

to

Glenn E. Peterson
Berniece E. Peterson

BOOK 581 PAGE 443

STATE OF Illinois
COUNTY OF McHenry

} ss. I, Harry C. Kinne, Jr.

is and for, and residing in said County, in the State aforesaid.

Do hereby certify as Glenn E. Peterson and Berniece E. Peterson, his wife

personally known to me to be the same persons as whom come to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the said instrument as their free and voluntary act for the uses and purposes therein set forth, being the release and waiver of the right of homestead.

GIVEN under my hand and notarial seal, this 5th day of November A. D. 19 58.



Harry C. Kinne Jr.

My commission expires November 3 19 59

STATE OF ILLINOIS } 346573
McHENRY COUNTY } ss. No.
FILED FOR RECORD *November 19 1958* P.M.
10:57 A.T. 10 O'CLOCK
AND DULY RECORDED IN BOOK 581
OF RECORDS..... PAGE 443
.....*Harry C. Kinne Jr.*.....
REORDER

EXHIBIT 5

State of Illinois
County of McHenry Ss.

I, _____ a Notary Public in and for said County, in the State aforesaid, do hereby certify that RITA A. ADAMS

_____ personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that she signed, sealed and delivered the said instrument as her free and voluntary act for the uses and purposes therein set forth, including the release and waiver of the right of homestead.

GIVEN under my hand and seal this 29 day of June A.D. 2005



Eileen G. Bergum
Notary Public.

THIS INSTRUMENT WAS PREPARED BY

Patrick D. Coen
40 Brink St., Crystal Lake, IL 60014

PROPERTY ADDRESS

3004 W. Route 120
McHenry, IL 60050

**AFTER RECORDING
MAIL THIS INSTRUMENT TO**

FIRST MIDWEST BANK
Trust Division
2801 W. Jefferson Street
Joliet, Illinois 60435

PERMANENT INDEX NUMBER

09-25-353-028

MAIL TAX BILL TO

Inverse Investments, L.L.C.
P.O. Box 614
McHenry, IL 60050

LEGAL DESCRIPTION
3004 WEST ROUTE 120
MCHENRY, IL 60050

Lot 13 and part of Lot 14 described as follows: Beginning at the Northwesterly corner of Lot 14 and running thence Southeasterly along the Northerly line of said Lot 14 a distance of 20.00 feet; thence Southwesterly parallel with the Westerly line of said Lot 14 a distance of 158.7 feet to a point in the Southerly line of said Lot 14 which is 20.00 feet southeasterly from the Southwesterly corner thereof; thence Northwesterly along said Southerly line of Lot 14 aforesaid a distance of 20.00 feet to said Southwesterly corner; thence Northeasterly along the westerly line of said Lot 14 a distance of 158.7 feet to the point of beginning, in Conway's Subdivision, a subdivision of part of the West Half of the Southwestern Quarter of Section 25, Township 45 North, Range 8 East of the Third Principal Meridian, according to the Plat thereof recorded August 16, 1923, as Document No. 60164, in Book 4 of Plats, page 99, in McHenry County, Illinois (except that part thereof taken for highway purposes by Circuit Court Condemnation No. 92ED5). Hereinafter referred to as "Parcel One."

05-38-0244

EXHIBIT 6

Form LLC-5.5
December 2003

Jesse White
Secretary of State
Department of Business Services
Limited Liability Company Division
Room 351, Howlett Building
Springfield, IL 62756
http://www.cyberdriveillinois.com

Payment must be made by certified check, cashier's check, Illinois attorney's check, Illinois C.P.A.'s check or money order, payable to "Secretary of State."

Illinois Limited Liability Company Act Articles of Organization

SUBMIT IN DUPLICATE
Must be typewritten

This space for use by Secretary of State

Date **06/15/2005**
Assigned File # **0154-306-7**
Filing Fee **\$500.00**
Approved: **JAB**

This space for use by Secretary of State

FILE DATE 06/15/2005

JESSE WHITE
SECRETARY OF STATE

1. Limited Liability Company Name: Inverse Investments, L.L.C.

(The LLC name must contain the words limited liability company, L.L.C. or LLC and cannot contain the terms corporation, corp., incorporated, inc., ltd. co., limited partnership, or L.P.)

