

A stylized landscape illustration featuring rolling hills in various shades of green and brown. On the left, there is a green tree, a purple flower, and an orange flower. A red bird is flying in the sky. The background consists of layered blue and white bands representing the sky. The text 'CAMPBELL' is centered in the upper middle, with 'ENVIRONMENTAL GROUP' below it, separated by a horizontal line. The text is overlaid on a light green triangular shape.

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# *Phase I Environmental Site Assessments*





# *Presenter*

*Rich Campbell  
Geologist*

## *What I Hope to Convey*

- *Why Conduct A Phase I*
- *What Is A Recognized Environmental Condition*
- *What are the Components of a Phase I*
- *What is a Transaction Screen*

## *Why Do An Environmental Site Assessment?*

*Identify Recognized  
Environmental  
Conditions (RECs) &  
Determine Site History*

## Why Do An Environmental Site Assessment?

- CERCLA (Superfund) and All Appropriate Inquiry
- General liability: protecting occupants of and visitors to the completed project protects the owner as well
- Economic benefit: finding and addressing environmental concerns results in a more marketable property

## Why Do An Environmental Site Assessment?

Qualify for Landowner Liability

Protection under CERCLA (Superfund)

which includes:

- Bona fide prospective purchaser,*
- Contiguous property owner, and*
- Innocent landowner*

## Phase I Environmental Site Assessments

- American Society for Testing and Materials International (ASTM) E 1527-21
- Phase I Site Assessment
  - Records Review
  - Site Reconnaissance
  - Interviews
  - Report
- Goal: Identify Recognized Environmental Conditions (RECs) & Determine Site History
- Conducted by an Environmental Professional





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# History of ASTM Phase I Environmental Site Assessments

ASTM standards have a maximum 8-year shelf life  
Prior E1527 publications: 1993, 1994, 1997,  
2000, 2005, 2013, 2021

# History of ASTM Phase I Environmental Site Assessments

Current ASTM Standard was  
published in 2021

Goal: Identify Recognized  
Environmental Conditions (RECs) &  
Determine Site History

# History of ASTM Phase I Environmental Site Assessments NEW

*Clarifications to the HREC and CREC definitions.*

*Expansion of Historical Research to adjoining properties.*

*A footnote and edits to the Non-Scope Considerations appendix to acknowledge growing regulator attention to emerging contaminants, especially PFAS. Chemicals will not be expressly named in the standard, but language will be included to alert Phase I ESA providers that releases of chemicals that are not classified as “hazardous substances” for compliance with federal regulation may be considered “in scope” for compliance with state regulations or contractual obligations.*

# History of All Appropriaes Inquiry (AAI) Rule Phase I Environmental Site Assessments

*The 2002 Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Required Development of a Phase I Standard*

*The AAI final rule was published in the Federal Register on November 1, 2005 & went into effect on November 1, 2006.*

# AAI Phase I Environmental Site Assessments

The AAI rule requires:

- Interviews with past and present owners, operators and occupants.
- Review of historical sources of information.
- Review of federal, state, tribal and local government records.
- Visual inspection of the facility and adjoining property.
- Review of commonly known or reasonably ascertainable information.
- Assessment of the degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination.

# AAI Phase I Environmental Site Assessments

The AAI final rule defines an environmental professional as someone who has one of these qualifications:

- A state- or tribal-issued certification or license and three years of relevant, full-time work experience.
- A bachelor's degree or higher in science or engineering and five years of relevant, full-time work experience.
- Ten years of relevant, full-time work experience.

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*Identify Recognized  
Environmental  
Conditions (RECs) &  
Determine Site  
History*

# REC Definition

- *Recognized Environmental Condition:*
  - *The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.*



# REC Definition Continued

- *Recognized Environmental Condition:*
  - *The term includes hazardous substances or petroleum products even under conditions in compliance with laws.*

# REC Definition Continued

- *Recognized Environmental Condition:*
  - The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions

# Other RECs

## Historical REC

- Applies where past release has been addressed, to the satisfaction of the regulatory authority – no use restriction – HRECs are not considered a REC

## Controlled REC

- Applies where past release has been addressed, to the satisfaction of the regulatory authority, but residual contamination remains subject to control – institutional controls required

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*This is a Wreck.....not a REC*



