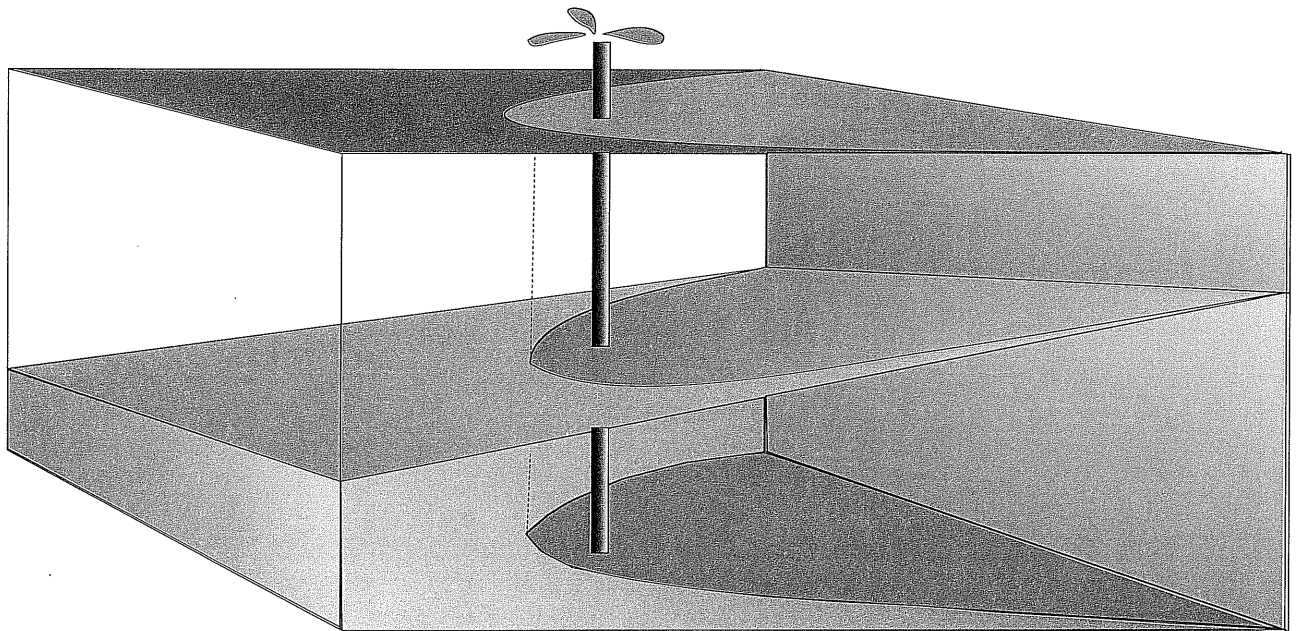


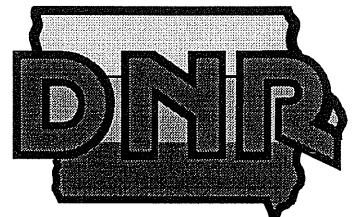


Wellhead Protection:

A Model Plan
for Iowa
Water Suppliers



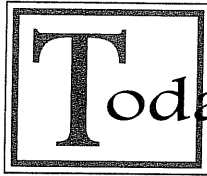
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Iowa Department of Natural Resources

WORKBOOK

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Howard R. Green Company,
Iowa Section - American Water Works Association
September 1996



Today's Training Schedule

Part 1

8:00 - 8:30	Registration
8:30 - 8:45	Introduction to Wellhead Protection What is Wellhead Protection? Is Wellhead Protection Important for Iowa? Seven Steps to Wellhead Protection
8:45 - 9:05	Case Study 1 Oxford Junction, Iowa - The Need for Wellhead Protection
9:05 - 9:35	View Video Segment #1 and Review: Steps 1 Through 3
9:35 - 10:05	Small Group Exercise #1 Forming a Wellhead Protection Team
10:05 - 10:20	Break
10:20 - 10:45	Delineating a Wellhead Protection Area
10:45 - 11:15	Small Group Exercise #2 Inventorying Potential Sources of Contamination
11:15 - 11:45	Composite of Small Groups
11:45 - 12:30	Lunch

Part 2

12:30 - 12:40	Recap of Morning Session and Introduction to Afternoon Session
12:40 - 1:00	Case Study 2 Story City, Iowa - An Implemented Wellhead Protection Program
1:00 - 1:20	View Video Segment #2 and Review: Steps 4 Through 7
1:20 - 1:35	Prioritizing Contamination Risks
1:35 - 2:05	Small Group Exercise #3 Risk Assessment
2:05 - 2:20	Break
2:20 - 2:35	Composite of Small Groups
2:35 - 3:00	Managing Potential Contaminant Sources, Planning for Emergencies, and Involving the Public
3:00 - 3:30	Wrap-Up/Implementation Challenge
3:30 - 4:00	Evaluations/CEUs

