Declaration for the Record of Decision
Byron Superfund Site

A. SITE NAME AND LOCATION

Byron Superfund Site
Byron, Illinois

B. STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Byron Superfund site (Byron) in Byron, Illinois. This remedial action was selected in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable with the National Contingency Plan (NCP). The decisions contained herein are based on information contained in the administrative record for this site.

C. ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Byron Superfund site, not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to human health, welfare, or the environment.

D. DESCRIPTION OF THE SELECTED REMEDY

The objectives of the response actions approved for this site are to protect public health, welfare and the environment and to comply with applicable federal and state laws. The remedy outlines specific final actions to address groundwater contamination at the site. The September 1998, ROD addressed, through excavation and treatment, soil source materials constituting a principal threat at the site.

The major components of the selected groundwater remedy include:

- Long-term Municipal Water Supply
- Groundwater monitoring consisting of quarterly water level measurements and annual monitoring of approximately 35 monitoring and residential wells
- Institutional Controls

E. STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies, to the

maximum extent practicable.

Because this remedy will result in hazardous substances remaining on site at levels preventing unlimited exposure and unrestricted use while remedial action is taking place, the five-year review requirement applies to this action.

F. DATA CERTIFICATION CHECKLIST

The following information is included in the *Decision Summary* section of this Record of Decision. Additional information can be found in the Administrative Record file for this site.

- ✓ Chemicals of concern (COCs) and their respective concentrations
- ✓ Baseline risk represented by the COCs
- ✓ Cleanup levels established for COCs and the basis for the levels
- ✓ Current and future land and ground-water use assumptions used in the baseline risk assessment and ROD
- ✓ Land and groundwater use that will be available at the site as a result of the Selected Remedy
- ✓ Estimated capital, operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected
- ✓ Decisive factor(s) that led to selecting the remedy

G. AUTHORIZING SIGNATURE

12/23/99
Date

William E. Muno
Superfund Division Director

U.S. EPA SUPERFUND
RECORD OF DECISION

BYRON SUPERFUND SITE

BYRON, ILLINOIS
DECEMBER 1999

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LIST OF ACRONYMS/ABBREVIATIONS

ACL	Alternative Concentration Limit
ARARs	Applicable or Relevant and Appropriate Requirements
BSY	Byron Salvage Yard
CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
ComEd	Commonwealth Edison Company
DFP	Dirks Farm property
FS	Feasibility Study
IAC	Illinois Administrative Code
IEPA	Illinois Environmental Protection Agency
MCL	Maximum Concentration Limit
mg/kg	Milligrams per kilogram
mg/l	Milligrams per liter
NCP	National Oil and Hazardous Substances Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
PRG	Preliminary Remediation Goal
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
TCLP	Toxicity Characteristic Leaching Procedure
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
ug/kg	micrograms per kilogram

RECORD OF DECISION SUMMARY
BYRON SUPERFUND SITE

A. SITE LOCATION AND DESCRIPTION

The Byron Superfund site (Site) consists of the Byron Salvage Yard (BSY) property and the Dirks Farm property (DFP). CERCLIS ID: ILD010236230. The contiguous properties are located in rural Ogle County in Northern Illinois, about halfway between the cities of Byron and Oregon, Illinois. The BSY is located east of Razorville Road in the southwest quarter of the northwest quarter of Section 13, Township 24 North, Range 10 East. The DFP is directly west of the BSY across Razorville Road. The City of Byron's corporate limit is about 3 miles to the northeast of the Site and the City of Oregon's corporate limit is about 5 miles to the southwest of the Site. See Figure 1.

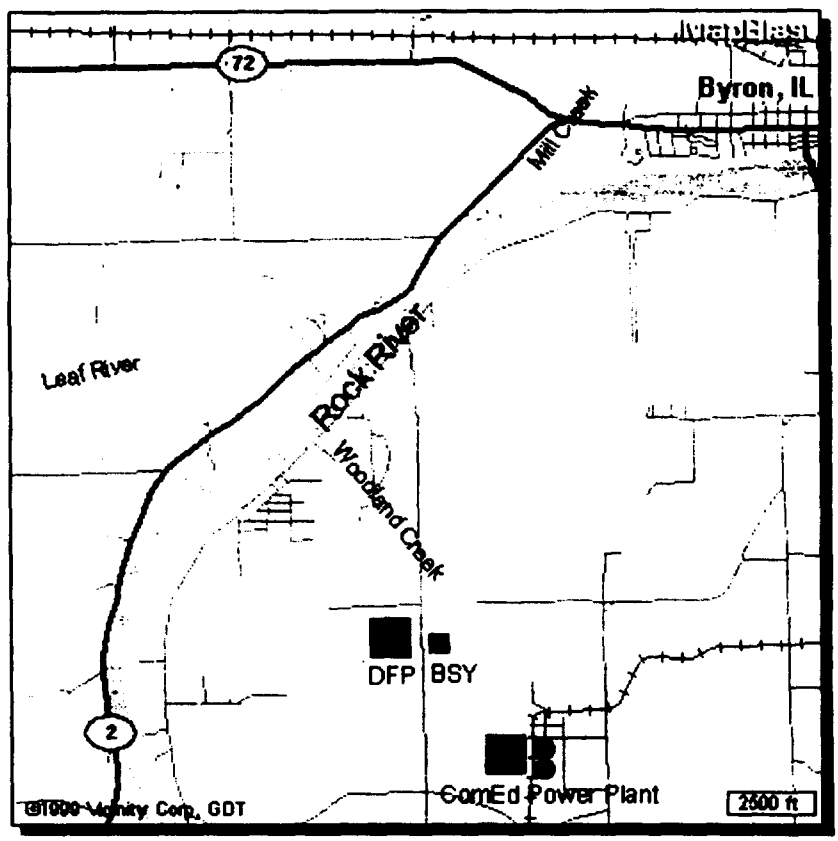

Figure 1

The property adjacent to the northeast boundary of the BSY is Motorsport Park used for motorcycle riding. Commonwealth Edison Company (ComEd) owns the properties immediately north and southeast of the BSY. ComEd also owns the DFP to the west of the BSY. These properties are used by ComEd for its Byron Nuclear Power Generating Facility and support infrastructure. A residential landowner lives immediately to the south of the BSY. Nearby parcels are also owned by ComEd which include 80 acres north of the BSY leased to the Byron Forest Preserve District. The current land uses are expected to be generally the same for the future. These current and future land uses were used in estimating risks associated with the contaminants found on-site.

The site is located on the upland portion of the Rock River Valley and partially at the heads of several intermittent streams. The upland areas consist of broad, relatively flat

plains. The side slopes of the upland areas are dominated by bedrock erosional features, which have been modified by glaciation. The area in the immediate vicinity of the Rock River is characterized by moderate relief due to steeply incised stream and river valleys.

The site has been divided into four operable units. Operable Unit #1 was conducted to limit site access and provide residences with bottled water. Operable Unit #2 provided additional residences with bottled water and then carbon filters to affected or potentially affected residences. Operable Unit #3 involved concurrence with the Illinois Environmental Protection Agency's decision to provide a municipal water supply to the affected residences and the extension of the municipal water line to additional residences. Operable Unit #4 addresses the final soil and groundwater action selected for the site. The Operable Unit #4 ROD addressing contaminated soils was signed in September 1998. This Operable Unit #4 ROD addresses the groundwater component of the Operable Unit #4 Remedial Action for the site.

All site investigations to date have been conducted by either the Illinois EPA or U.S. EPA.

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

Site History

In the 1960s, the BSY was operated as a junk yard where miscellaneous waste and debris were brought for disposal. The disposal practices continued until about 1972. Drums of electroplating wastes and other materials (oil sludges, paint sludges, cutting wheels, solvents, and scrap metal) were disposed of at the BSY. Industrial wastes were reportedly dumped directly on the ground at times of heavy rainfall, and the waste would be carried off the BSY by the resulting surface water runoff.

The contents of the drums found on the BSY were handled in a variety of ways: wastes were pumped out by an oil/chemical salvage company and taken offsite; dumped on the ground in the vicinity of the ravines draining to the north; sprayed on nearby dirt roads and onsite for dust control; or left in drums, some of which later corroded, allowing their contents to leak out.

Similar dumping practices were also carried out during this time at the DFP. There were four primary disposal areas on the DFP, referred to as the North, South, East, and West Disposal Areas, located 300 to 1,200 feet west of Razorville Road. Five other smaller disposal areas on the DFP were also identified.

The discovery of these dumping practices prompted a series of regulatory actions that culminated in the Site being placed on the National Priorities Listing (NPL) in 1982.

Various site investigation and remediation activities have been carried out at both the BSY and the DFP properties since contamination was documented.

Enforcement Activities

Beginning in 1970, the State of Illinois began inspections of the BSY. In the course of the inspections, State inspectors noted that open dumping activities were being regularly conducted. The State continued its inspections and, beginning in 1972, began sampling and monitoring programs to determine whether possible contamination of BSY posed a risk to the local community.

In 1972, following the report of a red discharge into Woodland Creek, located adjacent to the BSY, the State conducted investigations and concluded that hazardous substances were disposed of on the BSY. Contamination was found in the BSY soils, the runoff from the BSY, and groundwater beneath the BSY. Cyanide was detected in nearby private wells. Following a series of inspections and reports, Mr. Johnson closed the salvage operation in 1973 and buried some of the drums. In 1974, the State brought an action before the Illinois Pollution Control Board against the then-current owners, Wilford and Norma Johnson, alleging open dumping and landfill operation violations.

In 1975, Dames and Moore was retained by ComEd to investigate contamination at the DFP after cattle were killed from drinking cyanide-contaminated water. The findings of the study revealed four waste disposal areas on the DFP and the dumping of liquid wastes into the gullies draining to Woodland Creek. Cyanide and heavy metals were detected in DFP soils, soils in the gullies, and groundwater. Cleanup measures at the DFP were then initiated by ComEd, and included drum removal, removal of contaminated soils in the North Disposal Area, and treatment of cyanide-contaminated soils in the remaining three disposal areas with sodium hypochlorite.

In December 1982, the Byron Superfund Site was placed on the National Priorities List (NPL) by U.S. EPA. In April 1983, IEPA and U.S. EPA entered into a Cooperative Agreement for the IEPA to conduct a State-lead RI/FS of the contamination at BSY. In May 1983, IEPA contracted with D'Appolonia Waste Management Services to conduct the RI/FS. D'Appolonia's work was completed in 1984. The RI conducted by D'Appolonia indicated that 504 surface drums were present at the BSY, and estimated that there were approximately 11,400 buried drums present; some still containing liquid or solid contents. Sampling conducted during the RI confirmed the presence of hazardous substances at the BSY, including the following: lead, arsenic, cyanide, halogenated organics, zinc, nickel and low level PCBs. At that time, it was estimated that at least 3600 cubic yards of soil at the BSY had become contaminated from releases of hazardous substances from drums or open dumping at the BSY. A final RI report was submitted by D'Appolonia to IEPA in June 1984.

In the FS, D'Appolonia considered six alternatives for possible remedial action to address the sources of the drums and soil contamination at the BSY. A final FS report was submitted to IEPA, recommending that an Interim Remedial Action be accomplished by means of off-site disposal of wastes and contaminated soils.

In July 1984, under an emergency action, the U.S. EPA began supplying bottled water to residents along Razorville Road and Acorn Road whose private water supplies indicated actual or probable trichloroethylene contamination. The residents receiving bottled water were also supplied carbon adsorption treatment units in April 1986.

In late 1984, U.S. EPA issued a work assignment for the execution of additional RI/FS activities specifically designed to supplement the IEPA RI/FS and to further investigate groundwater contamination emanating from the BSY. In September 1985, the RI/FS for the BSY was expanded to include a Phased FS (PFS) for investigation of residential well contamination in the Rock River Terrace subdivision. The PFS was initiated after U.S. EPA, IEPA, and IDPH sampling of Rock River Terrace water wells showed VOC contamination. The objective of this study was to investigate the potential health threat due to exposure to the contaminated water supply and to evaluate alternative water supply and treatment options that would ensure a safe water supply to Rock River Terrace residents. Also during 1985, U.S. EPA erected a fence along the BSY perimeter and posted warning signs.

In April 1985, U.S. EPA initiated an Emergency Action for the installation of carbon adsorption treatment units for residences along Acorn Road and Razorville Road that were currently receiving bottled water. The carbon units, called whole house treatment units, treated the entire household water supply. In June 1986, the Rock River Terrace PFS report was released for public comment. The study recommended that whole house carbon treatment units similar to those installed at the Acorn Road residences be installed in all affected residences in the Rock River Terrace Subdivision.

