SCREENING SITE INSPECTION WORK PLAN
FOR
BELVIDERE PUBLIC WELL #6
BELVIDERE, IL 61008
U.S. EPA ID: ILD981960768
SS ID: NONE
TDD: F05-8901-017
PAN: FIL0675SA

APRIL 28, 1989

US EPA RECORDS CENTER REGION 5
491519

Elements of this Screening Site Inspection Work Plan are considered confidential and pre-decisional in nature. Material and information contained within this report may not be released without the approval of the United States Environmental Protection Agency Region V Pre-Remedial Unit.

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WORK PLAN 1

SITE MAPS 2

HRS WORKSHEETS 3

APPENDIX 4

REFERENCES 5

WORK PLAN

SITE INSPECTION WORK PLAN

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This site inspection work plan (WP) has been prepared by Ecology and Environment, Inc., or its subcontractor, C. C. Johnson and Malhotra, P. C., under the field investigation team (FIT) contract with U.S. EPA (No. 68-01-7347).

The objectives of this WP are to:

- Prepare a preliminary Hazard Ranking System (HRS) score using HRS 1 (40 CFR 300, July 16, 1982) criteria based on existing file information (Part C of WP);
- Prepare projected HRS 1 scores based on experience and professional judgement (Part C of WP);
- Identify HRS 1 score data gaps (Part F of WP); and
- Propose site inspection activities to satisfy the HRS 1 score data gaps; technical approach and estimated LOE are provided (Parts F and J, respectively).

Unless otherwise stated, QA/QC protocol for site inspection activities are documented in the Quality Assurance Project Plan Region V FIT Conducted Site Inspections - May 1. 1987.

A. GENERAL INFORMATION

CERCLIS SITE NAME: Belvidere Public Well #6
ALSO KNOWN AS: —
FORMERLY KNOWN AS: —
ADDRESS: McKinley Ave. (near water tower)
CITY: Belvidere
STATE: Illinois
COUNTY: Boone
ZIP CODE: 61008
U.S. EPA ID: ILD981960768
SSID: None
TDD: F05-8901-017
PAN: FIL0675SA

FIT USE ONLY

WORK PLAN TYPE: x SCREENING SITE INSPECTION (SSI) WORK PLAN

____ OTHER: _____

PREPARED BY: Tim Mayers (FIT) DATE: 4/26/89

REVIEWED BY: Regina Bayer (FIT) DATE: 4/27/89

APPROVED BY: Regina Bayer (FIT) DATE: 4/27/89

U.S. EPA USE ONLY

REVIEWED BY: _____ (U.S. EPA) DATE: _____

____ WORK PLAN APPROVED. Recommend issuance of TDD to implement the Work Plan.

____ WORK PLAN APPROVED. No Further Remedial Action Planned (NFRAP).

____ WORK PLAN REJECTED.

COMMENTS: _____

B. SITE INFORMATION

This section of the WP presents current and historic information pertaining to the site, including: site operations, storage/disposal methods, site property area, site status, owners and operators, permit information, and response/enforcement activities. A site location map is shown on Figure 1, located in Section 2.

1. Site Operations (past and present; check all that apply):

____	Above ground storage	____	Mining site
____	Below ground storage	____	Open dump
____	Chemical manufacturer	____	Ore processor
____	Drum recycler	____	Physical/chemical treament
____	Electroplater	____	Recycler/reclaimer
____	Foundry	____	Surface impoundment
____	Incinerator	____	Underground injection
____	Landfarm	X	Well field
____	Landfill	____	Wood preserver
____	Midnight dump	____	Other: ____

References: 1, ____, ____, ____, ____

2. Storage/Disposal Methods (past and present; check all that apply):

		Waste Quantity (amount/units of measure)
____	Drums, above ground	____
____	Landfarm	____
____	Landfill	____
____	Open dump	____
____	Piles	____
____	Surface impoundment	____
____	Tank, above ground	____
____	Tank, below ground	____
X	Other: N/A	____

References:

____, ____, ____, ____, ____

3. Site Property Area: municipal well (~~acres~~)

References: 1, ____, ____, ____, ____

4. Site Status: X Active ____ Inactive

References: 1, ____, ____, ____, ____

5. Owner/Operator History

Current Owner

Name: City of Belvidere
Address: 123 South State St.
City, State, Zip Code: Belvidere, Il. 61008
Years of Ownership: 34 yrs.