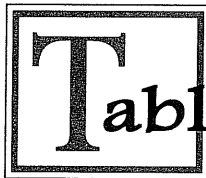


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Responsibilities of the Wellhead Protection Team Coordinators

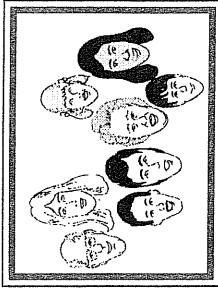
Position	Basic Responsibilities
<p>Team Leader (suggested people: mayor, city manager, water superintendent/operator)</p>	<ul style="list-style-type: none"> • identify and invite key players and agencies to participate • ensure all stakeholders are represented • delegate, coordinate and integrate all leaders and work groups • help develop budget • serve as focal point for public • perform oversight • facilitate public involvement sessions
<p>Financial Coordinator (suggested people: city manager, city clerk, local accountant)</p>	<ul style="list-style-type: none"> • develop budget with Team Leader • identify and solicit funding sources • distribute funds and keep appropriate financial records
<p>Technical Coordinator (suggested people: water superintendent/operator, retiree, civic organization)</p>	<ul style="list-style-type: none"> • work with Team Leader to identify pool of experts • collect data • preliminary identification of WHIPAs • determine potential contaminants • assess risks • research/evaluation • design control/management program • interaction with technical experts, as needed
<p>Regulatory Coordinator (suggested people: city official, consultant, city attorney, health department representative)</p>	<ul style="list-style-type: none"> • identify regulatory measures already in place and those needed • perform and coordinate monitoring and inspections using appropriate agencies • enforcement
<p>Planning Coordinator (suggested people: water superintendent/operator, city planner, consultant, business leader)</p>	<ul style="list-style-type: none"> • work with Technical and Regulatory Coordinators to develop source management plan • identify consumption patterns • develop and plan infrastructure • establish priorities • identify future threats
<p>Communication Coordinator (suggested people: local media employee, retiree, civic organization, business leader, farmer)</p>	<ul style="list-style-type: none"> • work with Team Leader to coordinate meetings • report on information gathering • act as team recorder/secretary • facilitate public outreach program
<p>Water Service Coordinator (suggested person: water operator, city clerk)</p>	<ul style="list-style-type: none"> • document, administer, and update wellhead protection forms • monitor water service before, during, and after an emergency

Instructions for Completing the *Wellhead Protection Team Coordinators Form*

In the ***Name*** section, record the appropriate name of the team member beside each team member position assigned. Remember, one person may act in more than one team function.

In the ***Work Number, Pager Number, Cellular Number, Fax Number*** and ***Home Number*** sections, write down the applicable numbers for each coordinator position of your Wellhead Protection Team. It is vital to include as many phone numbers as are available, because a contamination emergency can occur during any time of the day or night.

Wellhead Protection Team Coordinators



Wellhead Protection Team Coordinator Names and Telephone Numbers						
Position	Name	Work Number	Pager Number	Cellular Number	Fax Number	Home Number
Team Leader						
Financial Coordinator						
Technical Coordinator						
Regulatory Coordinator						
Planning Coordinator						
Communication Coordinator						
Water Service Coordinator						

Instructions for Completing the *Wellhead Protection Information Table*

In the *Well No.* section, record the specific number of the well this table refers to.

In the *Aquifer Name* section, enter the name of the aquifer supplying your well.

In the *Aquifer Classification* section, use information from your well driller, this model plan's *Iowa Aquifers and Recharge Areas* section, and data contained in Appendix One to check each box that applies to the aquifer. You will check at least two boxes under either the *Surficial* section or the *Bedrock* section, because every aquifer can be classified as either confined or unconfined.

In the *Well Location Description* section, write a general description of where your well is located that includes, if possible, an address. For example, you may write "One-quarter mile north of Acme Manufacturing at 123 Madison St., between Elm and Maple Streets, directly adjacent to the old feed mill." Also, record the legal description, including section, township, and range, if available. This may be helpful to gather additional information from IDNR-GSB.