On July 14, 1986, IEPA selected an Interim Remedial Action (IRA) for the BSY which included the excavation of soils and buried drums, off-site disposal of wastes and contaminated soils to threshold levels, incineration of certain liquid wastes, in-situ treatment of cyanide contaminated soils, regrading of the site, capping of remaining contaminated areas with a clay cap, and plans for restrictions on future use of the site. IEPA's IRA ROD determined that off-site disposal should be accomplished at a properly lined, RCRA compliant hazardous waste landfill. Between October 1986 and January 1987, IEPA conducted cleanup and removal actions at the BSY. Activities included excavation of buried drums; removal of surface drums; removal of soils contaminated with heavy metals and VOCs; removal of soils with cyanide concentrations greater than 100 ppm; in situ treatment of soils with cyanide contamination less than 100 ppm; removal of miscellaneous debris; and, backfilling and regrading for erosion control.

Also in July 1986, the IEPA signed a Record of Decision (ROD) for the design and construction of a water line to distribute potable water from the city of Byron municipal

water supply to residences in Rock River Terrace and along Acorn and Razorville Roads.

In September 1986, the U.S. EPA issued a Record of Decision based on the Phased Feasibility Study that called for the installation of carbon-filter units in residences. The remedy was not implemented due to the construction of the municipal water line.

In February 1987, the U.S. EPA and United States Geological Service conducted aquifer pump tests on two aquifers (Galena-Platteville Dolomite and St. Peter Sandstone) underlying the Site. Simultaneously, the U.S. EPA Environmental Response Team (ERT) implemented a transportable water treatment system as a pilot program to cleanup the effluent generated from the pump tests.

In September through December 1987, Phase II RI field activities were conducted on and around the BSY to evaluate the IEPA cleanup effort at the BSY, determine if any exposure potential remains at the BSY, acquire additional information needed to verify Phase I RI data and determine the nature and extent of contamination on the DFP.

In August 1988, U.S. EPA published a two phase RI. The first phase summarized site conditions on the BSY. The second phase was added to incorporate the DFP site characterization results into the Phase I RI. The second phase concluded that contamination was present at the DFP; however, the exact nature and extent of soil contamination and groundwater contamination and offsite migration potential were not clear, and further study was recommended.

In June 1989, the U.S. EPA signed a ROD concurring with and providing for the extension of the IEPA-funded Rock River Terrace subdivision water supply system to provide additional residents with a supply of drinkable, uncontaminated water. U.S. EPA, however, determined that a number of unanswered questions remained concerning the nature and extent of contamination. Another RI was initiated to: 1) fully delineate the nature and extent of contamination at the DFP; 2) identify and evaluate potential rates of contaminant migration; and, 3) assess the risk posed to human health and the environment from the site.

This RI was completed in 1994. In September 1994, the U.S. EPA initiated an FS to determine available options for remediating the DFP portion of the site and to select the final remedial action for the entire site. The FS was completed in February 1997.

In September 1998, the U.S. EPA signed the Operable Unit #4 ROD addressing contaminated soil on the BSY and DFP. The major components of the ROD included:

1) Soil cover consisting of a rooting zone layer spread over the metal-contaminated soil areas.
2) Surface control technologies such as grading and revegetation.
3) Institutional controls such as access and deed restrictions.
4) Soil excavation for the VOC-contaminated soils.
5) Disposal and transport of the VOC-contaminated soils to a Subtitle D landfill.
6) Removal and disposal of three drums of waste from property adjacent to the

Byron Salvage Yard.

7) Removal of the fence at the Byron Salvage Yard property after completion of soil cover and implementation of the institutional controls (Items 1, 2, and 3 from above) and installation of a fence near Meyer's Pond.

C. COMMUNITY PARTICIPATION

All pertinent documents relating to the site are in information repositories established at the following locations: Byron Municipal Library, 109 N. Franklin St., Byron, Illinois 61010; Ogle County Health Department, 104 South 5th St., Oregon, Illinois 61061; and U.S. EPA Records Center, 77 W. Jackson Blvd., Chicago, Illinois 60604.

Over the years, numerous fact sheets have been developed, notices issued, public meetings held, and public comment periods conducted to inform and solicit feedback from the community. In addition, U.S. EPA representatives have participated in local school functions to educate students of the threats and problems with the site.

A Proposed Plan was issued in August 1999 to inform the community of the proposed groundwater remedy for the site. The community was informed of a public comment period that was going to be initiated and offered them the opportunity to attend a public meeting via placement of advertisements in the Rockford Register Star on August 11, 1999 and the Ogle County Life on August 16, 1999. The public comment period was initiated on August 23, 1999. On August 25, 1999, a public meeting was held at the Byron High School to explain the proposed remedy, answer questions and receive public comments. A request for a public comment period extension was received and granted. The public comment period ended on October 23, 1999.

A summary of public comments and U.S. EPA's responses, as they relate to the groundwater component of the final remedial action, are provided in the attached responsiveness summary in Appendix D.

D. SCOPE AND ROLE OF OPERABLE UNIT #04

This Record of Decision is the fifth ROD for the Byron Superfund Site. This Operable Unit #4 ROD addresses contaminated groundwater. The remedial action objectives for the groundwater are to prevent ingestion of the contaminated groundwater by residential users and prevent groundwater contaminant concentrations at Meyers Spring and the Rock River greater than the Alternative Concentration Limits established via the June 30, 1989 ROD.

Implementation of this groundwater ROD will be through remedial authorities.

E. SITE CHARACTERISTICS

Site Overview

The Site encompasses approximately 200 acres and is about 3 miles southwest of the corporate limits of the City of Byron, IL, and about 5 miles northeast of the corporate limits of the City of Oregon, IL. The property adjacent to the northeast boundary of the Site is Motorsport Park used for motorcycle riding. The property adjacent to the southern boundary is privately owned. Commonwealth Edison Company owns the properties north and southeast of the Site. There are no known areas of archaeological or historical importance.

Site Geology

The Site is located on an upland, on side slopes of incised erosional ravines or valleys within the Rock River Hill Country subsection of the Till Plains section, Central Lowland Province. The subsection, like the Site, is characterized by a mantle of unconsolidated deposits, primarily glacial till, overlying an irregular bedrock surface. The unconsolidated material at the Site ranges in thickness from 4 to 33 feet, and is usually around 15 feet thick. At the Site, the unconsolidated material consists of either silt and clay or sand and gravel. In general, the unconsolidated material in borings located near Razorville Road consist of silt and clay. The unconsolidated deposits 400 feet or more east or west of Razorville Road consist of sand and gravel. Near the Rock River, the unconsolidated materials increase in thickness to an unknown depth and consist of alluvial sands and gravels.

Based on boring logs from the 1994 U.S. EPA RI and previous investigations, the bedrock underlying the Site consists of the Galena and Platteville Groups (dolomite), which overlie the St. Peter Sandstone. The dolomite bedrock is characterized by fractures, joints, and faults, typical of many carbonate rock systems. The bedrock surface has been eroded and is characterized by steep slopes and an irregular surface. Beneath the Site, the dolomites are about 200 feet thick. Near the river the dolomites pinch out to a thickness of less than 20 feet. The base of the channel of the Rock River appears to be on the St. Peter Sandstone, and the dolomites appear to have been eroded.

Site Hydrogeology

The unconsolidated material at the Site is unsaturated, but it is saturated along the Rock River and in several valleys to the north, northeast, and the west of the site. In the dolomite bedrock, water was encountered about 15 to 80 feet below land surface on the uplands. The configuration of the water table in the dolomite mirrors the topography, and groundwater flow directions are from the Site to the north, northwest, west and southwest. Flow from the site appears to discharge to at least two springs, Benesh Spring, located about 5,000 feet southwest of the Site, and Meyers Spring located about 3,000 feet north of the Site (400 feet south of Acorn Road).

Groundwater flow is also along large fracture or fault zones in the dolomite bedrock. It appears that two directions of preferential groundwater flow and contaminant migration in the dolomite aquifer exist. The primary flow pathway is from the Site to the northwest, and a second, less significant flow path from the Site to the west-southwest. Flow velocities in the dolomite bedrock vary from less than 0.1 foot per day to about 4,000 feet per day. These variations are typical of fractured bedrock; poorly developed fractures exhibit lower velocity whereas well developed fractures exhibit higher flow velocities.

Nature and Extent of Contamination

The purpose of the RI was to define the nature and extent of contamination at the site and to describe the extent of the threat that contaminants pose to human health and the environment. The purpose of the FS was to develop a set of alternatives for addressing the contamination problems at the site.

A detailed description of the nature and extent of soil contamination on the BSY and DFP can be found in the Operable Unit #4 Soil ROD issued in September 1998. This can be found in the Administrative Record.

The monitoring and residential well sampling results were used to evaluate the nature and extent of groundwater contamination. Figure 2-1 shows the location of the monitoring wells which were used to evaluate the nature and extent of groundwater contamination. This involved the evaluation of the most recent data and historical trends at the sampling locations. The most comprehensive sampling efforts for monitoring wells were conducted in late 1991 and early 1992, although other events were conducted in fall 1998, spring 1991, spring 1989, winter 1988, late summer and early fall 1987, spring 1986, and fall 1985. Residential well samples have been periodically collected since 1985. A summary of that evaluation is described below.

*Multivalent cation metals (iron, manganese, chromium, bromine, calcium, magnesium, aluminum) were elevated throughout much of the site based on 1991 sampling results. However, these elevated concentrations may be due to groundwater turbidity.

*Based on the 1994 U.S. EPA RI data, cyanide is present in low-level concentrations along the northeast corner of the BSY (B-3), in known disposal areas (AW-6 and AW-2), the central portion of the BSY and also in the DFP (DF-2, DF-19, PC-5B). At these locations, the cyanide concentrations are decreasing with time.

*Benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in groundwater on the Site. Elevated BTEX concentrations were found in the following wells: AW-6, PC-3B, DF-6, and DF-1S, indicating a BTEX plume extending from central BSY to the southeast.

*Elevated levels of PCE, TCE, and their degradation products as well as 1,1,1-TCA and chloroform were detected throughout the onsite and offsite downgradient sampling locations.

*Analytical data from PW-3, 6W-42, MW-20R, MW-41, residential properties along Acorn Road, and Meyers Spring indicate that chlorinated contamination has migrated downgradient from the source area on the BSY offsite to the northwest beneath Acorn Road to Meyers Spring and the Rock River Terrace subdivision. The majority of samples with elevated chlorinated concentrations are located in the dolomite bedrock.

Groundwater

Table 1 shows the contaminants of concern in groundwater, the MCL for each contaminant, and the most recent data taken in June and July 1999.

Groundwater Contaminants of Concern (ug/L)

		Northwest Plume				Southwest Plume	
Chemical	MCLs	Byron Salvage Yard	Acorn Road Area	Rock River Terrace Area	Meyers Spring Area	Dirk's Farm	Equestrian Drive/ Old Wagon Road Areas
Benzene	5	ND	ND	0.3 J	ND	41	ND
1,2 - Dichloroethene	100	***540***	ND	ND	ND	ND	ND
1,2 - Dichloroethane	5	0.7 J	ND	0.5 J	0.6 J	0.7 J	0.4J
Tetrachloroethene	5	3	2 J	***7***	ND	***8*** J	ND
1,1,1 - Trichloroethane	200	3 J	2 J	ND	ND	7 J	0.8 J
Trichloroethene	5	***190***	***100***	0.3 J	***8***	***150*** J	0.5 J
Chloroform	100	0.6 J	ND	ND	ND	0.9 J	2
Vinyl Chloride	2	ND	ND	ND	ND	***3*** J	ND
Cyanide	200	***448***	NS	NS	19.2	138	NS

Table 1
J - estimated value NS - not sampled ND - not detected ***Bold/Italics*** - exceeds MCL

Figure 2, on the following page, shows the approximate boundaries of the northwest and southwest groundwater contamination plumes.