Current Operator

Name: City of Belvidere
Address: 123 South State St.
City, State, Zip Code: Belvidere, Il., 61008
Type of Operation: municipality
Years of Operation: 34 yrs.

Previous owners
(list most recent first)

Name: SAME AS ABOVE
Address:
City, State, Zip Code:
Years of Ownership:

Previous operators
(list most recent first)

Name: SAME AS ABOVE
Address:
City, State, Zip Code:
Type of Operation:
Years of Operation:

Name: SAME AS ABOVE
Address:
City, State, Zip Code:
Years of Ownership:

Name: SAME AS ABOVE
Address:
City, State, Zip Code:
Type of Operation:
Years of Operation:

References: 1, ____, ____, ____, ____

6. Permit Information

		Effective Date	Expiration Date
___	NPDES		
___	UIC		
___	AIR		
___	RCRA, ___ PART A ___ PART B		
___	SPCC PLAN		
___	STATE (specify): ____		
___	LOCAL (specify): ____		
___	OTHER (specify): ____		
X	NONE		

References: 1, ____, ____, ____, ____

7. Response Activities (previous and current site remediation; check all that apply):

____ Water supply closed	____ Cutoff trenches/sump
____ Temporary water supply provided	____ Subsurface cutoff wall
____ Permanent water supply provided	____ Barrier wall constructed
____ Spilled material removed	____ Capping/covering
____ Contaminated soil removed	____ Bulk tankage repaired
____ Waste repackaged	____ Grout curtain constructed
____ Waste disposed elsewhere	____ Bottom sealed
____ On-site burial	____ Gas control
____ In situ treatment	____ Fire control
____ Encapsulation	____ Leachate treatment
____ Emergency waste treatment	____ Area evacuated
____ Cutoff walls	____ Access to site restricted
____ Emergency diking/surface water diversion	____ Population relocated

Other remedial and enforcement activities: NONE

References: _____, _____, _____, _____, _____

8. Additional Site Information: Belvidere Public Well #6 has been sampled at least 7 times since 11/19/85. 11/19/85 sampling detected 1,1,1-Trichloroethane (2.6 ppb) Trichloroethylene (2.2 ppb) Tetrachloroethylene (2.6 ppb), 1,1 Dichloroethylene (2.7 ppb). 8/26/86 sampling detected Trichloroethylene (1.0 ppb), Tetrachloroethylene (1.0 ppb), Methylene Chloride (1.5 ppb). 7/10/87 sampling detected Tetrachloroethylene at 1.2 ppb. 10/26/87 sampling detected 1,1 Dichloroethylene (2.0 ppb). 2/11/88 sampling detected Tetrachloroethylene (2.0 ppb) and an unidentified compound at (10.0 ppb.). All sampling conducted by Illinois Environmental Protection Agency (IEPA) except for 7/10/87 sampling. Aqualab, Inc.; Bartlett, Il. sampled well on this date.

References: 1, _____, _____, _____, _____

9. Documented and Alleged Target Compounds

Documented and alleged target compounds are compiled in Table 1. The documented target compounds are supported by analytical data from previous sampling projects. The alleged target compounds are based on the history of site operations and professional judgement. Documented and alleged target compound locations are shown on Figure 2, located in Section 2. * As documented contamination is at depth in a municipal well, the documented and alleged target compound location map has been excluded; see Figure 1 for well location.