# What is Considered a REC?

## Petroleum Products

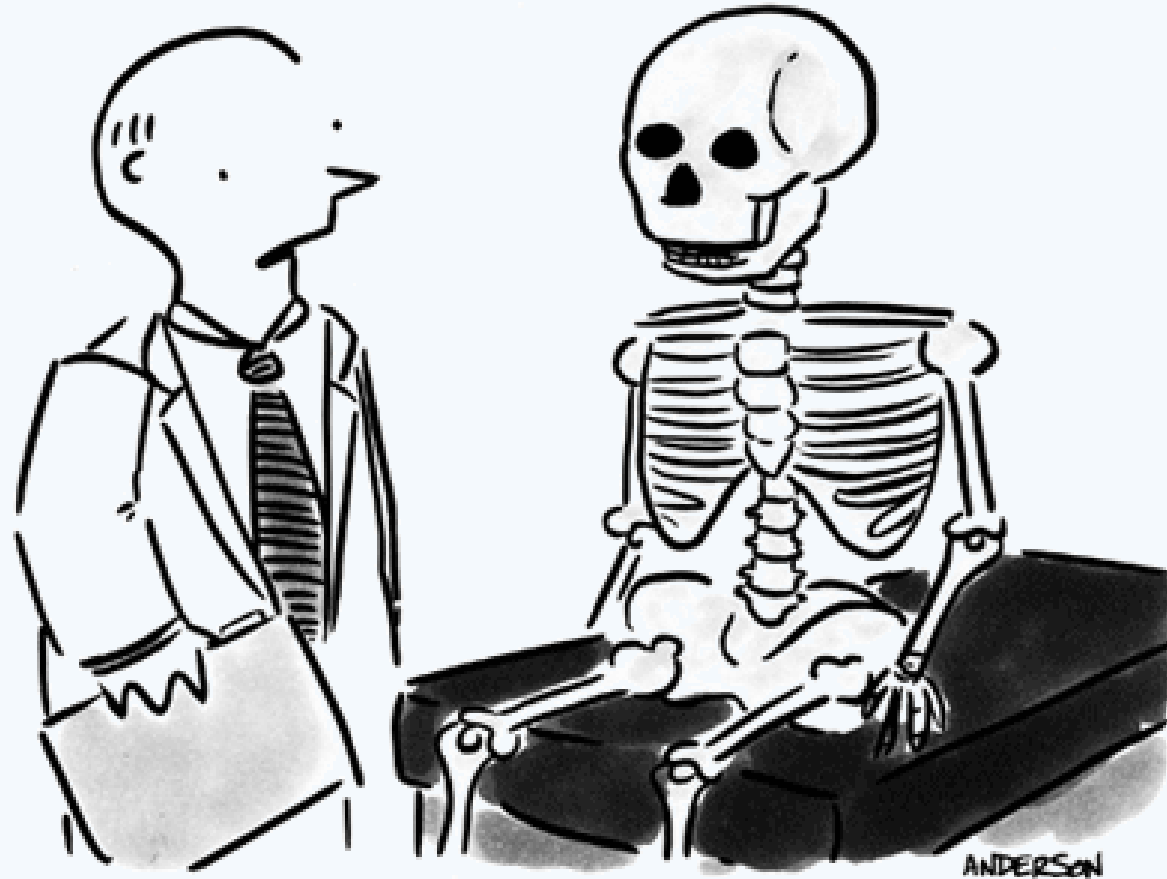


Dry  
Cleaning  
Solvents

## Pesticides



*More RECs?....oh ok.*



"Still, let's do an x-ray just to be sure."

# What is Considered a REC?

*Polychlorinated biphenyls (PCBs)*



*Polycyclic aromatic hydrocarbons (PAHs)*



*Heavy Metals: e.g. Mercury*







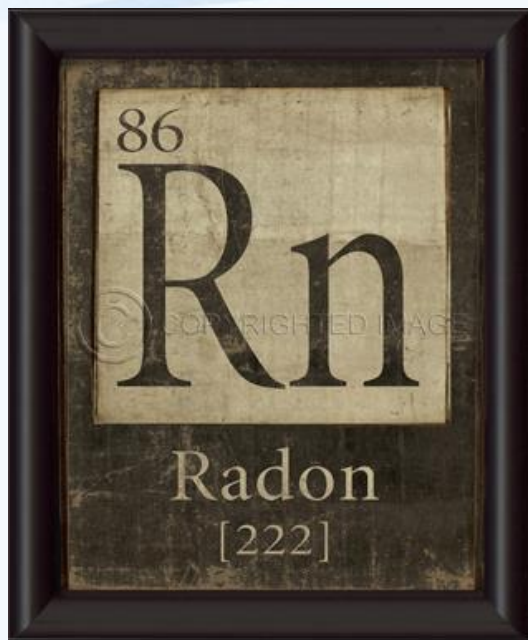
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# What Things Aren't Looked For?



Septic Tanks



Mold



Bird Drippings

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# What Things Aren't Looked For?

Lead Based Paint  
Yes, the Real McCoy



# Likely Places for RECs



# RECs Impact Sensitive Receptors

*What is a sensitive receptor? A human, ecological, or physical entity that has the potential of being adversely impacted by contact with contaminants in the environment.*



# Components of a Phase I

- *Records Review*
- *Site Reconnaissance*
- *Interviews*
- *Report*
- *Goal: Identify Recognized Environmental Conditions (RECs) & Determine Site History*

# Historical Research

- *Determine history of use to 1940 or earliest developed use, whichever is earlier*
  - *By definition, “developed use” includes agricultural use*
  - *Five year intervals; larger intervals are allowed if use is obviously unchanged (but use caution)*