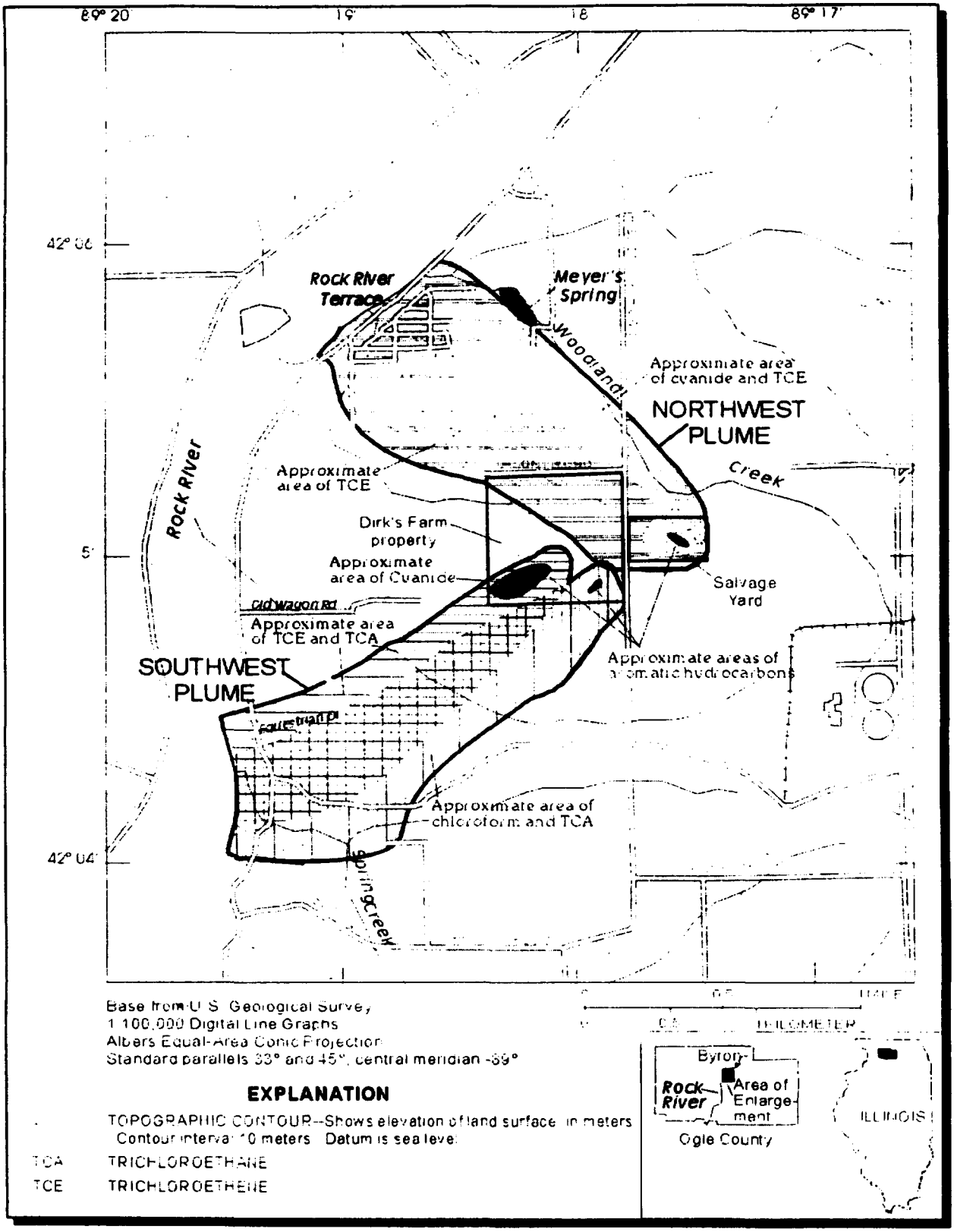
89° 20
19
18
89° 17
42° 06
42° 04
Rock River Terrace
Meyer's Spring
Woodland
Approximate area of cyanide and TCE
NORTHWEST PLUME
Rock River
Approximate area of TCE
Creek
Dirk's Farm property
Approximate area of Cyanide
Salvage Yard
Old Wagon Rd
Approximate area of TCE and TCA
SOUTHWEST PLUME
Approximate areas of aromatic hydrocarbons
Approximate area of chloroform and TCA
Spring creek
Base from U S Geological Survey,
1:100,000 Digital Line Graphs
Albers Equal-Area Conic Projection
Standard parallels 33° and 45°, central meridian -89°
EXPLANATION
TOPOGRAPHIC CONTOUR--Shows elevation of land surface in meters
Contour interval 10 meters Datum is sea level
TCA TRICHLOROETHANE
TCE TRICHLOROETHENE
Byron
Rock River
Area of Enlargement
Ogle County
ILLINOIS

Figure 2

Surface Water

Surface water on the Salvage Yard or Dirk's Farm were sampled during six separate events (April 1975, July 1985, April 1986, September 1987, May 1991, and October 1991). The April 1975 event focused on onsite areas where surface water had ponded. High concentrations of cyanide were detected in these samples; however, due to the remedial actions taken by the IEPA to control site runoff, ponding no longer occurs, and cyanide contaminated surface water on the Site is no longer a problem.

COC levels at Meyer's Spring Pond are generally trending downward from their highs in the late 1980's. However, seasonal changes seem to cause infrequent exceedances of the alternate concentration limit established as part of the 1989 ROD.

Tables 2 shows the contaminants of concern at Meyer's Spring Pond. Table 3, on the next page, shows the Alternative Concentration Limits established for Meyer's Spring and the Rock River via the 1989 ROD.

Meyer's Spring Pond Surface Water Sampling Results

	Contaminant of Concern (ug/L)		
	Trichloroethene	1,2 Dichloroethene	Cyanide
October 1987	50	6	32
August 1988	NS	NS	24
November 1989*	***52***	***ND***	***18.7***
April 1990	33	ND	19.5
August 1990	34	1.0	NS
September 1990	40	ND	NS
March 1992	28	ND	21.8
October 1998	28	0.9*	NS
April 1999	8.5 J	ND	1.1
June 1999	58	1 J	9.4

Notes: NS - not sampled ND - not detected J - estimated value

1989 ROD established Alternate Concentration Limits

Table 2

Sediment

Sediment samples were collected at the Site in June 1974, April 1975, June 1985, August 1988, April 1989 and April 1999.

Samples collected in June 1974 and April 1975 were analyzed for cyanide only and were collected from the West Ravine that flows from the East and West Disposal Areas on the DFP west to the Rock River. The concentrations of cyanide in these samples

ranged from below detection limits to 4 mg/kg. The highest concentration of cyanide was detected in the sample collected near the confluence of smaller ravines that feed the West Ravine (located near the southwest corner of the DFP).

Alternative Concentration Limits (ACLs) for Volatile Organic Compounds and Cyanide for Groundwater

	Contaminant (parts per million)			
Point of Compliance	Trichloroethene (TCE)	Tetrachloroethene (PCE)	1,2-Dichloroethene (1,2-DCEA)	Cyanide
Meyer's Spring	52	< 5	2	18.7
Rock River	< 5	< 5	< 5	< 10
	1,1,1-Trichloroethane (1,1,1-TCEA)	1,1-Dichloroethene (1,1-DCEE)	1,2-Dichloroethane (1,2-DCEA)	Chloroform
Meyer's Spring	< 5	< 5	< 5	< 5
Rock River	< 5	< 5	< 5	< 5
	Toluene	Methylene chloride		
Meyer's Spring	< 5	< 5		
Rock River	< 5	< 5		

Table 3

Samples collected in October 1991 and April 1999 were analyzed for cyanide at four locations at Meyer's Spring Pond. Cyanide concentrations ranged from 22 to 24 ppm in October 1991 and were not detected in April 1999. TCE concentrations ranged from 10 to 19 ppm in October 1991 while all TCE concentrations in April 1999 were 4 ppm.

F. Current and Potential Future Site and Resource Uses

Land Uses

The Dirks Farm property is used for agricultural purposes and provides a right of way for Commonwealth Edison power lines. The BSY property is sometimes accessed for hunting but has no specific current uses. Land use surrounding the site is agricultural, industrial and residential. Residential land use is located downgradient and transgradient of the Site. Commonwealth Edison is located upgradient of the site. Developmental trends near the site indicates that future land use is expected to remain the same after implementation of the selected remedy.

Groundwater Uses

Most residences affected by the northwest groundwater plume coming from the salvage yard were hooked to the municipal water supply and their private well abandoned when the line was extended in 1989. However, some residents in the Rock River Terrace subdivision refused to be hooked up. Residents not hooked up during the earlier actions or residents with contaminated wells showing levels greater than MCLs will be given one more opportunity to hook up to the municipal water supply. In addition, any other affected property owners with residences on properties affected by the northwest plume at the time of signing this ROD will be hooked up.

There is also a plume of groundwater moving southwest from the Dirks Farm property affecting a small number of residents. However, contaminant levels from this plume remain an order of magnitude less than MCLs and do not constitute a health threat. Groundwater in this area will be monitored to track contaminant levels. However, since contaminant levels have remained substantially below MCLs and have remained fairly steady over time, it is not expected that these residents will have to be hooked up to the municipal water supply in the future.

A few residences, along Razorville Road, were allowed to keep their private wells for livestock purposes.

G. SUMMARY OF SITE RISKS

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer during his/her life-time as a result of exposure to the carcinogen. Excess life-time cancer risk is calculated from the following equation:

$$\text{Risk} = \text{CDI} \times \text{SF}$$

where:

risk = a unit less probability (e.g., 2 x 10-5) of an individual developing cancer
CDI = chronic daily intake averaged over 70 years (mg/kg-day)
SF = slope factor, expressed as (mg/kg-day)-1.

These risks are probabilities that usually are expressed in scientific notation (e.g., 1 x 10^{-6}). An excess lifetime cancer risk of 1 x 10^{-6} indicates that an individual experiencing the reasonable maximum exposure estimate has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other cancer causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site related exposures is 10^{-4} to 10^{-6}.

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., life-time) with a reference dose (RfD) derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effects. The ratio of exposure to toxicity is called a hazard quotient (HQ). A HQ<1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic noncarcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all chemical(s) of concern that affect the same target organ (e.g., liver) within a medium or across all media to which a given population may reasonably be exposed. A HQ<1 indicates that, based on the sum of all HQs from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely. A HI>1 indicates that site-related exposures may present a risk to human health.

The HQ is calculated as follows:

$$\text{Non-cancer HQ} = \text{CDI} / \text{RfD}$$

where:

CDI = Chronic daily intake
RfD - reference dose

CDI and RfD are expressed in the same units and represent the same exposure period.

Human Health Risks

Risk assessments were performed by U.S. EPA in 1988 and 1994. The 1988 risk assessment evaluated contamination associated with the salvage yard property, while the 1994 risk assessment evaluated contamination associated with the Dirk's Farm property. These risk assessments show, as to groundwater, that an elevated or possibly an unacceptable risk occurs under current land use scenarios only for trespassers who are exposed to onsite contamination or live at a home with contaminated groundwater, dependent on the well location. An unacceptable risk occurs for those residents who would consume contaminated groundwater pumped from within the boundaries of the northwest plume.

Under future land use scenarios, residents and construction workers could be exposed to contaminants that pose an unacceptable health risk.

A summary of the risk assessment information is provided in Table 4. For details on risks to human health from the Site, see Appendix A or the 1988 RI Report and 1994 RI Report/Baseline Risk Assessment in the Administrative Record.

The 1988 risk assessment focused on the Byron Salvage Yard property. Based on the 1988 risk assessment, ingestion of contaminated groundwater poses an unacceptable health risk. 1,1-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride are the principal contaminants driving risk for Acorn Road Residents. These contaminants pose health risks associated with the kidneys, liver, and lungs. 1,1-dichloroethene, tetrachloroethene and trichloroethene are the principal contaminants driving risk for Rock River Terrace Residents.

The 1994 risk assessment focused on Dirk's Farm property. Based on the 1994 risk assessment, increased levels of some contaminants have been detected in the private wells of residents living near the site. These residents are exposed via ingestion of the contaminated water, dermal contact with the water, and inhalation of volatiles from the water.

Human Health Risks Due to Ingestion of Contaminated Groundwater

RI Risk Assessment Results

	Acorn Road Residents	Rock River Terrace Residents
Total Excess Cancer Risk		
Mean Concentration	2×10^{-3}	8×10^{-6}
Maximum Concentration	7×10^{-3}	2×10^{-5}
Hazard Index for Non-Carcinogenic Health Effects		
Mean Concentration	< 1	< 1
Maximum Concentration	> 1	< 1

Table 4

Ecological Risks

An ecological assessment, as it relates to groundwater, was also performed for the site. The purpose of the assessment was to identify chemicals of potential ecological concern posed by the site and evaluate the risk to ecosystems posed by these contaminants. Risks to aquatic organisms, terrestrial animals, and terrestrial vegetation were evaluated as part of this assessment.

Ambient Water Quality Criteria (AWQC), produced by the U.S. EPA, are contaminant criteria designed for the protection of aquatic life. They are expressed as acute values (values not to be exceeded over the short term) and chronic values (not to be exceeded for a longer term). The AWQC are non-regulatory guidelines.

Table 5 shows the maximum detected contaminant concentrations in Meyer's Spring Pond to applicable State Water Quality Standards or U.S. EPA Ambient Water Quality Criteria. Trichloroethene, 1,2-dichloroethene and cyanide are the only site-related contaminants detected in the pond. Although criteria or standards have not been

developed for trichloroethene and 1,2-dichloroethene, their detected concentrations are several orders of magnitude below a lowest observable effect level reported in the literature. The maximum detected concentration of cyanide exceeds both the acute and chronic State Water Quality Standards.