	CMPND STATUS		MATRIX (✓)							DOCUMENTED COMPOUND AND CONCENTRATION OR ALLEGED COMPOUND AND RATIONALE	REFERENCE
LOCATON	DOCU	ALLEG	SOIL	SED	GW	SW	AIR	WSTE	OTHR		
A	X				X					1,1,1-Trichloroethane 2.6ppb } IEPA sampling	1
A	X				X					Trichloroethylene 2.2ppb } results from	1
A	X				X					Tetrachloroethylene 2.6ppb } 4/19/85	1
A	X				X					1,1 Dichloroethylene 2.7ppb }	1
A	X				X					Trichloroethylene 1.0 ppb } IEPA sampling	1
A	X				X					Tetrachloroethylene 1.0ppb } results from	1
A	X				X					Methylene Chloride 1.5ppb } 8/26/85	1
A	X				X					Tetrachloroethylene 1.2ppb Aqualab, Inc.; Bartlett	1
										Illinois 7/10/87	
										sampling results	
A	X				X					1,1 Dichloroethylene 2.0ppb IEPA sample	1
										results from 10/26/87.	
A	X				X					Tetrachloroethylene 2.0ppb IEPA sample	1
										results from 2/11/88	

Table 1
DOCUMENTED/ALLEGED TARGET COMPOUND LIST

Non - Responsive

E. WORK SUMMARY

Based on the preliminary and projected HRS scores, a site inspection will be performed.

The objectives of the site inspection are to:

- o Provide information to satisfy HRS data gaps;
- o Develop the information base needed to permit U.S. EPA to evaluate the need for future site activities; including: immediate removal measures, additional investigation, or no further action; and
- o Characterize hazardous substances, pollutant dispersal pathways, types of receptors, facility management practices, and potentially responsible parties.

Specific tasks to be conducted during the site inspection are (check all that apply):

- ✓ Interview site owner(s)/representative(s)
- ✗ Take photographs of site and surrounding areas
- ✗ Screen site with safety instrumentation (i.e.,HNU, OVA, O_2 meter, explosimeter, radiation detector, cyanide detector)
- ✓ Collect environmental samples
- ____ Assess the need for Immediate Removal Actions
- ____ FASP*
- ____ Soil gas monitoring*
- ____ Well point installation*
- ____ Geophysics*: _____ (Specify)
- ____ OTHER*: _____

* Rationale for these activities and their impact on HRS data gaps:

F. PROPOSED SAMPLE PLAN

The HRS data gaps are identified in this section, and a proposed sample plan is developed based on the type of information required.

1. A) HRS data gap(s): FIT will collect additional analytical data through the collection of groundwater from the municipal well; → groundwater characteristics.

   B) Sampling proposed to satisfy HRS data gap(s):

   ____ Soil ____ Sediment X GW ____ SW ____ Air ____ Waste

   C) Sampling procedures (number and types of samples; equipment; methodology): 1 municipal well (Belvidere Public Well #6) will be sampled. All standard E&E sample protocol will be followed. FIT will also sample 4 residential wells in various directions from the municipal well in an effort to define a groundwater contamination plume, and to obtain a background sample.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented in Figure 3, in Section 2.

2. A) HRS data gap(s): Additional data gaps such as waste characteristics through the collection of soil/sediment samples, surface water samples,

   B) Sampling proposed to satisfy HRS data gap(s):

   ____ Soil ____ Sediment ____ GW ____ SW ____ Air ____ Waste

   C) Sampling procedures (number and types of samples; equipment; methodology): and air and waste samples can not be addressed at this time due to the lack of potential source(s). FIT believes that this information could be more accurately gathered at the Listing Site Inspection (LSI) stage.

A table of proposed sample descriptions is presented in Table 2, Section 1. A proposed sample location map is presented in Figure 3, in Section 2.

Note: Sample locations and/or the number of samples may be changed or eliminated at the discretion of the site team leader in response to actual site conditions during the course of the inspection.

LOCATION	MATRIX (✓) SOIL	SED	GW	SW	AIR	WSTE	OTHR	RATIONALE FOR DETERMINING SAMPLE LOCATION	PARAMETERS[1] A/B/N	Pest/PCB	VOA	METAL	CN^-	OTHER
MW1			X					WASTE CHARACTERISTICS	X	X	X	X	X	
DUP.			X					DUPLICATE of MW1 WASTE CHARACTERISTICS	X	X	X	X	X	
BLK.							X	BLANK	X	X	X	X	X	
RW1			X					WASTE CHARACTERISTICS	X	X	X	X	X	
RW2			X					↓ ↓	X	X	X	X	X	
RW3			X						X	X	X	X	X	
RW4			X						X	X	X	X	X	
DUP.			X					DUPLICATE of (1) RESIDENTIAL WELL SAMPLE	X	X	X	X	X	
BLANK							X	BLANK	X	X	X	X	X	
TOTALS			7				2		9	9	9	9	9	