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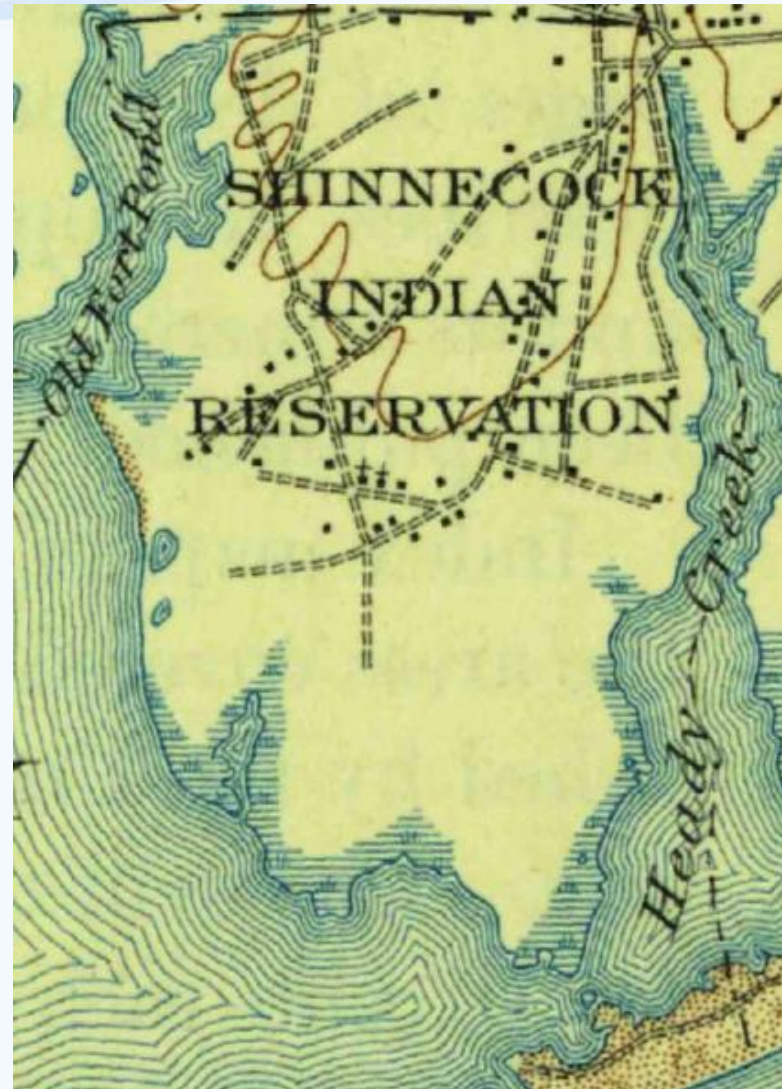
# Aerial photographs



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# Historical USGS Topographic Maps





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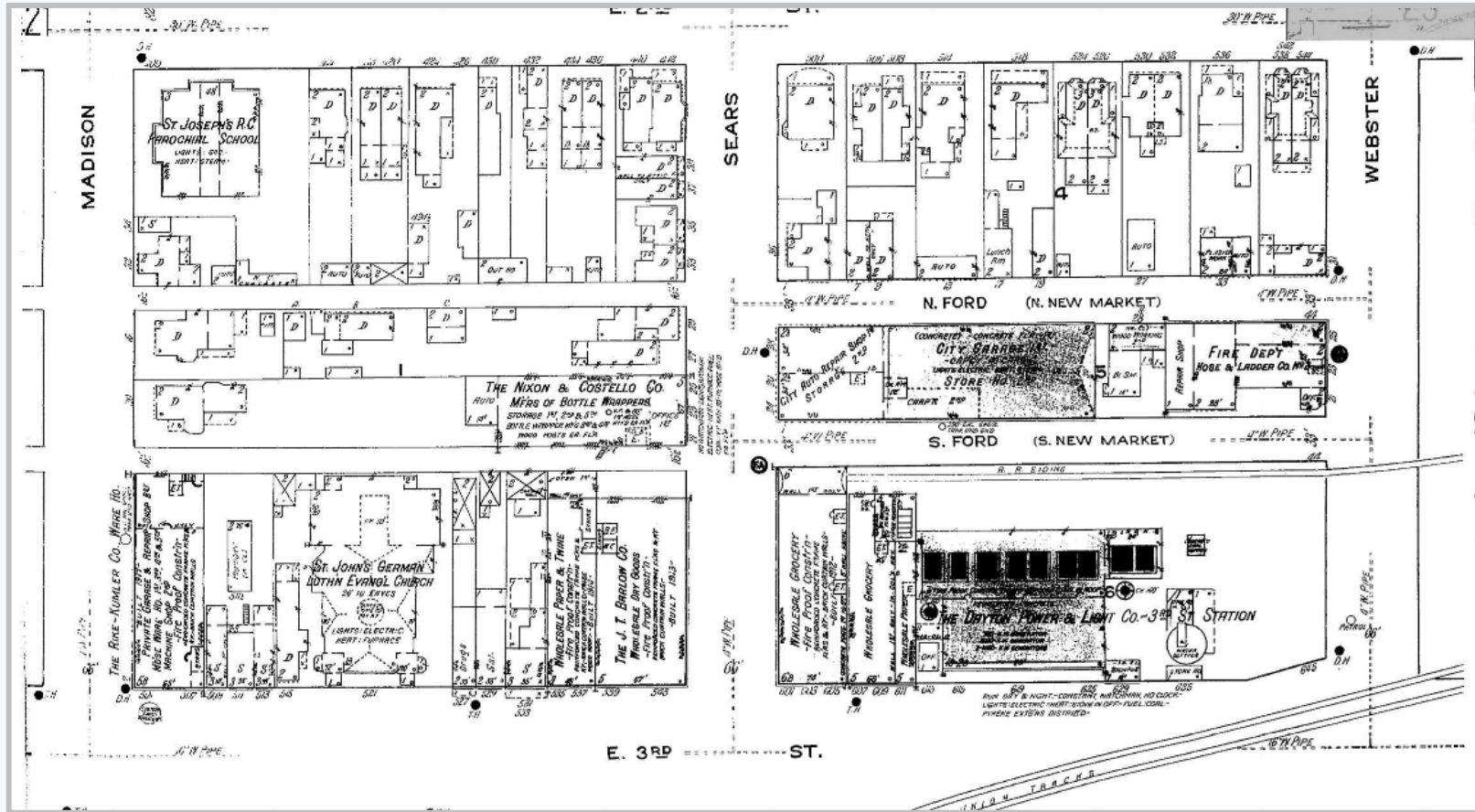
City/suburban/rural directories (local library history rooms)