Sampling conducted at Meyer's Spring Pond in August 1988 showed cyanide contamination in surface water ranging from 14 ppb to 24 ppb. Sampling conducted, ten years later, in April 1999 showed a cyanide concentration of 1.1 ppb. Because the April 1999 cyanide levels where so much lower than levels previously seen at the spring, a cyanide sample was taken again in June 1999, which showed a concentration of 9.4 ppb. These levels remain significantly below the ACL of 18.7 ppb and are below the State of Illinois Acute Water Quality Standard. Seasonal fluctuations of cyanide levels have exceeded State of Illinois Chronic Water Quality Standards but the overall trend is downward.

During risk characterization activities in 1994, no adverse effects were observed in Meyer's Spring, but because cyanide levels were elevated, aquatic toxicity tests were conducted. Aquatic toxicity tests with the fathead minnow indicated no significant differences between control samples and test concentration from samples in Meyer's Spring. Based on the negative results of the aquatic toxicity testing conducted, ecological risk from cyanide present in Meyer's Spring Pond is minimal or non-existent.

Comparison of Contaminant Concentrations in Meyer's Spring Pond with Illinois State Water Quality Standards (WQS) and Ambient Water Quality Criteria (AWQC)

		WQS or AWQC	
Contaminant	Maximum Detected Conc. in Pond	Acute	Chronic
Trichloroethene	58	45,000 *	21,900 *
1,2-Dichloroethene	2 (estimated value)	118,000 *	20,000 *
Cyanide	26	22 **	5.2 **

* No WQS or AWQC exist due to insufficient data. Value given is Lowest Observed Effect Level

** Illinois State WQS

Table 5

H. REMEDIATION OBJECTIVES

The remedial action objectives of ground water are:

- prevent ingestion by residential users of ground water containing contaminants at concentrations that:

  - exceed MCLs;
  - pose a total cancer risk greater than 1×10^{-6}
  - have a hazard index greater than 1, and
  - exceed IEPA Class 1 Ground water values

- Prevent release of ground water contaminants to Woodland Creek, Meyers Spring, Benesh Spring, Benesh Quarry, and the Rock River at concentrations that would cause surface water criteria to be exceeded.

The 1989 ROD, which extended the existing municipal water line to additional residences also developed ACLs for the northwest plume coming from the BSY. By furnishing those residents a clean water supply, MCLs for contaminants in water established pursuant to the Safe Drinking Water Act were not exceeded at the tap for those residents. In lieu of MCLs for the ground water, the U.S. EPA established ACLs for groundwater as defined by CERCLA Section 121(d)(2)(B)(ii) and RCRA since:

- There are known or projected points of entry of such groundwater into surface water; (Meyer's Spring and the Rock River)

- On the basis of measurements or projections, there is or will be no statistically significant increase in such constituents from ground water to surface water at the point of entry or at any point where there is reason to believe accumulation of constituents may occur downstream; and

- The remedial action will include enforceable measures that will preclude human exposure to the contaminated groundwater at any point between the site boundary and all known and projected points of entry of ground water to surface water.

These circumstances present in the 1989 remain true today.

Ground water data obtained during the investigations between 1990 and 1998, indicate that Dense Non-Aqueous Phase Liquids (DNAPLs), which are highly concentrated liquid sources which are hard to extract, exist under the BSY. The existence of DNAPLs on site will significantly extend the period of time for ground water in the BSY area to reach drinking water standards through natural processes or other active remediation methods.

According to the NCP, Superfund remedies are expected to "... return usable ground waters to their beneficial uses wherever practicable, within a time frame that is reasonable given the particular circumstances of the site. Ground water modeling was performed, in 1999 to determine the effectiveness of various extraction and treatment options. The results of the modeling show that even with the most aggressive remediation methods, health based drinking water standards could not be attained at the site within a reasonable time period, and more likely greater than 100 years, due to the presence of DNAPL in this area and the fractured bedrock geology.

Because of the availability of a municipal water supply, the proximity of a river to which the contaminated aquifers discharge without significant impact, no statistically significant increase in constituents from ground water to surface water, and the availability of enforceable measures that will preclude human exposure to the contaminated groundwater at any point between the site boundary and all known and projected points of entry of ground water to surface water, it is determined that, in this particular case, the ACLs established in 1989 remain appropriate remediation objectives for this site.

However, the existence of DNAPLs on site will extend the period of time for ground water in the area to reach drinking water standards through natural processes. Because of this, the existing municipal water supply line from the City of Byron was examined in terms of long-term reliability. In evaluating and selecting remedial alternatives, EPA must select alternatives that address reasonable scenarios in the future. The 1989 ROD which extended the City of Byron waterline was a temporary remedy. With this Record of Decision, EPA is selecting a permanent remedial alternative for the affected residences. The permanent remedial alternative requires that these residences have an independent uncontaminated and uninterrupted drinking water supply. Using the existing line would not provide this guarantee. In addition, the municipal waterline providing the affected residents with drinking water runs under the Rock River with little or no protection from the corrosive forces of the river water. A waterline break under the river could not be repaired easily or quickly, subjecting the affected residents to no drinking water for an extended period of time.

Therefore, using standard engineering practices for a water supply system, it was determined that a new well on the eastern side of the river was needed to provide a long-term drinking water supply to the affected residents. This new well would act as the primary drinking water source with the existing City of Byron wells and river crossing acting as the back up when the new well is down for maintenance.

I. DESCRIPTION OF ALTERNATIVES

The FS Addendum, dated August 18, 1999, identified and evaluated municipal water supply and groundwater alternatives that could be used to remediate threats and/or potential threats posed by the site to human health and the environment.

The FS Addendum developed and evaluated six alternatives. The FS Addendum erroneously omitted a No Further Action alternative for the water supply. It is being added in this ROD.

- **Permanent Water Supply Alternative 1 - No Further Action**
- **Permanent Water Supply Alternative 2 - New Well, Booster Station, No River Crossing**
- **Permanent Water Supply Alternative 3 - New Well, Booster Station, Under River Crossing**
- **Permanent Water Supply Alternative 4 - New Well, Booster Station, Railroad Bridge River Crossing**
- **Groundwater Alternative 1 - No Further Action**
- **Groundwater Alternative 2 - Groundwater Monitoring and Institutional Controls**
- **Groundwater Alternative 3 - Monitored Natural Attenuation and Institutional Controls**

The original FS also set forth several groundwater alternatives.

Water Supply Alternatives

Due to the levels of contamination and risk associated with drinking contaminated groundwater, three water supply alternatives were developed to address the remedial objectives of:

- development of a water supply system for long-term operation using standard engineering practice for supplying a dependable water supply, and
- connecting the remaining residents in the Rock Terrace subdivision.

Common Elements and Distinguishing Features of All Water Supply Alternatives

The development of a permanent water supply included elements common to all three alternatives as follows:

- Installation of water supply well. The well would be located within or near the Byron Forest Preserve District property on the southern side of the Rock River. The capacity would be 750 to 800 gallons per minute (gpm), similar to the most recently installed city well. The well could provide water to the City so that the pressure downtown would be approximately 60 pound per square inch (psi). The source

water, which is the same as the other Byron wells, would be the St. Petersburg formation roughly 1,000 feet below ground. Installation of the well would include an access road, wellhouse, electronic controls, telemetering, a well pump, and two chemical feed systems for chlorine and fluoride. It is assumed that the City of Byron can reach an agreement with the Byron Forest Preserve for a free well site.

- Relocation of the Rock River Booster Station. The booster station would be relocated to the eastern side of the Rock River, along River Road. The current booster station includes a chemical feed system to increase disinfectant residual in the water distribution system. A similar system would be installed in the relocated booster station. Land acquisition for the new booster station site is assumed to be possible and available at little cost.

- Piping to Connect New Well with Existing System. Construct additional 12-inch ductile iron pipe to connect the new well to the existing water system. The pipes are assumed to be installed roughly 6 feet below ground. Fire hydrants and valves are included in the new system using standard engineering design practice.

- The existing City of Byron municipal wells and river crossing will act as a backup when the new well is down for maintenance or repair.

- Connection of Five Residents to Water System. The five Rock River Terrace residents not previously connected would be connected to the water system.

- Well Siting Study. All three alternatives would require a well siting study, which typically includes a literature review of local well construction, study and comparison of City well data, and review of United States Geological Survey (USGS) aquifer data.

Permanent Water Supply Alternative 1 – No Further Action

Estimated Cost: $0
Estimated Time to Construct: 0 months

The no-action alternative is required per the NCP. Its purpose is to allow comparison of alternatives to the conditions that currently exist and that will likely exist in the future. Under this alternative, no actions to the existing municipal water supply would be undertaken to protect public health and the environment.

Permanent Water Supply Alternative 2 -- New Well, Booster Station, No River Crossing

Water Supply Alternative 2 contains all the components detailed under "Elements Common to All Alternatives," as well as the following:

Estimated Capital Cost: $1,835,400
Annual O & M Cost: $92,600
Present Value of O&M: $1,149,100
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $2,984,500
Estimated Time to Construct: 18 months

The installation of approximately 5,400 feet of 12-inch pipe, eight valves and seven hydrants. Of that total, 5,300 feet would be constructed with grassed surface restoration and 100 feet would be with pavement surface restoration. There is no additional river crossing in this alternative. Water would be provided to the Rock River Terrace residents either directly from the new well or from the City of Byron when the new well is down for maintenance or repair.

Permanent Water Supply Alternative 3 – New Well, Booster Station, Under River Crossing

Water Supply Alternative 3 contains all the components detailed under "Elements Common to All Alternatives" as well as the following:

Estimated Capital Cost: $2,779,300
Annual O & M Cost: $98,000
Present Value of O&M: $1,216,100
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $3,995,400
Estimated Time to Construct: 18 months

Extend the transmission main discussed in Alternative 2 to include a river crossing. The river crossing is to be laid at the bottom of the river. The construction technology would consist of a barge dredging a trench at the bottom of the river, floating the pipe across the river, and then allowing the pipe to sink into the trench. The crossing would be located at Colfax Street and extend along Colfax to connect with the 12-inch main at the intersection of Colfax and Second Streets. Roughly 10,500 feet of 12-inch pipe will be constructed in the following manner: 1,000 feet would be constructed along the river bottom, 1,805 feet with pavement surface restoration, and 7,695 feet with grassed surface restoration. Fifteen valves, and fourteen hydrants will be installed. Water would be provided to the Rock River Terrace residents either directly from the new well, from the City of Byron, or from the proposed river crossing.

Permanent Water Supply Alternative 4 – New Well, Booster Station, Railroad Bridge Crossing

Water Supply Alternative 4 contains all the components detailed under "Elements Common to All Alternatives" as well as the following:

Extend the transmission main discussed in Alternative 2 past Illinois Route 72 to a river crossing at the Commonwealth Edison Railroad Bridge. The proposed river crossing would consist of suspending a 12-inch pipe in an insulated casing pipe from the bridge. After crossing the river, the main would continue along Peru Street to Second Street and then turn along Second to Market where it would connect with a 12-inch main near the Downtown Tank.

Estimated Capital Cost: $3,472,000
Annual O & M Cost: $103,600
Present Value of O&M: $1,285,600
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $4,757,600
Estimated Time to Construct: 18 months

Roughly 15,000 feet of 12-inch pipe would be installed as follows: 600 feet for the river crossing, 500 feet installed under Route 72 by bore and jack methods, 1,880 feet with pavement surface restoration, and 12,020 feet with grassed surface restoration. Twenty valves and eighteen hydrants would be installed. Water would be provided to the Rock River Terrace residents either directly from the new well, from the City of Byron, or from the proposed river crossing.

Groundwater Alternatives

Groundwater Alternative 1 -- No Further Action

The no-action alternative is required per the NCP. Its purpose is to allow comparison of alternatives to the conditions that currently exist and that will likely exist in the future. Under this alternative, no action would be taken to protect public health and the environment.

Estimated Cost: $0
Estimate Time to Construct: 0 Years

Groundwater Alternative 2 -- Groundwater Monitoring and Institutional Controls

The major components of Alternative 2 are ground water monitoring and institutional controls.

Estimated Capital Cost: $33,201
Annual O & M Cost: $37,495
Present Value of O&M: $465,277
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $498,478
Estimated Time to Construct: 0 months

Ground water monitoring would detect whether the northwest and southwest plume boundaries are changing and provide early indication of increasing contaminant concentrations that may require additional cleanup at existing wells downgradient of the site. Physical processes are expected to degrade contaminants but because of the fractured bedrock geology it could take over 100 years to attain health-based drinking water standards. The ground water monitoring program would require quarterly water level measurements and annual sampling of approximately 4 residential and 31 monitoring wells. The number of wells and/or the frequency of sampling may be adjusted in the future by the agencies based upon the results of the long-term monitoring. Institutional controls would generally include an area bounded by Razorville Road, Spring Creek Road, and the Rock River.