2. The address of its principal place of business: (Post office box alone and c/o are unacceptable.)
1618 Lincoln Road
McHenry, IL 60050

3. The Articles of Organization are effective on: (Check one)

a) the filing date, or b) _____ another date later than but not more than 60 days subsequent to the filing date: _____
(month, day, year)

4. The registered agent's name and registered office address is:

Registered agent:	<u>Patrick</u>	<u>D.</u>	<u>Coen</u>
	<small>First Name</small>	<small>Middle Initial</small>	<small>Last Name</small>
Registered Office: (P.O. Box and c/o are unacceptable)	<u>40 Brink Street</u>	<u>Crystal Lake</u>	<u>60014</u>
	<small>Number</small>	<small>Street</small>	<small>Suite #</small>
	<u>Crystal Lake</u>	<u>60014</u>	<u>McHenry</u>
	<small>City</small>	<small>ZIP Code</small>	<small>County</small>

5. Purpose or purposes for which the LLC is organized: Include the business code # (IRS Form 1065).
(If not sufficient space to cover this point, add one or more sheets of this size.)

"The transaction of any or all lawful business for which limited liability companies may be organized under this Act."

Code #531120

Lessors of Nonresidential Buildings (except Miniwarehouses)

6. The latest date, if any, upon which the company is to dissolve perpetual
(month, day, year)

Any other events of dissolution enumerated on an attachment. (Optional)

LLC-5.5

7. Other provisions for the regulation of the internal affairs of the LLC per Section 5-6 (a) (B) included as attachment:

If yes, state the provisions(s) from the ILLCA. Yes No

8. a) Management is by manager(s): Yes No
If yes, list names and business addresses.

Richard A. Adams II
2600 W. Route 120
McHenry, IL 60050

b) Management is vested in the member(s): Yes No
If yes, list names and addresses.

9. I affirm, under penalties of perjury, having authority to sign hereto, that these articles of organization are to the best of my knowledge and belief, true, correct and complete.

Dated June 15, 2005
(Month/Day) (Year)

Signature(s) and Name(s) of Organizer(s)

Address(es)

1. Patrick D Coen
Signature
Patrick D. Coen - Attorney Organizer
(Type or print name and title)

(Name if a corporation or other entity)

2. _____
Signature
(Type or print name and title)
(Name if a corporation or other entity)

3. _____
Signature
(Type or print name and title)
(Name if a corporation or other entity)

1. 40 Brink Street
Number Street
Crystal Lake
City/Town
IL 60014
State ZIP Code

2. _____
Number Street
City/Town
State ZIP Code

3. _____
Number Street
City/Town
State ZIP Code

(Signatures must be in ink on an original document. Carbon copy, photocopy or rubber stamp signatures may only be used on conformed copies.)

STATE OF ILLINOIS
OFFICE OF THE SECRETARY OF STATE
I hereby certify that this is a true and correct copy,
consisting of (Two) pages, as taken from the
original on file in this office.



Jesse White
JESSE WHITE
SECRETARY OF STATE

DATE: 08-02-2011

BY: *Eileen K...*

L.L.C. File Number: 01543067

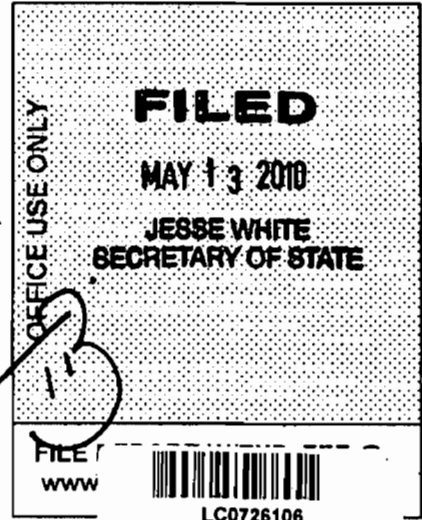
Jesse White
Illinois Secretary of State
Limited Liability Company
Annual Report

Filing Deadline is Prior to 06/01/2010

This report must be RECEIVED in the office of the Secretary of State prior to the anniversary date to avoid late filing penalties and eventual administrative revocation of its admission.