1983 Cincinnati City & Suburban, OH - Haines Directory Co. THE HAINES DIRECTORY 1983

35 BARNESLEY CT

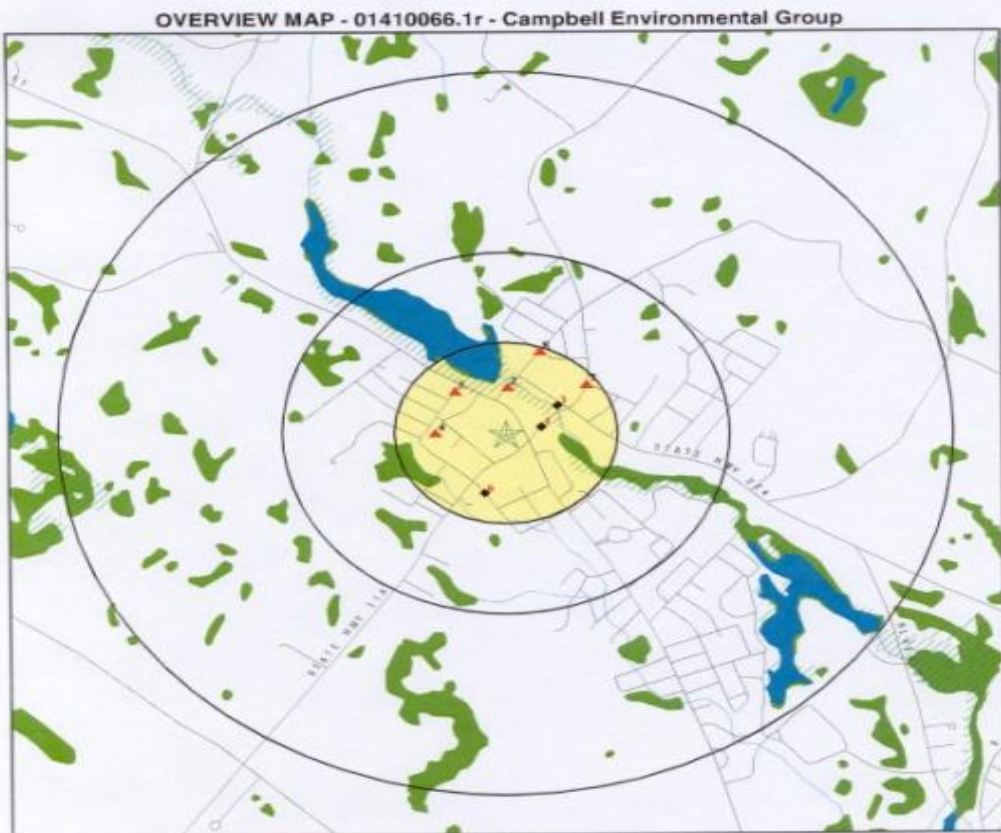
<p>BANNING RD 45239 CONT.</p> <p>2870. MILLER WM R 931-0880 1 2876 KOCH ROBT L JR 822-9342 2 2890 LEAH J 822-5021 +3 MELAMPY C J 521-4510 +3 SCHIRMER TERRY B 522-6182 2</p> <p>WOODSIDE TERRACE GASKINS J 931-9357 +3 KLEPAC R 522-4592 2 MILNER S L 521-2046 +3 NEWLAND DAVID 522-7737 +3 NEWLAND DONALD E 522-7737 +3 CRJ 521-2398 +3 RANDMAN CONST CORP 522-2323 5 RANDMAN DEVELOPT CO 522-2323 5 VAUGHT M 521-7262 9 WOODSIDE TRICE APTS 522-2323 5</p> <p>2901. APARTMENTS FINNERTY T K 522-5350 +3 JENT E C 521-5439 2 KETCHAM WM F 522-7472 +3 LENZEN HENRY L 931-7141 +3 SCHNEIDER ROBT M 729-4541 2 WISE H J 521-1353 2</p> <p>2903. APARTMENTS BRACHLA PHILIP 521-2553 +3 DEGLAU S D 521-2553 +3 GAUSVIK MARTIN 521-2373 +3 KAYSER GARY R 931-5016 +3 VOGELSDANG DAVID E 521-7137 +3 WAYNE C A 521-5011 8 WITT JONATHAN J 521-6328 0</p> <p>2906. APARTMENTS DALE BILL H 522-3220 +3 DAVIS DAVID A 521-1552 +3 JACOBS STEPHEN D 729-3788 2 KEGLEH SANDRA 522-8980 +3 KIELY MICHAEL F 522-0276 +3 KRUSE B 931-6851 1 MIRAMONT G M 521-6460 +3 MOKAS NICHOLAS T 522-0036 2</p> <p>2907. APARTMENTS CAMPBELL HUBERT JR 729-5010 8 DOOLEY PATK 931-2070 1 FISHER PAUL N 521-5017 +3 HAMILTON JOHN E 931-0460 9 LEFEVRE J 521-4878 2 LOEBUONO W 729-2708 +3 LOHNES WM 521-7016 +3 PIKE GREGORY 931-5451 0 RUSSELL KENNETH 522-9183 2 SMITH CRAIG E 521-6090 9</p>	<p>45239 CONT.</p> <p>3436 THE PARTY PEOPLE 3443 OROURKES PERENIALS 3445 FEHRING JOS G 3455 WALLER CLIFF 3465 SANDER LOUISE R 3474 ANGE J R 3485 PRINTERS EMRGY SRV</p> <p>3500 SCHMIDT LEROY H 3501 SCHWETSMANN C JR 3510 ROCKER EDGAR F 3515 GAW EUSEBIO MD 3516 JAENT PAUL C 3523 XXXX 3524 FOX WM H 3526 BORGES CLIFFORD W 3541 TOMS CHRISTINE 3554 SCHLARMANN HERMAN 3572 SCHMALE EDW 3580 PIPELINE OIL CO 3600 CASEYS WHT OK PIFLN * 78 BUS 289 RES 88 NEW</p> <p>BANNING RD 45239 CINCINNATI MOUNT AIRY AREA NORTHWEST FROM 2187 N BEND RD W</p> <p>6211 BAUMER ROBT H 541-1666 6 6215 XXXX 00 6223 BROOKS HARRY A 931-7872 7 6243 XXXX 00 6249 KING FREDK W JR 541-5150 6250 RAHALL M A 541-4170 2 6255 STJOHN HARRY C 541-1378 6256 BERLEMAN CALVIN A 541-3350 6262 HULLEY JACK L 681-8632 6268 MEDKEFF DARWIN 681-3141 6269 KELLEY J A 541-4876 0 6274 XXXX 00 6280 KANDROD C E 642-7755 6 6286 ELLIS MAURICE 681-6259 6290 CURSO PHIL 541-9235 * 0 BUS 16 RES 0 NEW</p> <p>BANTAM LN 45245 CINCINNATI 4215 XXXX 00 4251 MEYER RAYMOND D 528-3514 9 4253 SMITH KENNETH J 528-2036 0 4265 BULLIS CLARENCE J 528-8454 2 