Groundwater Alternative 3 -- Monitored Natural Attenuation and Institutional Controls

The major components of this alternative are natural attenuation monitoring and institutional controls.

Estimated Capital Cost: $54,281
Annual O & M Cost: $38,549
Present Value of O&M: $478,356
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $532,637
Estimated Time to Construct: 0 months

Alternative 3 would demonstrate that chemical, physical and biological processes are occurring to degrade contaminants. Monitoring is necessary to check that these processes are occurring. Institutional controls would prohibit/limit ground-water use until health-based drinking water standards have been attained. Again, because of the fractured bedrock geology it could take over 100 years to attain health-based drinking water standards.

This groundwater alternative would allow natural attenuation processes to continue to reduce the organic contaminants in groundwater. The groundwater contaminants exceeding preliminary remedial goals (PRGs) can be divided into two groups: the BTEXs and the chlorinated VOCs (CVOCs).

The chlorinated volatiles such as PCE, TCE and vinyl chloride degrade less rapidly than the BTEXs. Recent groundwater data seems to show that VOCs appear to be degrading but at a slower rate then would be expected if natural attenuation processes

were occurring.

The ground-water monitoring program would require the monitoring plan specified in Alternative 2 and a more extensive list of analytical parameters which results in a slightly higher cost. Institutional controls are the same as those outlined in Alternative 2.

Groundwater Alternatives Previously Considered

On-site and on-site/off-site treatment and monitoring alternatives were considered in the March 1997 Proposed Plan.

However, due to issues raised during public comment in 1997, Alternative 4 - On-site Groundwater Extraction Treatment, With Discharge to Surface Water was not selected or implemented pending the results of groundwater modeling for the site. Groundwater data obtained from investigations conducted between 1990 and 1994 and in the spring of 1999, indicate that a DNAPL residual contaminant source likely exists under the salvage yard property. Modeling has shown that if contaminants continue to be released to the groundwater, even with an on-site and off-site groundwater extraction and treatment system it could take nearly the same amount of time to reach drinking water standards as natural processes (CH_2M HILL Groundwater Model Report and Remedial Alternative Cost Update, August 23, 1999).

March 1997 Proposed Plan Alternative 4 - Onsite Groundwater Extraction, Treatment and Discharge to Surface Water, Monitoring and Institutional Controls

The major components are: onsite groundwater extraction system along with a groundwater treatment system and subsequent discharge to surface water, groundwater monitoring, and institutional controls.

Estimated Capital Cost: $2,316,020
Annual O & M Cost: $161,455
Total Present Value of O&M Cost: $2,003,383
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $4,319,403
Estimated Time to Construct: 12 months

Alternative 4 involved the installation of a groundwater collection system on both the BSY and the DFP near the most concentrated areas of the plumes to minimize the spread of contamination and accelerate remediation.

The groundwater extraction system would consist of two groundwater extraction wells located on the DFP and four extraction wells located on the BSY. The exact number of wells, locations and pumping rates would be determined in the field based on pilot testing during extraction system installation. If the extraction system is determined to be effective after the pilot testing, the collection system would continue to be operated until PRGs were met or below which further reductions are not occurring.

The collected groundwater would be treated using air stripping. Previous analysis of the contaminated groundwater indicated that the water is very hard (>500 mg/L as $CaCO_3$). This means that the hardness will have to be treated by precipitation to avoid fouling of the processes.

The treated groundwater would be discharged to Woodland Creek. Discharge directly to the publicly-owned treatment works (POTW) is impractical and inaccessible because the nearest POTW is in Byron, Illinois, over 3 miles away. The BTEX plume on the southwest side of the DFP and the offsite groundwater contamination would be allowed to naturally biodegrade and attenuate. BTEX plumes have been shown to readily biodegrade, and given the low concentrations detected offsite, natural attenuation appears to be occurring. The groundwater monitoring program and potable water system improvement would be the same as described for Groundwater Alternative 2. The institutional controls and potable water system improvements would be the same as the controls outlined for Groundwater Alternative 2.

March 1997 Proposed Plan Alternative 5 -- Onsite and Offsite Groundwater Extraction, Treatment, and Discharge to Surface Water, Monitoring and Institutional Controls

The major components of Alternative 5 are: onsite and offsite groundwater extraction system; groundwater treatment system; discharge to surface water; intrinsic remediation; groundwater monitoring; and institutional controls. Alternative 5 is the same as Alternative 4 except that the groundwater extraction system would be installed both onsite and offsite to capture the contaminant plume on the BSY and on the northeast portion of the DFP. The BTEX plume on the southwest portion of the DFP would be allowed to naturally attenuate.

Estimated Capital Cost: $2,854,421
Annual O & M Cost: $165,556
Total Present Value of O&M Cost: $2,054,391
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $4,908,813
Estimated Time to Construct: 12 months

The onsite and offsite groundwater extraction system would be the same as the system described for Alternative 4, with two additional wells between the site boundary and the Rock River Terrace Subdivision. The treatment system for the onsite extraction wells would be identical to the system described for Alternative 5. The offsite extraction wells would be connected to the treatment system and discharged to Woodland Creek.

J. COMPARATIVE ANALYSIS OF ALTERNATIVES

The nine criteria used by U.S. EPA to evaluate remedial alternatives, as set forth in the NCP, 40 CFR Part 300.430, include: 1) Overall protection of human health and the environment; 2) Compliance with applicable or relevant and appropriate requirements (ARARs); 3) Long-term effectiveness and permanence; 4) Reduction of toxicity, mobility, or volume through treatment; 5) Short-term effectiveness; 6) Implementability;

7) Cost; 8) State acceptance; and, 9) Community acceptance.

The first two evaluation criteria are threshold criteria that all alternatives must meet. Criteria 3 through 7 are balancing criteria that are used to compare the alternatives against each other and determine which alternative provides the best balance of the evaluation criteria. The remaining two criteria are modifying criteria. The input from the community and the support agency will be considered by the lead agency in making its final decision. The comparative analysis of the groundwater alternatives against the nine evaluation criteria is shown below.

Threshold Criteria

1. **Overall Protection of Human Health and the Environment** addresses whether a remedy provides adequate protection of human health and the environment and describes how risk posed through each exposure pathway are eliminated, reduced or controlled through treatment, engineering, or institutional controls. The selected remedy must meet these criteria.

All water supply alternatives protect overall human health and the environment by providing an uncontaminated drinking source through continued use of a municipal water supply and deed restrictions.

Groundwater alternatives 2 through 5 rely on a permanent uncontaminated drinking supply, institutional controls, and monitoring to prevent ingestion of contaminated ground water. Thus, Alternatives 2 through 5 adequately protect human health and the environment. GW Alternative 1 (No Further Action) is not considered protective.

2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** addresses whether a remedy will meet applicable or relevant and appropriate federal and state environmental laws and/or justifies a waiver from such requirements. The selected remedy must meet this criteria or waiver of the ARAR must be attained.

Maximum Concentration Limits (MCLs) are not considered relevant and appropriate for the groundwater at this site because of the establishment of Alternate Concentration Limits (ACLs), for this site, in a June 30, 1989 groundwater ROD. ACLs were previously established for this site because of the availability of a municipal water supply, the proximity of a river to which the contaminated aquifers discharge without significant impact, and the fractured nature of the contaminated aquifers. For the reasons cited under Remediation Objectives, ACLs are still appropriate for this site. All other ARARs are addressed. See Appendix C for complete list of ARARs.

Groundwater Alternative 1 does not comply with ARARs. Water Supply Alternatives 2 through 4 and Groundwater Alternatives 2 through 5 would prevent groundwater use until PRGs are achieved.

Primary Balancing Criteria

3. **Long-Term Effectiveness and Permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met.

Water Supply Alternatives 2 through 4 provide an uncontaminated drinking water source. Water Supply Alternative 1 - No Further Action, is not as reliable as a permanent water supply like Water Supply Alternatives 2 through 4, because the existing water supply provides for only a single water source between the City of Byron and the affected residents. The existing water line running under the river is vulnerable to breaks and without an independent drinking water source, the affected residents could be without water for an extended period of time. Water Supply Alternatives 3 and 4 add an extra level of permanence over Water Supply Alternative 2 as they provide for an additional river crossing that loops back into the City of Byron water supply.

Residual risks in excess of 1×10^{-6} excess lifetime cancer risk will likely occur for all groundwater alternatives, without a municipal water supply. Groundwater Alternatives 1, 2, and 3 would pose a risk greater than 1×10^{-6} if the groundwater were used for drinking. The reliability of groundwater monitoring to detect plume movement and contaminant degradation over time is considered good for Groundwater Alternatives 2 through 5. Extraction wells combined with monitoring in Alternative 4 and 5 may not be reliable systems because of the complex nature of the fractured bedrock below the site. Containment or capture of the northwest contaminant plume and DNAPL, under Groundwater Alternatives 4 and 5 would be difficult. The reliability of the deed restrictions to prevent groundwater use until PRGs are achieved would be dependent on the reliability of the legal enforcement system of Byron, IL, for all alternatives.

4. **Reduction of Toxicity, Mobility, or Volume Through Treatment** addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as their principal element. This preference is satisfied when treatment is used to reduce the principal threats at the site through destruction of toxic contaminants, reduction of the total mass of toxic contaminants, irreversible reduction in contaminant mobility, or reduction of total volume of contaminated media.

The water supply alternatives do not reduce toxicity, mobility, or volume of contaminants in the groundwater.

A reduction in contaminant concentrations would be expected as a result of natural processes in Groundwater Alternatives 2 and 3. Groundwater Alternatives 4 and 5, extraction and treatment of contaminated groundwater, would be expected to result in greater contaminant concentration reductions then through natural processes (Alternatives 2 and 3) but the existence of DNAPLs and the fractured geology below the site make quantifying these reductions difficult. Groundwater Alternatives 4 and 5

would be used to treat groundwater prior to discharge. The concentrations of VOCs in the groundwater would be reduced by treatment with an air stripping unit. The exact amount of VOC removal from the groundwater is dependent on the exact flow rates obtained by the extraction system. With Groundwater Alternatives 4 and 5, iron and metal sludge will be produced in the precipitation system. The exact quantity is dependent on flow rates through the system.

5. **Short-Term Effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed, until cleanup levels are achieved.

Impacts on the community would be minimal under all alternatives. Water Supply Alternatives 2 and 3 would have impacts on the community due to the disruption of traffic on River Road during the construction of the new well and water line, while Groundwater Alternatives 4 and 5 would create disruption of traffic on Razorville Road during construction of the extraction/treatment system. Groundwater Alternatives 4 and 5, require a slab on-grade building which will also cause some disturbance to the community. There are no significant impacts and no significant differences between alternatives relative to protection of workers or the environment during the remedial action of any alternative.

6. **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

No technical or administrative problems preventing implementation are foreseen for any of the Water Supply or Groundwater Alternatives. Services and materials are available for all alternatives.

7. **Cost** includes estimated capital costs, annual operation and maintenance costs (assuming a 30-year time period), and net present value of capital and operation and maintenance costs.

W.S. Alternative 1	$ 0	Groundwater Alternative 1	$ 0
W.S. Alternative 2	$2,984,500	Groundwater Alternative 2	$ 498,478
W.S. Alternative 3	$3,995,400	Groundwater Alternative 3	$ 532,637
W.S. Alternative 4	$4,757,600	Groundwater Alternative 4	$4,319,403
		Groundwater Alternative 5	$4,908,813

Modifying Criteria

8. **State Acceptance** considers whether the State agrees with U.S. EPA's analyses and recommendations of the RI/FS and the Proposed Plan, and considers State ARARs.

The Illinois Environmental Protection Agency (IEPA) is expected to concur with the selected remedy.

9. **Community Acceptance** addresses the public's general response to the remedial alternatives and proposed plan. The ROD will include a responsiveness summary that presents public comments and U.S. EPA responses to those comments. Acceptance of the recommended alternative is evaluated after the public comment period. The public comment period was from August 23, 1999 through September 21, 1999, but a comment period extension request was granted extending the period through October 21, 1999.

A complete summary of public comments can be found in the attached Responsiveness Summary, Appendix D.

K. SELECTED REMEDY

Based on information collected and developed in the RI/FS's, and using the comparative analysis of alternatives described previously, Water Supply Alternative 2 and Groundwater Alternative 2 meet the remedial action groundwater objectives at the least cost, other than the No Further Action alternatives. These groundwater alternatives are the most appropriate Final Remedial Action for addressing groundwater contamination at the Byron Superfund Site.