In the *Well Construction Details* section, write down the date your well was constructed, the contractor who built your well, the engineer who designed your well, and the well's depth. Check whether the well is a primary water supply source, or strictly a standby or secondary source. If you have alluvial wells, information about the bore hole will be important. Complete the diameter, length, and gravel-pack areas as appropriate. If your well has a casing, check the appropriate box, and record the type of casing material contained in your well, its diameter, and how many feet of that material your well contains. A well can be made up of more than one type or diameter of casing material, so remember to record all of them. Use a separate blank page if you need more room. If your well is grouted, check the appropriate box for each segment of casing. Mark the appropriate box to indicate if your well has a screen, and record the type of well screen material contained in your well, its length and diameter. Record, in both gallons per minute (gpm) and feet Total Dynamic Head (TDH), your well's pump capacity, how many gallons per minute and hours per day or week your well typically operates, along with the appropriate pump type. If your pump is an "other," make sure you write in the space provided the type of pump used in your well. The ground surface elevation and static and pumping water levels should be recorded next. Finally, it is important to note which aquifer layers the well is open to. In other words, if your well does not have casing or is screened in all or any section of it, what type of aquifer material does it pass through? In this section you need to record at what depth this open area of the well begins, how long the open area is, and the proper name and description of the aquifer formation it is exposed to. For example, at a depth of 500 feet your well's casing material stops and for the next 25 feet there is screen material enclosing your well. At this section, your well is then exposed to the St. Peter sandstone formation.

In the *Well Log Report* section, attach both the well log and any chemical/mineral analysis documentation you have and file them in the pocket page provided in this model plan. If you don't have any or all of this information, call the IDNR-GSB phone number recorded in the *Well Log Report* section; they may be able to provide some missing details.

In the *Diagram Your Well* section, draw a picture of your well that includes the depth, length, diameter and make-up of each casing and screen type. If possible, include a description of the

aquifers and other layers running the length of your well. A sample diagram is provided in the upper left corner of the diagram page.

In the ***Well Maintenance History*** section, enter descriptions, dates, and names of people who have performed maintenance or repairs on the well, casing(s), pump, etc. Also, record the date when these items should next be checked in a preventive maintenance routine.

Wellhead Protection Information Table



Well No. _____

Aquifer Name	Aquifer Classification (check all that apply): Surficial: alluvial <input type="checkbox"/> buried channel <input type="checkbox"/> drift <input type="checkbox"/> confined <input type="checkbox"/> unconfined <input type="checkbox"/> Bedrock: fractured <input type="checkbox"/> granular <input type="checkbox"/> confined <input type="checkbox"/> unconfined <input type="checkbox"/>			
Well Location Description		Legal Description		
Well Construction Details	Date of construction _____			
	Contractor _____		Engineer _____	
	Depth _____		Primary <input type="checkbox"/> Standby <input type="checkbox"/>	
	<input type="checkbox"/> Bore hole diameter (inches) _____ length _____		Gravel-Pack: yes <input type="checkbox"/> no <input type="checkbox"/> from _____ feet to _____ feet	
	<input type="checkbox"/> Casing			
	Diameter	Length	Material	Grouted: yes <input type="checkbox"/> no <input type="checkbox"/>
				yes <input type="checkbox"/> no <input type="checkbox"/>
				yes <input type="checkbox"/> no <input type="checkbox"/>
	Screened: yes <input type="checkbox"/> no <input type="checkbox"/> Well screen material, length and diameter _____ material _____ length _____ diameter			
	Pump capacity _____ gpm at _____ feet TDH		Typically operated at _____ gpm	
	Pump type: submersible <input type="checkbox"/> line shaft <input type="checkbox"/> other <input type="checkbox"/> _____		Typically operated _____ hours/day _____ hours/week	
	Ground surface elevation: _____ feet, mean sea level Static water level: depth from ground surface _____ feet elevation _____ feet, mean sea level			
Pumping water level: depth from ground surface _____ feet elevation _____ feet, mean sea level				
Parts of well open to aquifer layers (formations) from _____ to _____ depth _____ length _____ formation name from _____ to _____ depth _____ length _____ formation name from _____ to _____ depth _____ length _____ formation name				
Well Log Report	Please place your well log report and chemical/mineral analysis, if available, in the pocket page provided directly after this section. If you don't have a copy of your well log report, call IDNR-GSB in Iowa City at (319) 335-1575.			

Scenario

Ourplace is typical of many small towns scattered throughout Iowa, established before the turn of the century in 1857. Situated north of Interstate 80 and a lesser highway, bisected by two other highways, and bordered on the north by a sometimes swiftly running river, 2,270 people (about 1,500 within the city limits) make Ourplace as their home. Primarily surrounded by agricultural land, Ourplace is built around City Park, located appropriately in the middle of town.

Ourplace is currently served by three alluvial wells, two built in the 1970s, and one in the 1940s. Another alluvial well, built in 1955, is being readied to be put back into operation soon. All these wells are between 30 to 40 feet deep, grouted the full length of the wells, with 12-inch casing and gravel-packed mesh screens. Treatment consists of chlorination. Ourplace's number one and two wells are situated between Miller and Pine Streets, one at the end of Howard Avenue, and one at the end of Lincoln Avenue. The number three well is located south of Adams Street at the end of William Avenue. The number four well, closer to the river, is situated in a residential area just south of Lucas Street between Western and Howard Avenues. Ourplace's water plant is on the very southwestern edge of town.