4266 XXXX 00 4269 WYMER CHESTER 526-3591 9 4260 XXXX 00 4261 XXXX 00</p>	<p>BANTRY AV 45213 CINCINNATI KENNEDY HEIGHTS AREA NORTH FROM 6301 MONTGOMERY RD</p> <p>6603 HOLDERFIELD JESSIE 631-5476 +3 PEERY F E 631-3997 9 SEBERT WM H 531-2289 6 SPINNER F M 261-9489 6609 CAMPBELL HAROLD C 531-3325 LAIHMAN P E 731-0307 1 443 RHODES RAYMOND M 528-0529 6 * 0 BUS 7 RES 0 NEW</p> <p>6612. SAUBER CLARENCE 731-3774 APARTMENTS COX HARRY B 731-8146 GAYER G 731-9358 LEUGERS M A 631-6795 MCDOWAN N RUFUS JR 931-7476 SCHLOSS D M 631-6999 2 WEGELIN E 351-3360</p> <p>6612. APARTMENTS ANSHUTZ M L 631-7976 MEREDITH CARL A 531-1650 SCHLIMMEYER CARL O 631-8379 SHAKARAV PAUL L 351-0683 SUGDENORF STEVE 631-6270 +3 TUTTLE JOHN W 351-4344 9 WEIDNER G 731-8423 3</p> <p>6615. KLINGLER DONN L 531-9785 9 6619 ABBOTT A 631-0714 FITE ROBT S 531-4260 0 LONNEMAN GREG A 531-6545 +3 ROST MATTHEW 531-6623 0 XXXX 00 XXXX 00 XXXX 00 6627 MIER CRAIG A 841-1264 +3 6641 LANDRUM BOBBIE 631-6572 2 6645 XXXX 00 6649 BENNETT J C 531-7428 9 6655 HENRY WM C 531-7485 +3 6661 PARTRIDGE EUGENE 531-5541 2 6663 LYNN JOS ALBERT 531-8927 8 6665 XXXX 00 6667 GERKE BRUCE 631-4869 6669 XXXX 00 6677 SMITH VERDIE 731-2971 6679 BURNETT ELIZABETH 351-6202 6681 HEITKAMP WALTER A 631-4403 6685 YUND DONALD A 531-6643 6689 XXXX 00 6693 JENKINS O T 631-4341 6697 ANDERSON EMMETT A 531-9157 7 6699 ROUSSEAU L 531-4443 5 XXXX 00</p>	<p>BARBARA AV 45013 CONT. 1983 12 BAROSY THEO JR 868-6570 2 * 0 BUS 4 RES 2 NEW</p> <p>BARBARA LN 45244 CINCINNATI MOUNT CARMEL AREA 432 BELLUE JOHN W 528-2912 9 433 PRATER DOUGLAS 528-1323 6 434 XXXX 00 437 BRANSON ROBT 528-1364 6 438 JOHNSON ROBT 528-1450 5 440 WENTZEL CARL 528-2105 6 443 RHODES RAYMOND M 528-0529 6 * 0 BUS 7 RES 0 NEW</p> <p>BARBARA PL 45229 CINCINNATI FROM CLEARBROOK DR NORTH ONE WEST OF PADDOCK RD</p> <p>4605 SWEENEY W A 641-0803 +3 WHEELER M C 242-9010 +3 4609 HOLMAN J M 242-7737 4 4513 XXXX 00 4516 PORTER HANNAH 641-4254 2 SISTRUNK WALTER 242-8277 242-2083 1 4518 BERNHHEIM ADOLPH 242-4076 DOCTOR BERNARD H 242-4447 4519 NORRIS RAMON JR 641-0900 2 * 0 BUS 10 RES 2 NEW</p> <p>BARBERY AV 45207 CINCINNATI EVANSTON AREA NORTH FROM 2324 GRIGG AV</p> <p>3602 JOHNSON JAS E 871-0836 3603 XXXX 00 3606 BRANHAM JOHN W 871-2796 MCETER ANNIE L 871-5622 3607 XXXX 00 3610 PIPPEN R 321-6487 4 3613 BCRUM CHAS E 871-4904 3614 FARMER ELIZABETH 871-5495 9 3618 CHRISTMAS RICHARD 871-2956</p>	<p>BARO SALT RUN RD 45244 CONT. 684 XXXX 00 686 STEWARD ORA 528-4819 9 STEWART ORA CHLD 528-1827 1 688 BARTONE JERRY L 528-3896 9 691 LITTERAL R GLENN 528-3578 9 