Detailed Description of the Selected Remedy

The remedy for groundwater remediation consists of the following components:

1. **Permanent Drinking Water Supply** - Installation of a new drinking water well and relocation of the existing pump station from the northwest side to the southeast side of the River. The new drinking water well would have a pumping capacity of 750 to 800 gallons per minute whose water source would be the St. Petersburg formation approximately 1,200 feet below ground level. The new well is expected to be located in or near the Byron Forest Preserve on the southeast side of the Rock River or another suitable area in the general vicinity. The City of Byron municipal wells and existing river crossing will serve as a backup when the new well is down for maintenance or repair.

2. **Groundwater Monitoring** - The groundwater monitoring program would consist of quarterly water level measurements and semiannual monitoring of approximately 35 monitoring and residential wells. The number of wells and/or the frequency of sampling may be adjusted in the future by the agencies based upon the results of the long-term monitoring. The groundwater would be analyzed for VOCs by an offsite laboratory. The samples would be analyzed for VOCs and TAL inorganics. The field parameters to be tested for include pH, temperature, and specific conductivity, dissolved oxygen, and oxidation/reduction potential. Groundwater collection would be terminated when drinking water standards are achieved.

3. **Institutional Controls** - The Byron Superfund contaminant plumes originate under the DFP and BSY, and extend well beyond these areas to the Rock River. Regardless of future ownership considerations, restrictive covenants such as deed restrictions or advisories would be placed on properties potentially affected by the plume, prohibiting groundwater withdrawal for potable use until drinking water standards are attained. If any properties are sold, the deed would identify that groundwater in the vicinity is contaminated or may be potentially affected.

Cost Estimate for the Selected Remedy

A detailed breakdown of the cost estimate for the selected alternatives along with the other alternatives considered is in Appendix B. A summary is available here.

Water Supply Alt. 2 & Groundwater Alt. 2

Estimated Capital Cost: $1,868,601
Annual O & M Cost: $130,095
Present Value of O&M Cost: $1,614,377
Duration of O & M: Indefinite
Total Present Value (7% discount rate): $3,482,978
Estimated Time to Construct: 18 months

L. STATUTORY DETERMINATIONS

The selected remedy must satisfy the requirements of Section 121(d)(2) of CERCLA to:

a. Protect human health and the environment;
b. Comply with ARARs;
c. Be cost-effective;
d. Utilize permanent solutions and alternate treatment technologies to the maximum extent practicable; and,
e. Satisfy a preference for treatment as a principal element of the remedy.

The implementation of the selected alternatives at the Byron Superfund Site satisfies the requirements of CERCLA as detailed below:

Protection of Human Health and the Environment

Implementation of the municipal water supply improvements will ensure a long-term uncontaminated drinking water source for the residents currently affected by the contaminated groundwater. The selected soil remedial action, signed in September 1998, will be effective in removing the VOC source materials in the soils that could be contributing to the continued contamination of the groundwater, and in controlling and reducing the groundwater contamination that has already occurred.

Compliance with ARARs

Section 121(d) of CERCLA requires that Superfund remedial actions meet ARARs. In addition to ARARs, the ARARs analysis which was conducted considered guidelines, criteria, and standards useful in evaluating remedial alternatives. These guidelines, criteria, and standards are known as TBCs. In contrast to ARARs, which are promulgated cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations; material to be considered (TBCs) are guidelines and other criteria that have not been promulgated. The selected remedy will comply with the ARARs and the TBCs listed in Appendix C, attached to this ROD.

- Location-specific ARARs establish restrictions on the management of waste or hazardous substances in specific protected locations, such as wetlands, floodplains, historic places, and sensitive habitats. No location specific ARARs are involved at this site for the selected remedies.

- Action-specific ARARs are technology-based or activity-based requirements or limitations on actions taken with respect to remediation. These requirements are triggered by particular remedial activities that are selected to accomplish the remedial objectives. The action-specific ARARs indicate the way in which the selected alternative must be implemented as well as specify levels for discharge. These ARARs establish controls or restrictions on particular kinds of activities related to the management of hazardous substances, pollutants, or contaminants.

- Chemical-Specific ARARs involve ambient or chemical-specific requirements that establish acceptable values or concentrations of a chemical that may be found in, or discharged to, the environment and that are protective of human health and the environment.

As previously mentioned, MCLs are not considered relevant and appropriate for the groundwater at this site because of the establishment of Alternate Concentration Limits (ACLs) in the June 30, 1989 groundwater ROD.

Cost-Effectiveness

U.S. EPA determines that the selected remedy is cost-effective. Section 300.430 (f)(1)(ii)(D) of the NCP requires U.S. EPA to evaluate cost-effectiveness by comparing all the alternatives that meet the threshold criteria (protection of human health and the environment and compliance with ARARs) against three balancing criteria (long-term effectiveness and permanence, reduction of toxicity, mobility or volume through treatment, and short-term effectiveness). The selected remedies meet these criteria by achieving a permanent protection of human health and the environment at low risk to the public, and provide for overall effectiveness in proportion to their cost. The estimated cost of the selected remedy for groundwater is: $3,482,978.

Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

U.S. EPA believes that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner for the Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, U.S. EPA has determined that the selected remedy provides the best balance of trade-offs in terms of long-term effectiveness; reduction in toxicity, mobility or volume achieved through treatment; short-term effectiveness; implementability; and cost, taking into consideration the statutory preference for treatment as a principal element and considering State and community acceptance.

Preference for Treatment as a Principal Element

Based on current information, U.S. EPA believes that the selected remedy is protective of human health and the environment and utilizes permanent solutions to the maximum extent possible. The remedy, however, does not satisfy the statutory preference for treatment of the hazardous substances present at the site as a principal element because additional treatment of the source areas of the plumes by groundwater extraction would not be practicable compared to ensuring the long-term reliability of potable water to residences between the site and the river.

M. DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE OF PROPOSED PLAN

There were no significant changes in the selected remedy from the preferred alternatives outlined in the Proposed Plan.

Figures

Figure 1-1 Location Map
Figure 2-1 Site Map
Figure 3-1 Water Supply Alternative 1
Figure 3-2 Water Supply Alternative 2
Figure 3-3 Water Supply Alternative 3

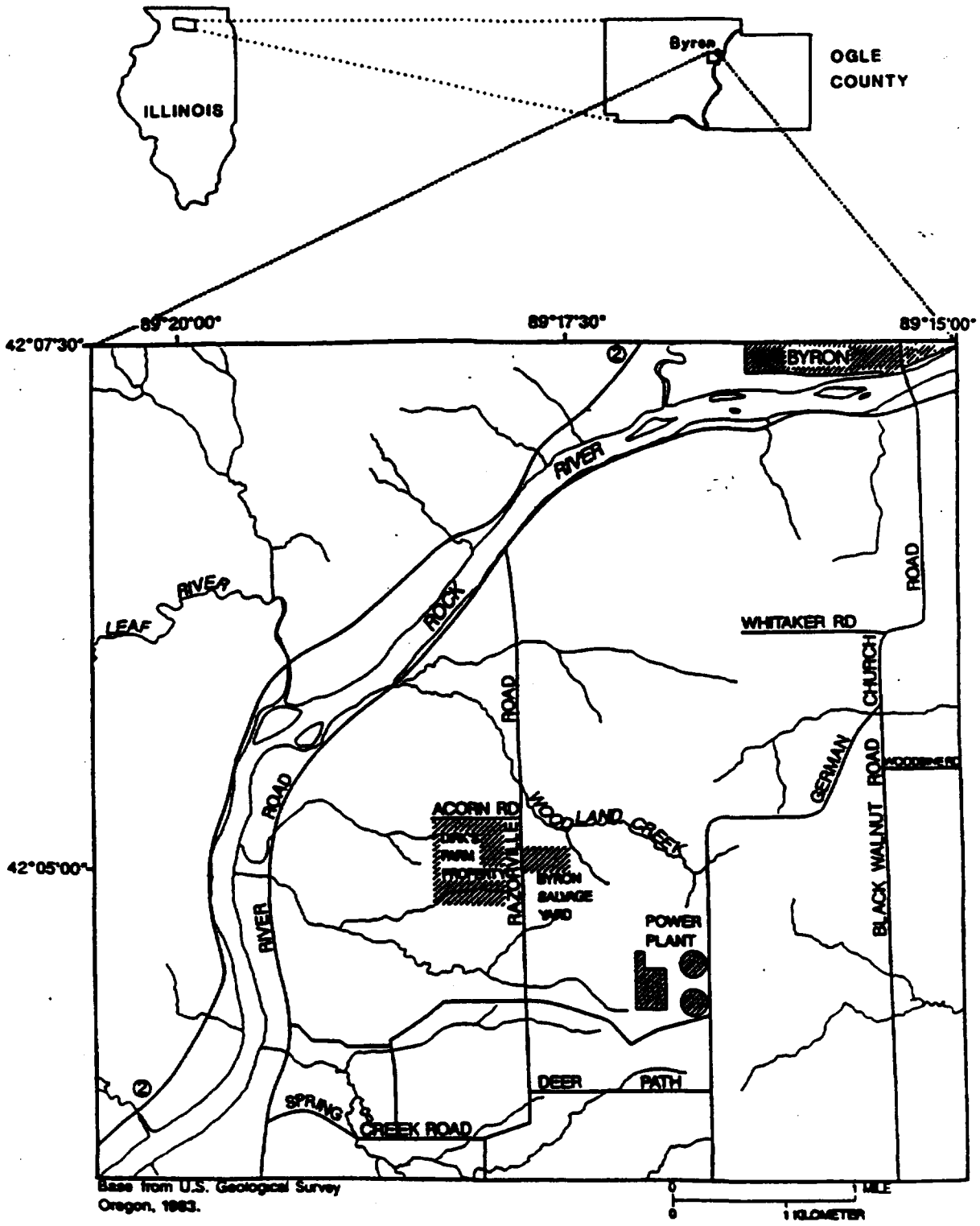
ILLINOIS
Byron
OGLE
COUNTY
89°20'00"
89°17'30"
89°15'00"
42°07'30"
42°05'00"
BYRON
RIVER
ROCK
LEAF
RIVER
ROAD
WHITAKER RD
ROAD
CHURCH
GERMAN
ROAD
BLACK WALNUT ROAD
ACORN RD
WOOD LAND CREEK
ROCKVILLE
BYRON
SALVAGE
YARD
POWER
PLANT
RIVER
ROAD
DEER
PATH
SPRING
CREEK ROAD
Base from U.S. Geological Survey
Oregon, 1983.
0
1 MILE
0
1 KILOMETER