[1]Target Compound List Attached

Table 2
PROPOSED SAMPLE DESCRIPTIONS
(INCLUDING ALL LABORATORY BLANKS AND DUPLICATES)

G. COMMENTS

In general, FIT will gather additional data for municipal well contamination through the collection of groundwater samples. FIT will also collect additional information on potential sources of the contamination. This information gathering will include drive-bys of potential sources, photographs where applicable, and possible interviews with local officials.

H. HEALTH AND SAFETY

Proposed E & E Health and Safety protocol to be followed during site inspection.

1. Anticipated level of protection: ____ A ____ B ✓ C ✓ D

2. Level of protection modifications: Screen municipal well in level D and upgrade to level C if safety instruments warrant.

3. Work limitations (time of day, etc.): Work will be limited to daylight hours. Monitor team members for heat/cold stress.

I. TYPE OF DELIVERABLE

Proposed report format to be submitted to U.S. EPA.

1. ✓ SSI Report including U.S. EPA 2070-13 Form
2. ___ Letter Report

0365:3

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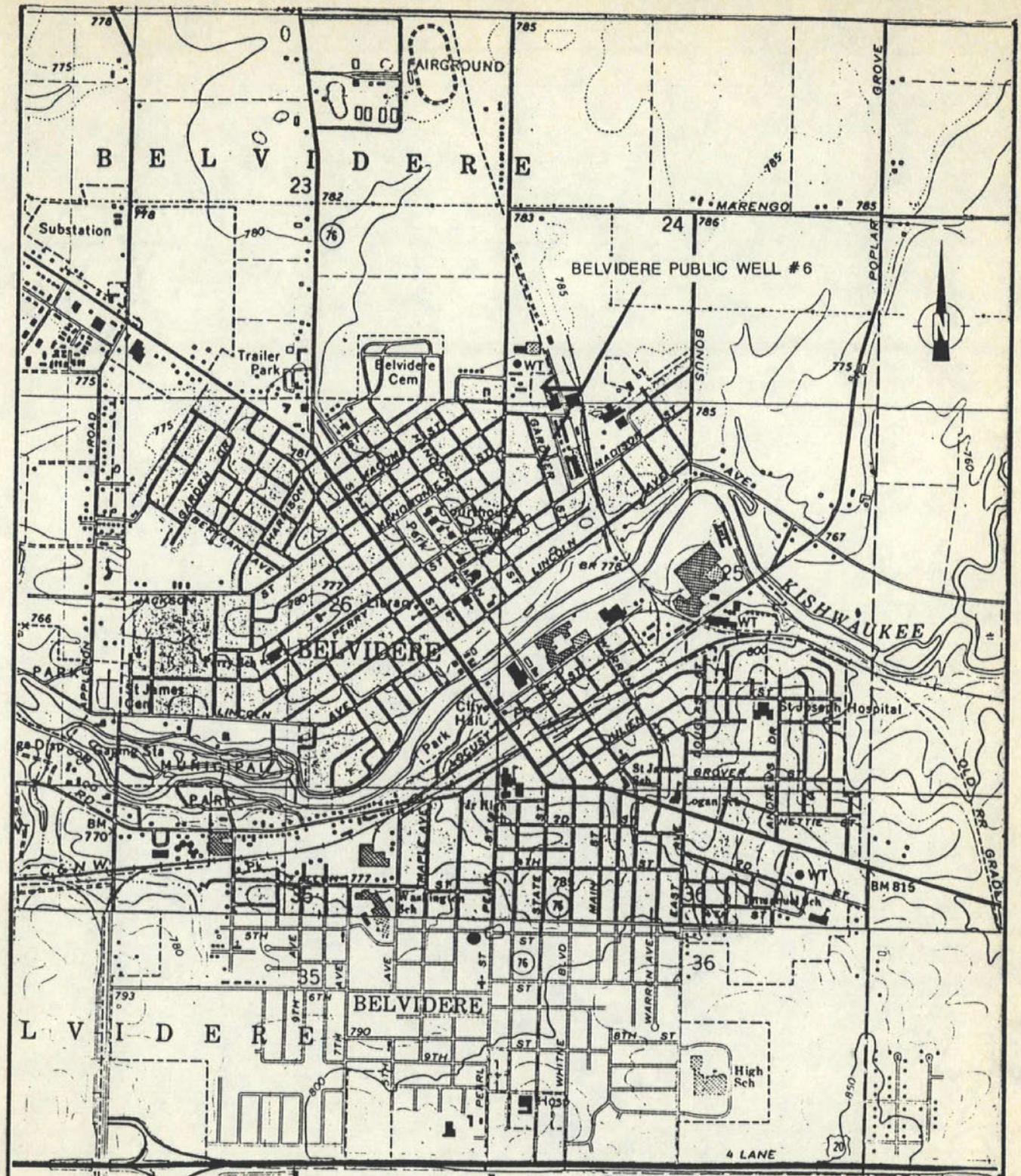
SUBTASK CODE	A General Non-Specific	B File Search/Review	C Work Plan	D Safety Plan	E QAPP	F Mobilization/Demobilization	G Travel	H Non-Sampling Field Work	I Sample Management	J Field Sampling	K Screening/Analytical	L Subcontract	M Meteorologic/Air Sampling Studies	N Geophysical Work	O Hydrogeological Work	P Data Processing/Modeling	Q Data Validation	R Draft Final Deliverable	S Internal QA Review	T Final Deliverable	U Respond To Comments	TOTAL
TEAM LEADER	12	12		8		4	7	3		16								60		20	8	150
SAFETY OFFICER	2					4	7			16												29
SAMPLER						4	7		24													35
TEAM MEMBER	2						7	2		16												27
TEAM MEMBER							7			16												23
Administration	4																					4
Publications																		20		5		25
Sample Coordinator									4													4
Audit Team																			25			25
QA				8													20					28
TOTALS FOR PROJECT	20	12		16		12	35	5	28	64							20	80	25	25	8	350