Filing Fee: \$ 250
Penalty:
Total Fee:

Form **LLC-50.1**



1. Limited Liability Company name: Registered Agent, Registered Office, City, IL., ZIP Code

INVERSE INVESTMENTS, L.L.C.
PATRICK D. COEN
40 BRINK STREET
CRYSTAL LAKE IL 60014

PAID

MAY 13 2010

DEPARTMENT OF
BUSINESS SERVICES

2. State or Country of Organization: Illinois Date organized in Illinois: 06/15/2005

3. Address of the principal place of business: (A P.O. Box alone is unacceptable.)

161B LINCOLN RD
(Street Address)

MCHENRY IL 60050
(City, State, Zip)

4. Names and addresses of the managers:

ADAMS II, RICHARD A.
P.O. BOX 614 MCHENRY IL 60051

5. The managers, which are entities, affirm the evidence of existence on file with the Illinois Secretary of State is still intact.

6. Changes to the registered agent or address in item 1 above requires the filing of form LLC-1.36/1.37.

7. I affirm, under penalties of perjury, having authority to sign thereto, that this annual report is to the best of my knowledge and belief, true, correct, and complete.

A late filing penalty of \$300 will apply if this report is not filed within 60 days after the due date.

Make Check Payable to: Secretary of State

Dated 5/4 2010
(Month/Day) (Year)

[Signature]
(Signature)

Richard Adams Manager
(Type or print Name of Manager)

(If applicant is a company or other entity, state name of company.)

Return to:
Department of Business Services
Liability Limitation Division
Limited Liability Company Section
Room 351, Howlett Building
Springfield, IL 62756

000336

1a) LLC Name INVERSE INVESTMENTS, LLC			<i>Electronic Filing - Received, Clerk's Office, 11/07/2011</i>		
1b) Registered Agent, Office & City PATRICK D. COEN 40 BRINK STREET CRYSTAL LAKE IL 60014			2a) Jurisdiction Illinois		2b) Date Org /Adm 06/15/2005
4a.i) Manager Name(s) and Address(es) ADAMS II, RICHARD A. P.O. BOX 611 MCHENRY IL 60051			3) Address of Principal Place of Business 1618 LINCOLN RD MCHENRY IL 60050		
4b) 75 02 91 0499 05052011 125200007 0250 01543067 080111 0000025000 CH			FOR OFFICE USE ONLY		
3) The manager(s) which all entities are still intact			6) Changes to the registered agent or address in item 1 require the filing of form LLC-1.36/1.37		
7a) Type of report name of manager from item 4 executing report <i>mgr RICH ADAMS</i>			7b) if manager is not a person, type or print name and title of person signing report		
I affirm, under penalties of perjury, having authority to sign thereto, that this Annual Report submitted pursuant to the Limited Liability Company Act, is to the best of my knowledge and belief, true, correct and complete			7c) Signature <i>Rich Adams mgr</i>		Date 4/29/11

LLC Name *Electronic Filing - Received, Clerk's Office, 11/07/2011*
INVERSE INVESTMENTS, L.L.C.

File Number		01543067
File Prior To	Penalty Date	
06/01/2011	08/01/2011	
Filing Fee		\$250
Penalty is \$300.00		
TOTAL DUE		250 ⁻

Jesse White Secretary of State
 Department of Business Services
 501 S 2nd Street Rm 351
 Springfield IL 62756-5200

0154306708012011005500000250004

STATE OF ILLINOIS
OFFICE OF THE SECRETARY OF STATE
I hereby certify that this is a true and correct copy,
consisting of *(Three)* pages, as taken from the
original on file in this office.



Jesse White
JESSE WHITE
SECRETARY OF STATE

DATE: *08-02-2011*

BY: *Allen Ruck*