There are four known abandoned wells in town: one just north of the water tower, which is on the northeast corner of Jefferson and Randolph; two others just west of the water plant, which are situated between Pine and Miller Streets, and Howard and Western Avenues; and the last one, in the process of being abandoned, is just north along Miller Street, between Lafayette and Western. This last well is just south of the old, abandoned Clark gas station that hasn't been in business for at least 30 years, but does have an underground storage tank.

Ourplace's primary wells are number one and number two. Both the wells are far enough away from the river that IDNR has **not** considered them to be under the influence of surface water (unlike well number four, nearest the river.) Additionally, well number one did show nitrate concentrations of 8 mg/L (as N), in an isolated sampling conducted in the spring of 1993. Hydrogeological investigations in the spring of 1996 indicated general movement of the groundwater was southwesterly.

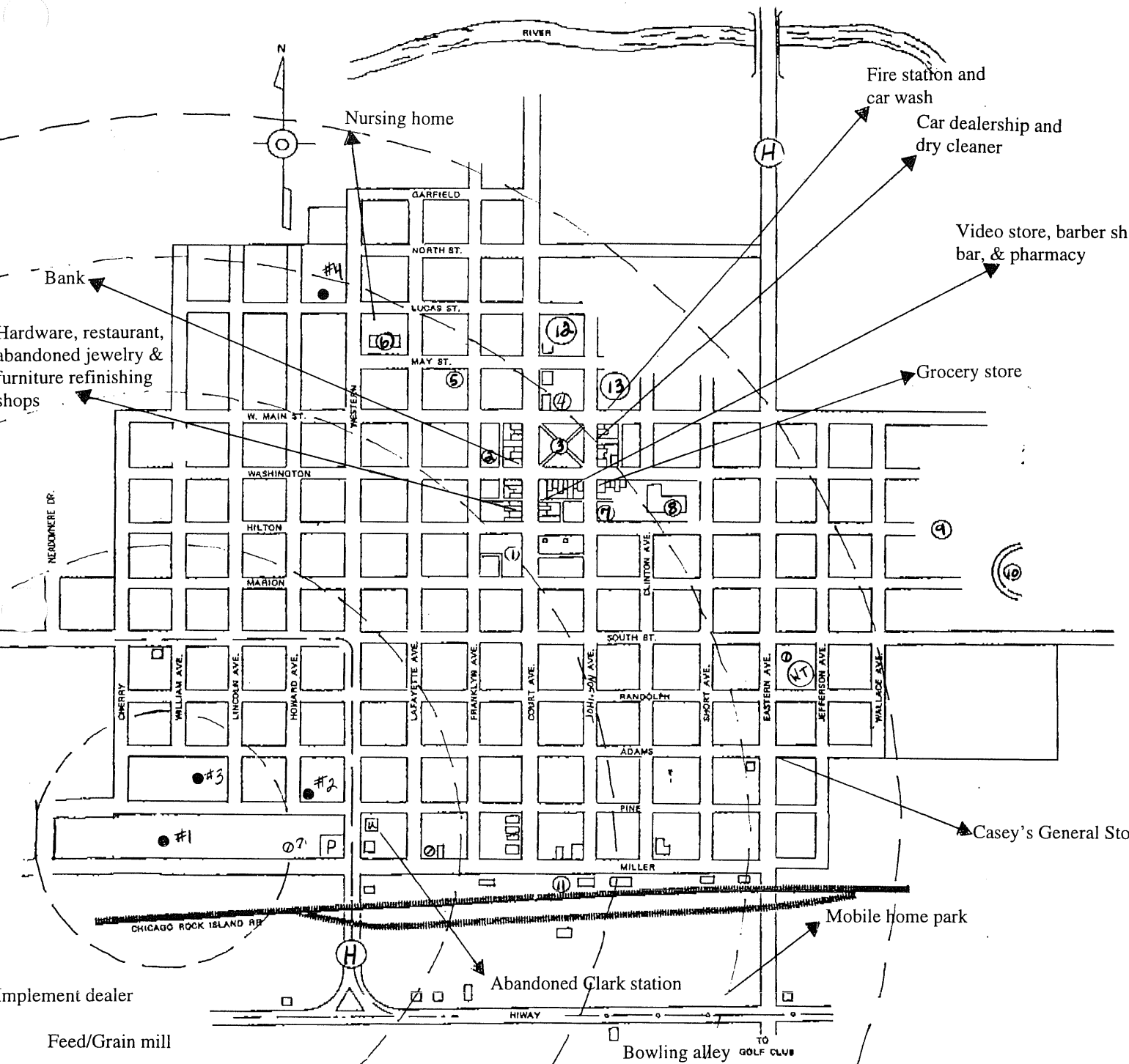
Ourplace has been struggling lately because the economy, based as it is on farming, has seen better days. Several vacant lots and abandoned buildings now stand where businesses used to be. Still, there are some merchants in the downtown area plying their trade, mostly situated in the two-block area around City Park. On the northwest corner of Court and Washington stands the bank. Directly south, on the next block down, are the hardware store and restaurant, and what used to be Hansen's Jewelry, but is now an empty storefront, and another empty storefront that used to be Alleman's furniture shop and refinishers. Across the street, south of City Park, along Court Avenue and moving north again, is the video store/pizza place, Curley's Barber Shop, a bar, and on the corner, the pharmacy. On the southeast corner of Johnson Avenue and Washington is the grocery store. Moving north up Johnson Avenue are a car dealership, and a dry cleaner/laundromat. The volunteer fire station is located just south of the old log cabin, which is next to a self-service car wash.