692 XXXX 00 693 SIMON TIMOTHY 528-3516 +3 694 LEDGETT CARL JR 528-2303 1 696 BECKER BRIAN 528-4691 9 697 DAVIS OTIS 528-3178 9 733 JONES DALLAS LEROY 528-3205 9 JONES J L 528-3148 8 737 COPPER HOWARD H JR 528-3645 5 528-6981 +3 757 HACKER RONALD G 528-3892 0 769 CHADWELL FLOYD 528-4151 0 775 FENKER RUSSELL 528-3678 9 778 BARO FRED 528-3584 9 781 RACKLEY EDW JR 528-1086 +3 803 BARO WILLIAM 528-3360 0 813 XXXX 00 823 KIRK CARROL 528-3955 9 897 BUNTAIN MARY ANN 528-4345 2 860 DAVIS GEO J 831-4311 6 861 REIN RAYMOND L 831-9560 6 4974 CHAPMAN STEPHEN J 831-6683 +3 KING J 831-9263 +3 WILPWO CHRISTIAN ED 831-3242 1 8037 XXXX 00 5053 CAMPBELL JIM A 831-9384 * 1 BUS 49 RES 10 NEW</p> <p>BARIBILL PL 45230 CINCINNATI 7050 GIBBS RALPH J 231-2305 7051 BRAJER OTIS 232-2067 7056 JONES E MRS 232-6189 7057 GORDANO DOMINIC M 231-5734 GESTERKAMP B 231-7027 7059 XXXX 00 7075 XXXX 00 7081 CORB JOHN W 231-0851 7082 PURDON ERNST 232-0359 7088 MOORHEAD JACK 231-2013 7093 KIMBERLAW DON 232-0353 5 7108 CHURICOSTA JOS 231-3173 6 7111 BEVER FRANK E 232-5920 5 7117 EBERHARD M 231-8958 5 7118 SMITH MELVIN L 232-0334 7125 HENRY TIMOTHY J 232-4548 +3 7126 MILLER LEONARD 232-3340 6 7131 MURPHY ALFRED R 231-8122 7132 XXXX 00 7139 EZZELL HORACE H JR 522-1273 7140 JOHNS J L 231-7246 5 7145 STEVENS K R 232-0192 9 7146 PAREY CHAS F 231-2487 7150 MACK R R 231-0517 0 * 0 BUS 24 RES 1 NEW</p>	<p>BARLEY CT 45014 CONT. 5727 VITT GEORGE A JR 829-1392 8 5730 PENNINGTON RFRG 858-2277 +3 HANSLEY ROBT W 829-6875 +3 5735 XXXX 00 5736 XXXX 00 5745 SANKAMP JACK W 929-0450 2 5746 MCENTIRE JAS D 829-0843 7 5749 SIMMONS RAY 829-1299 8 5750 XXXX 00 5755 HOSKINS THOS R 829-0196 7 * 1 BUS 14 RES 2 NEW</p> <p>BARLEY RD 45157 NEW RICHMOND 2039 WHITE JOHN E 557-5242 0 * 0 BUS 1 RES 0 NEW</p> <p>BARMIL DR 45140 LOVELAND 67 BECKSTEDT DANL P 683-7133 +3 68 JEWELL PAT 683-8956 1 69 JUSTICE K 683-3371 2 60 XXXX 00 61 XXXX 00 62 XXXX 00 64 GIBBS DAVID 683-6605 1 66 FRISBY JOANN L 683-7591 +3 67 XXXX 00 68 XXXX 00 70 MCFADDEN JAS 683-5846 0 71 ROY A 683-0704 2 72 PANGBURN WM 683-2456 2 73 PEARSON M E 683-2324 1 74 BORDENS LINA 577-1042 +3 75 XXXX 00 * 0 BUS 16 RES 3 NEW</p> <p>BARNARD 45214 CINCINNATI EAST FROM 2131 SPRING GRV AV N 2131 XXXX 00 2146 BRIGHTON SPRING SV 621-2860 2 7125 HENRY TIMOTHY J 232-4548 +3 NO R * 2 BUS 1 RES 0 NEW</p> <p>BARNARD AV 45013 HAMILTON 812 CAMPBELL MARY 668-1053 +3 814 BURRESS M T 694-1608 5 815 KILLEN A 868-8598 +3 MCMANHAN GARY 898-4518 1</p>
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# Sanborn maps (local historical societies)