FIGURE 1-1

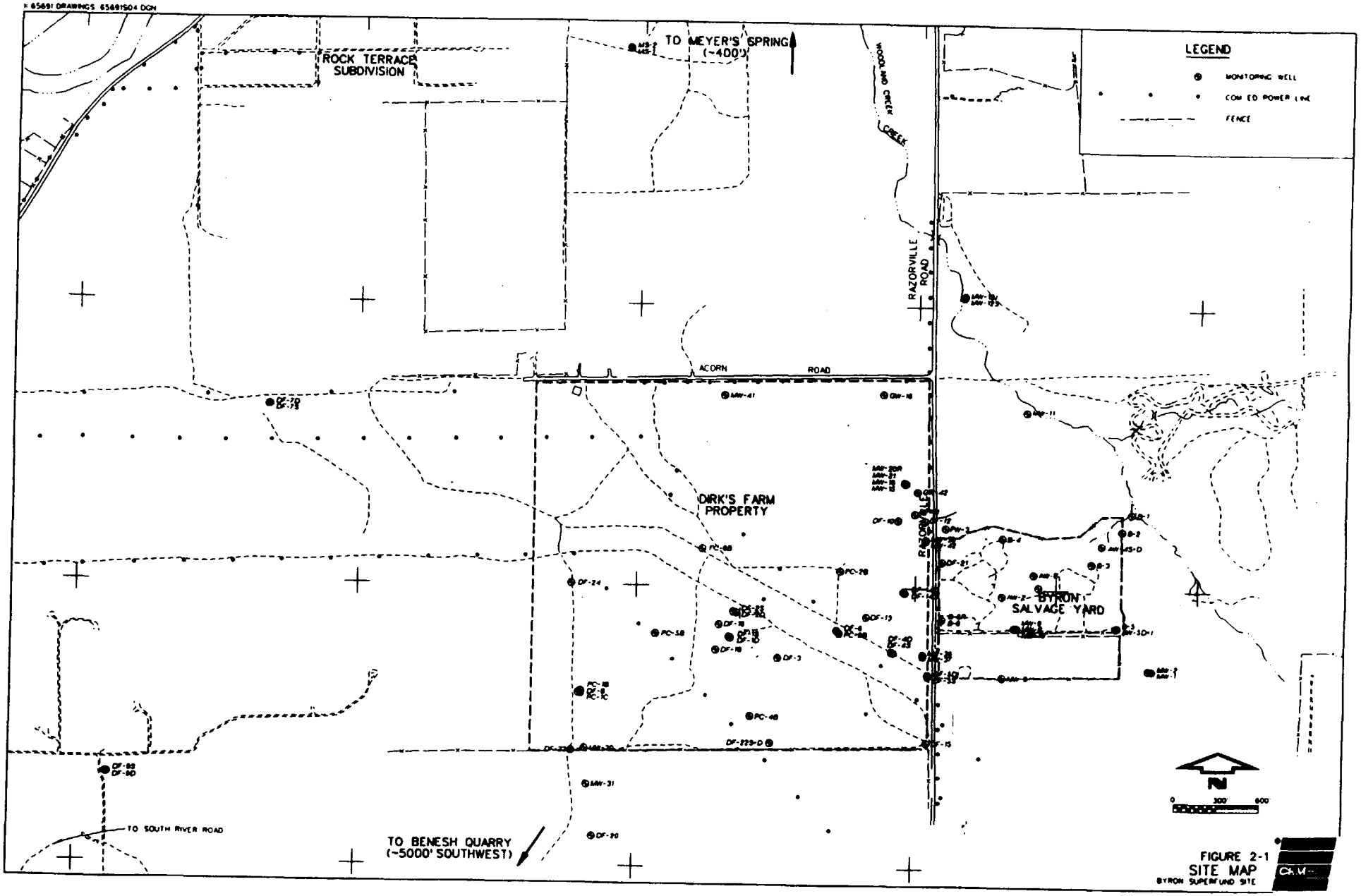

FIGURE 2-1
SITE MAP
BYRON SUPERFUND SITE

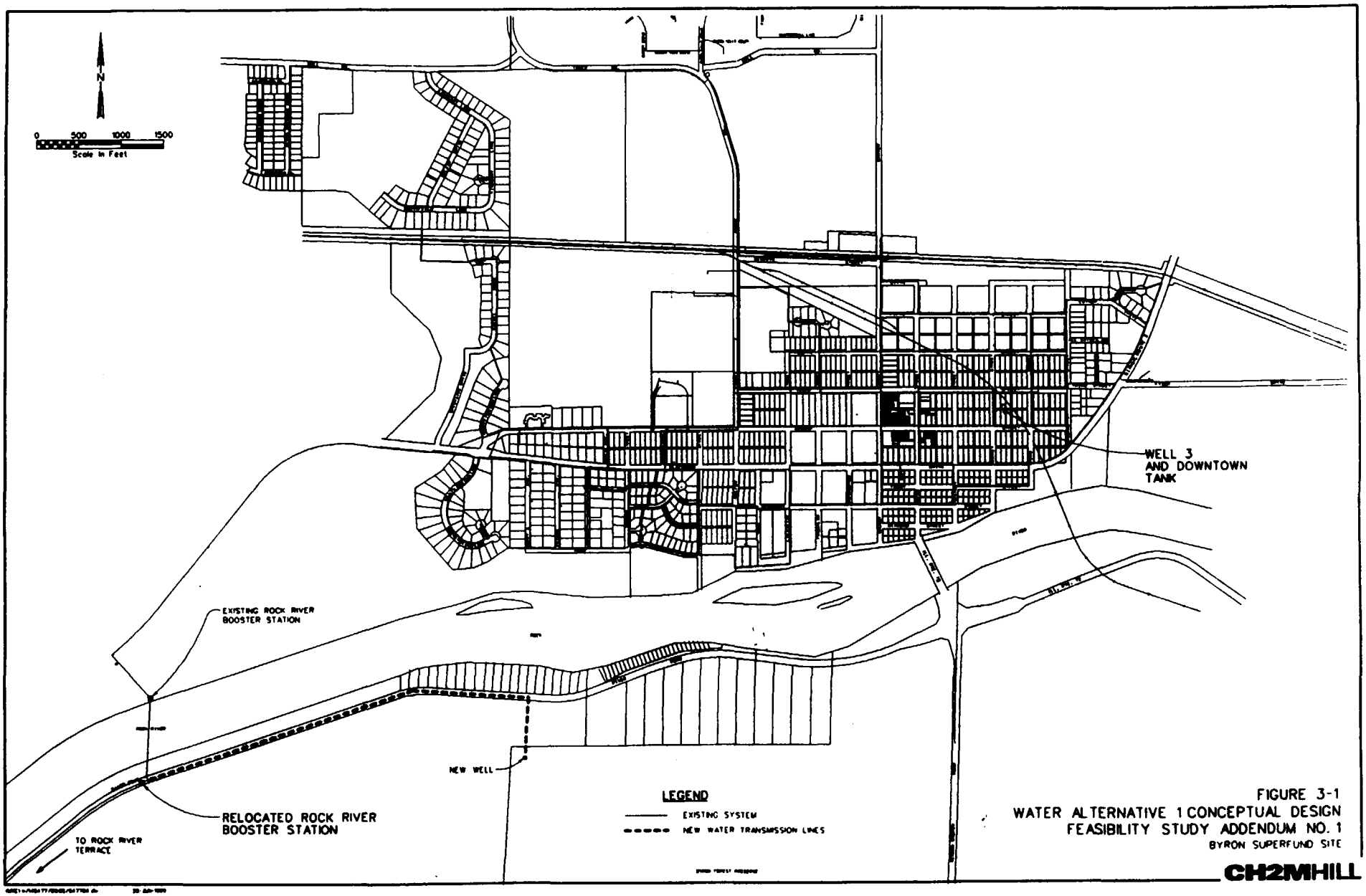

FIGURE 3-1
WATER ALTERNATIVE 1 CONCEPTUAL DESIGN
FEASIBILITY STUDY ADDENDUM NO. 1
BYRON SUPERFUND SITE

CH2MHILL

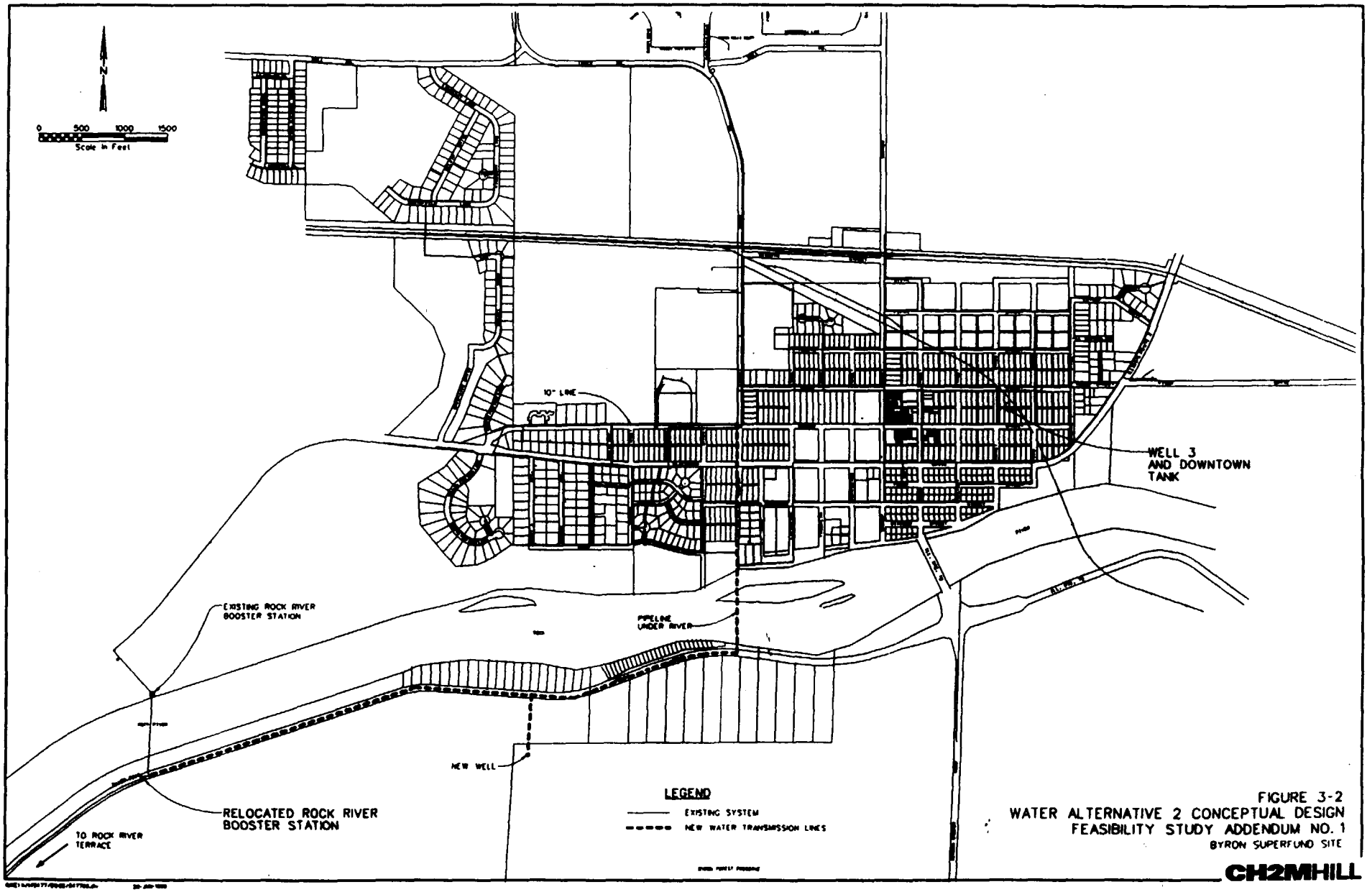

FIGURE 3-2
WATER ALTERNATIVE 2 CONCEPTUAL DESIGN
FEASIBILITY STUDY ADDENDUM NO. 1
BYRON SUPERFUND SITE

CH2MHILL

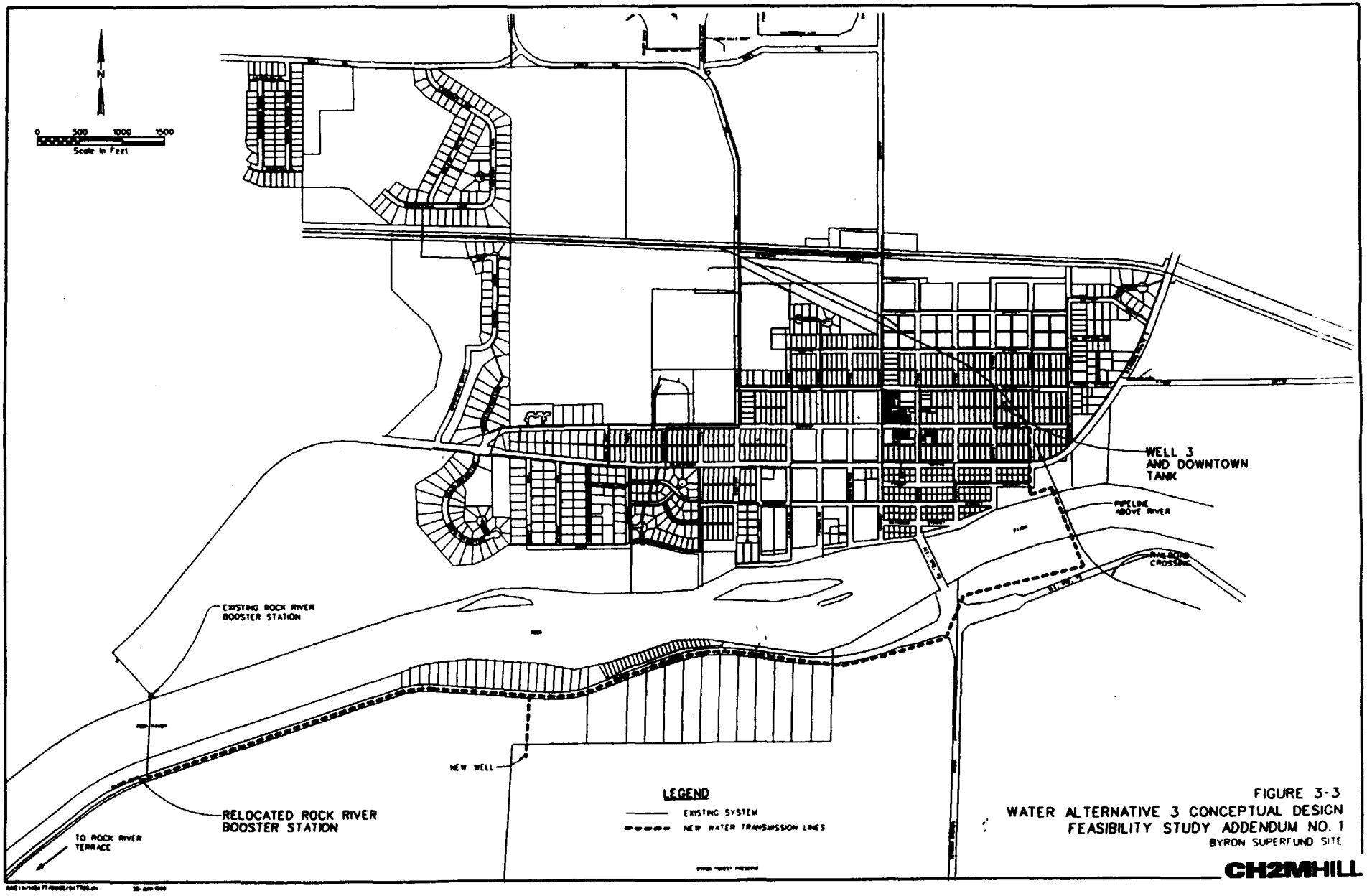

FIGURE 3-3
WATER ALTERNATIVE 3 CONCEPTUAL DESIGN
FEASIBILITY STUDY ADDENDUM NO. 1
BYRON SUPERFUND SITE

CH2MHILL

Appendix A

Risk Tables

Table 7-32. Risk Calculations for Non-Carcinogenic Effects for Current Residents Exposed to Household Water, Dirk's Farm.