J. ESTIMATED LOE HOURS

SUMMARY OF PROJECTED HOURS NEEDED TO IMPLEMENT SITE INSPECTION AND COMPLETE SITE INSPECTION REPORT.

SITE MAPS



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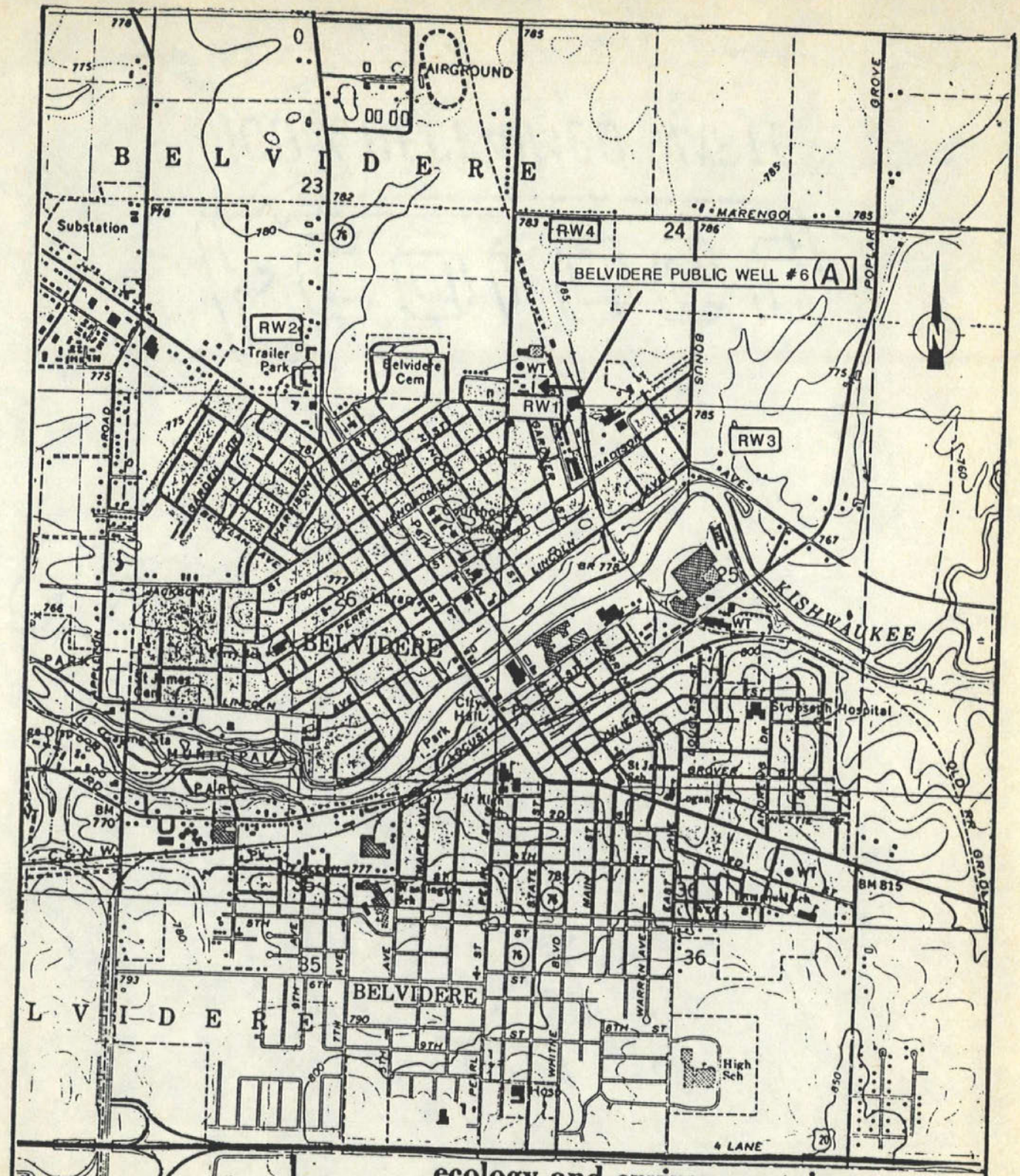
TITLE SITE LOCATION MAP	FIGURE # 1
SITE BELVIDERE PUBLIC WELL # 6	SCALE 1:24,000
CITY BELVIDERE, STATE IL.	P.A.N. FIL0675
SOURCE U.S.G.S. TOPOGRAPHIC MAP BELVIDERE NORTH QUAD.	DATE 1970
	REVISED 1975



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TITLE PROPOSED SAMPLE LOCATION MAP	FIGURE # 2
SITE BELVIDERE PUBLIC WELL # 6	SCALE 1:24,000
CITY BELVIDERE, STATE IL.	P.A.N. FIL0675
SOURCE U.S.G.S. TOPOGRAPHIC MAP BELVIDERE NORTH QUAD.	DATE 1970 REVISED 1975

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Non - Responsive

Unable to score route, documented contamination is within groundwater.

FIRE AND EXPLOSION

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	0 3	x1			
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} =		

Unable to score route, documented contamination is within groundwater

FIRE AND EXPLOSION

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Description	Ref. #
1 Containment	0 3	x1			