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- Target Property
- ▲ Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- ▲ Coal Gasification Sites
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites

- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Federal Wetlands

*Site Federal and State Environmental Database Search for at least 0.5 mile and for some databases up to 1.0 mile radius from Site*

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# Site Reconnaissance



**Surface Debris**



**Discharge Piping**



**Residual Tank Piping**

# Interviews with Knowledgeable Persons

Phase I Environmental Site Assessments  
ASTM E-1527-13, Section 6  
Appendix X3 User Questionnaire

User Questions		Yes	No	Unk
1	Are you aware of any environmental cleanup liens against the <i>property</i> that are filed or recorded under federal, tribal, state or local law?		<input checked="" type="radio"/>	
2	Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?		<input checked="" type="radio"/>	
3	As the <i>user</i> of this ESA do you have any specialized knowledge or experience related to the <i>property</i> or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?		<input checked="" type="radio"/>	
4	Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?		<input checked="" type="radio"/>	
5	a) Do you know the past uses of the property?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	b) Do you know of specific chemicals that are present or once were present on the property?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	c) Do you know of spills or other chemical releases that have taken place at the property?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	d) Do you know of any environmental cleanups that have taken place at the property?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
6	As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

F.W. Leadbetter  
7/27/18

- Current owner/Occupant
- Former Owner/Occupant
- Employees
- Fire Department personnel
- Agency responsible for Environmental Issues
- Adjacent Property Owners
- Town/City Officials

# Interviews with Knowledgeable Persons

*ASTM E1527-21 states that the key site manager or someone with knowledge of the subject property should be interviewed.*