Closer to the river, just northwest of the downtown square, there's a nursing home and the county hospital. Just southeast of the nursing home is the American Legion swimming pool.

On the south side of town, along Adams Street, there's a Casey's General Store. Running along the highway south of town, there are an implement dealer, the feed and grain mill, a six-lane bowling alley, and an ice cream shop (only open in the summer) that's by the mobile home park. There used to be two feed and grain mills, and two implement dealers, located not too far from one another, along the highway, but Ourplace just couldn't support them. Also running parallel to Ourplace, just along the southern edge of the town, are the Chicago Rock Island Railroad tracks. Ourplace is bisected by two fairly busy highways that run north and south on Western and Eastern Avenues. A lot of truck traffic to and from the sale barn, on the east edge of town, is not uncommon, as well as through traffic from neighboring areas.

Every spring, at least some minor flooding occurs along the river. Ourplace's sewer system, although old, is very adequate, and there are no independent septic systems within the city limits. The water system is overseen by the water and wastewater superintendent, and a part-time meter reader.

MAP OF OURPLACE, IOWA



Key to Map

- | | |
|----------------------------------|--|
| 1. County Courthouse | 8. Junior High/High School |
| 2. U.S. Post Office | 9. Livestock Sale Barn |
| 3. City Park | 10. Memorial Park |
| 4. City Hall | 11. Chicago Rock Island Railroad Depot |
| 5. American Legion Swimming Pool | 12. Elementary School |
| 6. Memorial Hospital | 13. Historic Log Cabin |
| 7. Public Library | |

= pumping well
 = abandoned well
 WT = water tower
 P = water plant
 U = underground storage tank

WATER QUALITY ANALYSIS

Ourplace, Iowa

March 31, 1996

Well Number: 1
Depth: 40 ft.

Hours Pumped: 10
Rate Pumped: 200 gpm

Sampling Point: wellhead
Temperature: 12.0 °C

Specific Conductance @ 25° C (77° F): 530 micromhos.

pH: 7.6

Langelier Index: -0.2

Stability Index: 7.8

Soluble Iron: 0.22 mg/l

Total Iron: 0.22 mg/l

Silica (SiO₂): 19 mg/l

Filterable Residue: 318 mg/l @ 103° C

Total Residue: 318 mg/l @ 103° C

Hardness as CaCO₃: 251 mg/l

Alkalinity as CaCO₃: 167 mg/l

Cations (mg/l):

Potassium: 1.5

Sodium: 9.5

Calcium: 72

Magnesium: 17

Anions (mg/l):

Nitrate: 20

Fluoride: 0.1

Chloride: 14

Sulfate: 58

Bicarbonate: 204

Carbonate: 0

Trace Metals (mg/l):

Arsenic: <0.01

Barium: <0.1

Cadmium: <0.001

Chromium: <0.01

Copper: <0.01

Lead: <0.01

Mercury: <0.001

Selenium: <0.01

Silver: <0.01

Zinc: <0.01

Radioactivity (picocuries/liter):

Gross Alpha: 1.5

Gross Beta: <0.3

222Radon: <10

SOCs (/ g/l):

Aldrin: <0.05

beta-BHC: <0.05

gamma-BHC (Lindane): <0.05

Chlordane: <0.2

DDD: <0.05

DDT: <0.05

Dieldrin: <0.05

Endrin: <0.05

Endrin Aldehyde: <0.05

Heptachlor: <0.05

Heptachlor Epoxide: <0.05

Methoxychlor: <0.1

Toxaphene: <0.5

Amiben: <0.2

Banvel: <0.2

2,4-D: <0.2

Silvex (2,4,5-TP): <0.2

Alachlor (Lasso): <0.2

Atrazine: <0.2

Bladex: <0.2

Bolstar: <0.2

Carbofuran (Furadan): <0.2

Counter: <0.2

Diazinon: <0.2

Dual: <0.2

Dyfonate: <0.2

Lorsban: <0.2

Malathion: <0.2

Mocap: <0.2

Prowl: <0.2

Ramrod: <0.2

Sencor: <0.2

Sutan: <0.2

Thimet: <0.2

Treflan: <0.2

VOCS (/ g/l):