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100			S_{FE} =		

Unable to score route, documented contamination is within groundwater

FIRE AND EXPLOSION

PROJECTED HRS SCORE WORKSHEET FOR USTING SITE INSPECTION (LSI)

(This score is based on the expected acquisition of information from the Listing Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Containment	0 3	x1			
2 Waste Characteristics					
Direct Evidence	0 3	x1			
Ignitability	0 1 2 3	x1			
Reactivity	0 1 2 3	x1			
Incompatability	0 1 2 3	x1			
Haz. Waste Quantity	0 1 2 3 4 5 6 7 8	x1			
	Total Waste Char. Score				
3 Targets					
Dist. to Nearest Pop.	0 1 2 3 4 5	x1			
Dist. to Nearest Bldg.	0 1 2 3	x1			
Dist. to Sensitive Env.	0 1 2 3	x1			
Land Use	0 1 2 3	x1			
Pop. Within 2 miles	0 1 2 3 4 5	x1			
Bldgs. Within 2 miles	0 1 2 3 4 5	x1			
	Total Targets Score				
4 Multiply 1 x 2 x 3					
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

Route not scored, documented contamination is within groundwater

DIRECT CONTACT

PRELIMINARY HRS SCORE WORKSHEET

(This score is based on existing file information that was obtained prior to the Screening Site Inspection.)