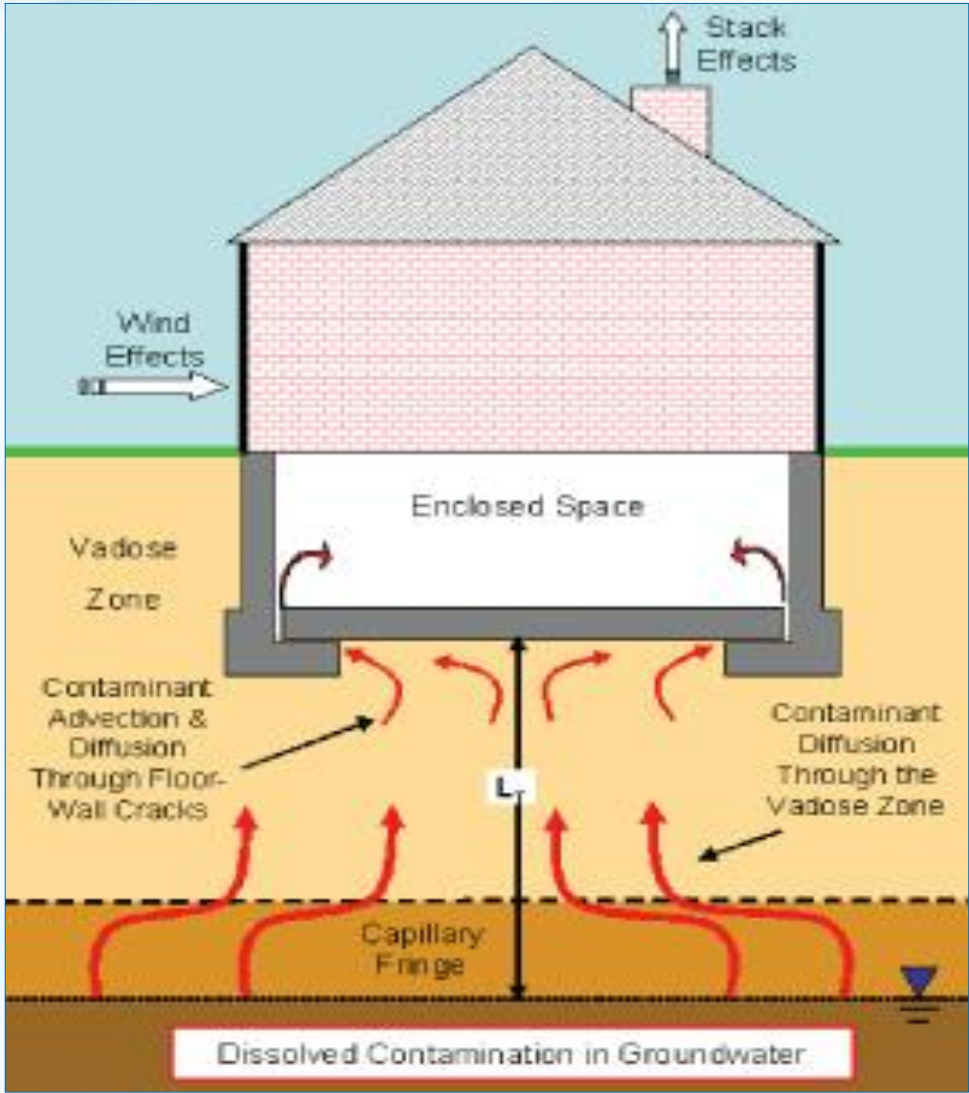
*Additionally, a reasonable attempt to interview current occupants must be made.*

*ASTM E1527-21 also states that interviews with past owners, operators, and occupants of the subject property shall be conducted to the extent that they have been identified and that the information likely to be obtained is not duplicative of information already obtained from other sources or resources.*

# Distinction Between Vapor Intrusion and Vapor Migration

- Vapor migration:
  - Is there a presence or likely presence of hazardous substances or petroleum products on the property due to a release, based on consideration of pathways and how contamination is likely to migrate onto a property?
  - Within the scope of a Phase I ESA.
- Vapor intrusion:
  - Is vapor present inside a building as the result of a release?
  - Never part of a Phase I.

# Vapor Migration





# *Report Preparation*

- **Supporting Documentation and Summary of Data;**
- **Data are evaluated to determine if a Phase II is warranted; and**
- **If a Phase II is recommended, the Phase I is basis for the Phase II Work Plan.**

# Phase I Update if completed within 180 days

- (i) Interviews with past and present owners, operators, and occupants
- (ii) Searches for recorded environmental cleanup liens
- (iii) Reviews of federal, tribal, state, and local government records
- (iv) Visual inspections of the facility and of adjoining properties
- (v) The declaration by the environmental professional

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## *Recognized Environmental Conditions*



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## *Recognized Environmental Conditions*



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*Christinas World, Andrew Wyeth*



*Aarons World, Aaron Brignull*

## *ASTM Designation: E1689 - 20 Standard Guide for Developing Conceptual Site Models for Contaminated Sites*

*(1) identification of potential contaminants;*

*(2) identification and characterization of the source(s) of contaminants;*



## *ASTM Designation: E1689 - 20 Standard Guide for Developing Conceptual Site Models for Contaminated Sites*

*(3) delineation of potential migration pathways through environmental media, such as ground water, surface water, soils, sediment, biota, and air;*

*(4) establishment of background areas of contaminants for each contaminated medium;*



## *ASTM Designation: E1689 - 20 Standard Guide for Developing Conceptual Site Models for Contaminated Sites*

*(5) identification and characterization of potential environmental receptors (human and ecological); and*

*(6) determination of the limits of the study area or system boundaries.*





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Questions  
??????????



Early Scottish torture methods #5: "Burning the Campbell at both ends."

## Presentation Evaluation\*

- I mildly hated this presentation
- I somewhat hated this presentation
- I really really hated this presentation
- This was the worst presentation ever
- I would hate attending another one of these, but I may trick my co-workers into it.

*\*(Not really an Official NEWMOA Presentation Evaluation Slide)*