Vinyl Chloride: <1

Methylene Chloride: <5

1,1-Dichloroethene: <1

1,1-Dichloroethane: <1

Trans-1,2-Dichloroethene: <1

CIS-1,2-Dichloroethene: <1

Chloroform: <1

1,2-Dichloroethane: <1

1,1,1-Trichloroethane: <1

Carbon Tetrachloride: <1

Bromodichloromethane: <1

1,2-Dichloropropane: <1

Trans-1,3-Dichloropropene: <1

Trichloroethene: <1

Dibromochloromethane: <1

Dibromomethane: <1

Dichlorodifluoromethane: <5

Instructions for Completing the *Contaminant Inventory Table*

In the ***Well No.*** section, write the appropriate number of your well or well field.

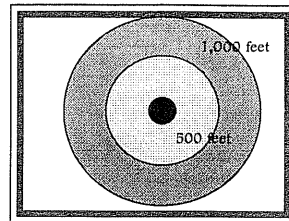
In the ***Date of this inventory*** section, write the date on which this inventory occurs. If more than one day is needed to complete the survey, write down every date applicable.

In the ***Recorded by*** section, write down the name of the person who is documenting the brainstorming session or conducting the individual inventory process. (It would also be a good idea to write on a separate piece of paper the names of the people who participate in the brainstorming sessions.)

In the ***Potential Sources of Contamination*** section, place a check mark beside each hazard that already is, or poses a potential contamination threat to this particular well. In the space provided to the right of each hazard, or in the ***Notes*** section, record such information as the distance and direction from the well, quantity of each hazard, if there is more than one site where this hazard can be found, and any other pertinent information. For example, in the Herbicide use/storage sites entry, you could record "700' N., 2 gallons of atrazine at the Smith farm."

For plotting potential contaminant sources, it is recommended that an aerial photography city map, or city street or zoning map be used if available. A USGS map showing the town and surrounding area would also work well. If none of these prepared maps is available, use the diagram provided in this section of the model plan. Follow these directions using either the map or diagram: Begin by recording the well location. Then sketch in a circle around the well. Allow the circle to represent a distance of 500 feet from the well. Begin identifying various operations that may exist or previously existed inside the circle. When all information related to the first 500-foot circle has been recorded, proceed to the next 500-foot circle outside of that. Work outward from the well, establishing target-like rings around the well, and recording possible hazards in each. Repeat this process until a minimum 2,500-foot radius from the well has been developed, or until the entire delineated WHPA (if determined) has been covered.