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Description	Ref. #
1 Observed Incident	0 45	x1			
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	x1			
3 Containment	0 15	x1			
4 Waste Characteristics					
Toxicity	0 1 2 3	x5			
5 Targets					
Pop. Within 1 mile	0 1 2 3 4 5	x4			
Dist. to Crit. Habitat	0 1 2 3	x4			
	Total Targets Score				
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5					
7 Divide line 6 by 21,600 and multiply by 100		S_{DC}=			

Route not scored, documented contamination is within groundwater

DIRECT CONTACT

PROJECTED HRS SCORE WORKSHEET FOR SCREENING SITE INSPECTION (SSI)

(This score is based on the expected acquisition of information from the Screening Site Inspection)

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Description	Ref. #
1 Observed Incident	0 45	x1			
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	x1			
3 Containment	0 15	x1			
4 Waste Characteristics					
Toxicity	0 1 2 3	x5			
5 Targets					
Pop. Within 1 mile	0 1 2 3 4 5	x4			
Dist. to Crit. Habitat	0 1 2 3	x4			
	Total Targets Score				
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5					
7 Divide line 6 by 21,600 and multiply by 100		S_{DC}=			

Route not scored, documented contamination within groundwater

DIRECT CONTACT

PROJECTED HRS SCORE WORKSHEET FOR LISTING SITE INSPECTION (LSI)

(This score is based on the expected acquisition of information from the Listing Site Inspection)

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Description	Ref. #
1 Observed Incident	0 45	x1			
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	x1			
3 Containment	0 15	x1			
4 Waste Characteristics					
Toxicity	0 1 2 3	x5			
5 Targets					
Pop. Within 1 mile	0 1 2 3 4 5	x4			
Dist. to Crit. Habitat	0 1 2 3	x4			
	Total Targets Score				
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5					
7 Divide line 6 by 21,600 and multiply by 100		S_{OC}=			

APPENDIX

Copies of the following addenda have been supplied to the U.S. Environmental Protection Agency and the appropriate state agencies. Refer to these addenda when reviewing this work plan.

Addendum	Title
A	Routine Analytical Services Contract Required Detection and Quantitation Limits
B	Central Regional Laboratory Detection Limits
C	Special Analytical Services Detection Limits Drinking Water Samples
D	Special Analytical Services Detection Limits High Concentration Samples

REFERENCES

REFERENCE DOCUMENTATION SHEET

Ref. #	DESCRIPTION OF REFERENCE
1	Illinois Environmental Protection Agency, (IEPA), July 14, 1988, Potential Hazardous Waste Site Preliminary Assessment, for Belvidere Public Well #6, Illinois, SITE ID# ILD981960768, prepared by Timothy J. Murphy, IEPA, Springfield, Illinois.
2	Woller, Dorothy M., and Sanderson, Ellis W., Public Groundwater Supplies in Boone County, Illinois State Water Survey, Bulletin 60-6, State of Illinois, Department of Registration and Education, 1974.
3	U.S. Department of Commerce, 1979, Climatic Atlas of the United States, Ashville, North Carolina.
4	Davis, S.N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969.

REFERENCE DOCUMENTATION SHEET

Ref. #	DESCRIPTION OF REFERENCE
5	U.S. Census Bureau, 1980, General Population Characteristics, Census of Population.
6	Carlson, Debbie, April 10, 1989, Belvidere Health Department, telephone conversation, contacted by Timothy Mayers of E&E.
7	Rockford Map Publishers, Inc., Illinois Travel and Recreation Guide, Rockford, Illinois.