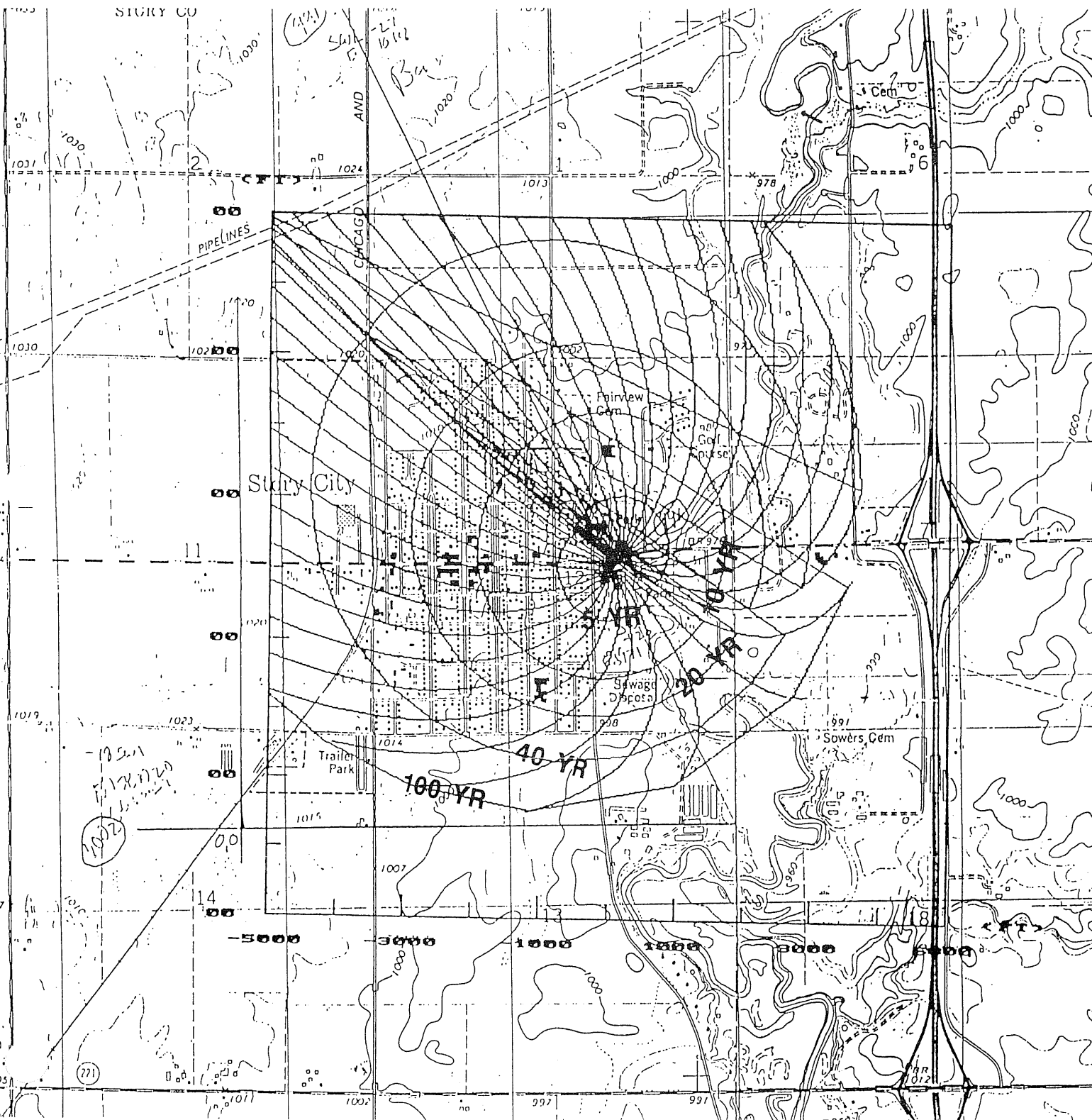
Contaminant Inventory Table



Well No. _____

Date of this inventory	Recorded by
Potential Sources of Contamination	
Place a check mark beside each potential hazard listed below you have identified might have an impact on your well.	
<input checked="" type="checkbox"/>	Potential Source
<input type="checkbox"/>	Above-ground storage tanks
<input type="checkbox"/>	Airports (operating/abandoned)
<input type="checkbox"/>	Animal burial sites
<input type="checkbox"/>	Animal feedlots, stables, kennels
<input type="checkbox"/>	Artificial recharge
<input type="checkbox"/>	Asphalt plants
<input type="checkbox"/>	Auto repair, service, salvage sites
<input type="checkbox"/>	Boatyards
<input type="checkbox"/>	Car washes
<input type="checkbox"/>	Cemeteries
<input type="checkbox"/>	Cesspools
<input type="checkbox"/>	Chemical manufacture/storage sites
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	Construction sites
<input type="checkbox"/>	Drainage wells/ditches/tiles
<input type="checkbox"/>	Dry cleaners
<input type="checkbox"/>	Dumps
<input type="checkbox"/>	Electronics manufacture
<input type="checkbox"/>	Electroplaters
<input type="checkbox"/>	Fertilizer use/storage sites
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	Foundries/metal fabricators
<input type="checkbox"/>	Fuel oil use/storage sites
<input type="checkbox"/>	Furniture stripping/refinishing
<input type="checkbox"/>	Gas stations
<input type="checkbox"/>	Golf courses
<input type="checkbox"/>	Grain storage bins
<input type="checkbox"/>	Hazardous waste landfills
<input type="checkbox"/>	Herbicide use/storage sites
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	Highways
<input type="checkbox"/>	Holding ponds/lagoons
<input type="checkbox"/>	Household hazardous products
<input type="checkbox"/>	Household lawns
<input type="checkbox"/>	Injection wells
<input type="checkbox"/>	Irrigation sites
<input type="checkbox"/>	Irrigation wells
<input type="checkbox"/>	Wood preserving facilities
<input type="checkbox"/>	Jewelry/metal plating establishments
<input type="checkbox"/>	
<input type="checkbox"/>	Notes:
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

STORY CITY, IOWA WELLHEAD PROTECTION ZONES



Instructions for Completing the *Risk Assessment Table*

In the ***Well No.*** section, record the specific number of the well or wellfield this table will refer to.

In the ***Vulnerability of Your Well*** section, answer questions one through nine with regard to this particular well. If you answer "Yes" for any question, record a check mark in the ***Yes*** box for that question. If the answer is "No" for any question, record a check mark in the ***No*** box for that question. If you do not know the answers to these questions, IDNR can help. For assistance with questions one through five, contact your IDNR field office, or the central office in Des Moines. This information may also be found on your operating permit or sanitary survey issued by IDNR. For help with question six, contact IDNR-GSB at (319) 335-1575. Questions seven through nine should be answered with operating knowledge of water utility staff. After answering each question, add the number of check marks in the ***Yes*** boxes. Write that number in the ***Yes Total*** square. If you answer "no" to all questions, still record a 1 in the ***Yes Total***, to represent the well as being active. The ***Yes Total*** number may range from a minimum of 1 to a maximum of 9.

In the ***Contaminant*** section, list by name, being specific as possible, each contaminant source you have identified that could affect this well. Remember to use the Step 3 form to properly record the contaminants you have identified.

In the ***Threat to Public Health/Toxicity, Mobility*** and ***Location to Well*** sections, determine the impact each contamination would have on your water utility's individual and commercial users. Using a scale of one to three, with one being a low risk and three being a high risk, assign a number assessing the impact of each factor.

- **Threat to Public Health/Toxicity**

Enter the rating number 1 (low), 2 (moderate) or 3 (high) for the specific source category or chemical contaminant from the adapted EPA index sheets in Appendix Five.

- **Mobility**

Enter the rating number 1, 2 or 3 for the specific source category or chemical contaminant from the adapted EPA index sheets in Appendix Five.

NOTE: If you have a source category or chemical contaminant which cannot be found in Appendix Five, consider this an "unknown" hazard and rate it a 3 until you can consult other resources such as IDNR or EPA to determine more accurate ratings for toxicity and mobility for this contaminant.

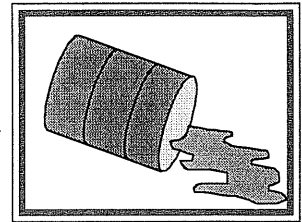
- **Location to Well**

If the contaminant source is contained within the first concentric circle (500 feet) around your well, rate it a 3. If the contaminant source is located between 500 and 1,000 feet from your well, rate it a 2. If the contaminant source is greater than 1,000 feet from your well, rate it a 1.

Add together the ratings for ***Toxicity, Mobility*** and ***Location*** for each contaminant and enter the sum in column 5 of the form.

You have now determined the vulnerability of the well and from the numbers recorded in column 5, it is easy to see the hazards presenting the greatest risk to this particular well (those hazards with the highest sums). You now need to consolidate this information from each well, so you can determine overall priority among all wells. Use the ***Risk Consolidation Table*** contained in this section to complete this process.

Risk Assessment Table



Well No. _____

Component 1:

Vulnerability of Your Well		Yes	No
1) Has your well ever yielded water with nitrate concentrations higher than half the MCL of 10 mg/L (as N)?	<input type="checkbox"/>	<input type="checkbox"/>	
2) Does your well have a history of water quality detects for man-made chemicals or contaminants?	<input type="checkbox"/>	<input type="checkbox"/>	
3) Does surface drainage flow toward the well, or has it been determined by IDNR to be groundwater under the influence of surface water?	<input type="checkbox"/>	<input type="checkbox"/>	
4) Are there any potential contaminant sources closer to the well than the distances set out by IDNR as site separation limits?	<input type="checkbox"/>	<input type="checkbox"/>	
5) Are there any known leaking underground storage tanks, or other uncontrolled contaminant sites nearby the well?	<input type="checkbox"/>	<input type="checkbox"/>	
6) Is the well supplied by an unconfined aquifer?	<input type="checkbox"/>	<input type="checkbox"/>	
7) Is this a primary well (rather than used only for standby or secondary supply)?	<input type="checkbox"/>	<input type="checkbox"/>	
8) Is the well casing leaking?	<input type="checkbox"/>	<input type="checkbox"/>	
9) Is the well ungrouted, or is the grout seal in poor condition?	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If you answered "no" to all questions, give this well a 1 in the <i>Yes Total</i> just for being an active well.	Enter the total number of check marks in the <i>Yes</i> boxes above: Yes Total		

Component 2:

Ranking of Contaminants					
1.	2.	3.	4.	5.	
Contaminant	Threat to Public Health/Toxicity (See Appendix Five)	Mobility (See Appendix Five)	Location to Well: <500' 500'-1,000' >1,000'	Sum of Columns 2, 3, 4	
No.	Chemical name or land use category	Low 1 - High 3			
1.	Gas Station, 700' N. <small>(NOTE: See pg. 129 of Appendix Five. Source Category: Tanks Petroleum (Gasoline, Diesel) - Benzene)</small>	3	2	2	7
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

Component 2:

Ranking of Contaminants					
1. Contaminant		2. Threat to Public Health/Toxicity	3. Mobility	4. Location to Well	5. Sum of Columns 2, 3, 4
No.	Chemical name or land use category	Low 1 - High 3			
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					
31.					
32.					
33.					
34.					