Constituent	CDI (mg/kg/day)	CDI Adjusted for Absorption	RfD	RfD Source	Hazard Quotient	Pathway Hazard Index	Total Exposure Hazard Index
EXPOSURE PATHWAY: Ingestion of Constituents in Household Water							
ORGANICS							
Trichloroethene	5.5E-5	No	6E-3	IRIS	9E-3		
INORGANICS							
Barium	3.6E-3	No	7E-2	IRIS	5E-2		
Magnesium	1.1E+0	No	9.7E+0	STSC	1E-1		
Manganese	2.7E-4	No	5E-3	IRIS	5E-2		
Zinc	2.7E-3	No	2E-1	HEAST	1E-2		
						2E-1	
EXPOSURE PATHWAY: Dermal Contact with Chemicals in Household Water							
ORGANICS							
Trichloroethene	1.1E-5	Yes	6E-3	IRIS	2E-3		
INORGANICS							
Barium	1E-5	Yes	7E-2	IRIS	1E-4		
Magnesium	3.3E-3	Yes	3.9E+0	STSC	8E-4		
Manganese	8E-7	Yes	3E-4	IRIS	3E-3		
Zinc	3.2E-6	Yes	5E-2	HEAST	6E-5		
						6E-3	2E-1

Table 7-33. Risk Calculations for Carcinogenic Effects for Current Residents Exposed to Household Water, Dirk's Farm.

Consitituent	CDI (mg/kg/day)	CDI Adjusted for Absorption	SF[1] (mg/kg/day)[1]	Weight of Evidence	Type of Cancer	SF Source	Chemical-Specific Risk	Total Pathway Risk	Total Exposure Risk
EXPOSURE PATHWAY: Ingestion of Household Water									
ORGANICS									
Trichloroethene	2.3E-5	No	6.1E-3	NA		IRIS	1E-7		
								1E-7	
EXPOSURE PATHWAY: Dermal Contact with Household Water									
ORGANICS									
Trichloroethene	4.6E-6	Yes	6.1E-3	NA		IRIS	3E-8		
								3E-8	
									1E-7

CDI Chronic daily intake

[1] for dermal contact with household water, the SF was converted to an absorbed dose by dividing the SF by the absorption efficiencies listed in Appendix S.

NA Not available

Table 7-50. Risk Calculations for Non-Carcinogenic Effects for Hypothetical Future Residents Exposed to Household Water, Dirk's Farm.

Constituents	CDI (mg/kg/day)	CDI Adjusted for Absorption	RfD[1,2]	RfD Source	Hazard Quotient	Pathway Hazard Index	Total Exposure Hazard Index
EXPOSURE PATHWAY: Ingestion of Household Water							
ORGANICS							
Acetone	4.9E-1	No	1E-1	IRIS	5E+0		
2-Butanone	1.6E-1	No	5E-2	HEAST	3E+0		
Chloroform	3.3E-4	No	1E-2	IRIS	3E-2		
1,1-Dichloroethane	4.0E-4	No	1E-1	HEAST	4E-3		
1,2-Dichloroethene	3.0E-4	No	9E-3	HEAST	3E-2		
Ethylbenzene	1.6E-2	No	1E-1	IRIS	2E-1		
4-Methyl-2-pentanone	2.7E-1	No	5E-2	HEAST	5E+0		
Tetrachloroethene	2.0E-4	No	1E-2	IRIS	2E-2		
Toluene	3.8E-1	No	2E-1	IRIS	2E+0		
1,1,1-Trichloroethane	5.5E-4	No	9E-2	HEAST	6E-3		
Trichloroethene	2.0E-3	No	6E-3	STSC	3E-1		
Xylene	6.6E-2	No	2E+0	IRIS	3E-2		
INORGANICS							
Aluminum	5.2E-1	No	1E+0	STSC	5E-1		
Arsenic	2.7E-4	No	3E-4	IRIS	9E-1		
Barium	1.1E-2	No	7E-2	IRIS	2E-1		
Cadmium	5.8E-5	No	5E-4	IRIS	1E-1		
Chromium	3.0E-3	No	5E-3	IRIS	6E-1		
Cyanide	4.4E-3	No	2E-2	IRIS	2E-1		
Magnesium	1.2E+1	No	9.7E+0	STSC	1E+0		
Manganese	6.8E-2	No	5E-3	IRIS	1E+1		
Nickel	2.3E-3	No	2E-2	IRIS	1E-1		

Constituents	CDI (mg/kg/day)	CDI Adjusted for Absorption	RfD[1,2]	RfD Source	Hazard Quotient	Pathway Hazard Index	Total Exposure Hazard Index
Zinc	1.4E-3	No	3E-1	HEAST	5E-3		
						3.56E+1	
EXPOSURE PATHWAY: Inhalation of Volatiles from Household Water							
Benzene	3.5E-3	No	5.7E-5	STSC	6E+1		
1,1-Dichloroethane	1.6E-3	No	1.4E-1	HEAST	1E-2		
Ethylbenzene	6.1E-2	No	2.9E-1	IRIS	2E-1		
4-Methyl-2-pentanone	1.0E+0	No	2.3E-2	HEAST	2E-1		
Toluene	1.4E+0	No	1.1E-1	IRIS	1E+1		
1,1,1-Trichloroethane	2.1E-3	No	2.9E-1		7E-3		
						7E+1	
EXPOSURE PATHWAY: Dermal Contact with Chemicals in Household water							
Acetone	1.4E-3	Yes	1E-1	IRIS	1E-2		
2-Butanone	1.5E-3	Yes	5E-2	HEAST	3E-2		
Chloroform	6.4E-5	Yes	1E-2	IRIS	6E-3		
1,1-Dichloroethene	7.6E-6	Yes	1E-1	HEAST	8E-5		
1,2-Dichloroethene	5.8E-6	Yes	9E-3	HEAST	6E-4		
Ethylbenzene	3.1E-2	Yes	1E-1	IRIS	3E-1		
4-Methyl-2-pentanone	7.9E-4	Yes	5E-2	HEAST	2E-2		
Tetrachloroethene	1.5E-4	Yes	1E-2	IRIS	2E-2		
Toluene	7.4E-1	Yes	2E-1	IRIS	4E+0		
1,1,1-Trichloroethane	1.8E-5	Yes	9E-2	HEAST	2E-4		
Trichloroethene	6.2E-5	Yes	6E-3	STSC	1E-2		
Xylene	1.0E-2	Yes	2E+0	IRIS	5E-3		
INORGANICS							
Aluminum	1.5E-3	Yes	1E-2	STSC	2E-1		
Arsenic	8.0E-7	Yes	3E-4	IRIS	3E-3		

Constituents	CDI (mg/kg/day)	CDI Adjusted for Absorption	RfD[1,2]	RfD Source	Hazard Quotient	Pathway Hazard Index	Total Exposure Hazard Index
Barium	3.4E-5	Yes	7E-2	IRIS	5E-4		
Cadmium	1.1E-7	Yes	2.5E-5	IRIS	4E-3		
Chromium	5.8E-6	Yes	5E-5	IRIS	1E-1		
Cyanide	1.3E-5	Yes	2E-2	IRIS	7E-4		
Magnesium	3.4E-3	Yes	3.9E+0	STSC	9E-4		
Manganese	2.0E-4	Yes	2.5E-4	IRIS	8E-1		
Nickel	4.5E-7	Yes	2E-3	IRIS	2E-4		
Zinc	1.7E-6	Yes	5E-2	HEAST	2E-5		
						5.2E+0	1.11E+2

CDI Chronic daily intake

[1] For the inhalation of volatiles from household water exposure pathway, the RfC was used to calculate the hazard quotient. The RfCs listed are expressed in mg/kg/day units by multiplying the RfC (mg/m^3) by the human inhalation rate of 20 m^3/day and dividing by the human reference body weight of 70 kg.

[2] For the dermal contact with household water pathway, the RfD was converted to an absorbed dose by multiplying the RfD by the absorption efficiencies listed in Appendix S.

Table 7-51. Risk Calculations for Carcinogenic Effects for Hypothetical Future Residents Exposed to Household Water, Dirk's Farm.

Constituents	CDI (mg/kg/day)	Adjusted for Absorption	SF[1,2] (mg/kg/day)[-1]	Weight of Evidence	Type of Cancer	SF Source	Chemical-Specific Risk	Total Pathway Risk	Total Exposure Risk
EXPOSURE PATHWAY: Ingestion of Household Water									
ORGANICS									
Benzene	4.0E-4	No	2.9E-2	A	Zymbal gland, oral cavity, lymphoma	IRIS	1E-5		
Chloroform	1.4E-4	No	6.1E-3	B2		IRIS	9E-7		
Tetrachloroethene	8.3E-5	No	5.2E-2	B2		IRIS	4E-6		
Vinyl Chloride	1.4E-3	No	1.9E+0	A	liver, kidney, lung	HEAST	3E-3		
INORGANICS									
Arsenic	1.2E-4	No	1.75E+0	A	skin	IRIS	2E-4		
								3E-3	
EXPOSURE PATHWAY: Inhalation of Volatiles from Household Water									
Benzene	1.5E-3	No	2.9E-2	A	leukemia	IRIS	4E-5		
Chloroform	5.3E-4	No	8.1E-2	B2		IRIS	4E-5		
Tetrachloroethene	3.1E-4	No	2.0E-3	B2		IRIS	6E-7		
Vinyl Chloride	5.2E-3	No	3.0E-1	A	liver, lung kidney	HEAST	2E-3		
								2E-3	

Constituents	CDI (mg/kg/day)	Adjusted for Absorption	SF[1,2] (mg/kg/day)[1]	Weight of Evidence	Type of Cancer	SF Source	Chemical-Specific Risk	Total Pathway Risk	Total Exposure Risk
EXPOSURE PATHWAY: Dermal Contact with Household Water									
ORGANICS									
Benzene	7.7E-5	Yes	2.9E-2	A	leukemia	IRIS	2E-6		
Chloroform	2.7E-5	Yes	6.1E-3	A		IRIS	2E-7		
Tetrachloroethene	6.5E-5	Yes	5.2E-2	B2		IRIS	3E-6		
Vinyl Chloride	2.0E-5	Yes	1.9E+0	A	liver, lung kidney	HEAST	4E-5		
INORGANICS									
Arsenic	3.4E-7	Yes	1.75E+0	A	skin	IRIS	6E-7		
								5E-5	
									5E-3

CDI Chronic daily intake
SF Slope factor
[1] For inhalation of volatiles from household water exposure pathway, the inhalation slope factor was used to calculate the chemical specific risk.

[2] For dermal contact with household water, the SF was converted to an absorbed dose by dividing the SF by the absorption efficiencies listed in table 1, Appendix S.

TABLE 7-9
Exposure Point Concentration to Constituents of Concern from Ingestion of Household Water for Current Residents

Constituents	Exposure Concentration[1] (mg/L)	Comment
ORGANICS		
Trichloro-ethene	2.0E-3	Maximum
INORGANICS		
Magnesium *	5.1E+1	Maximum
Manganese *	7.8E-3	Maximum

* Constituent detected at background level.
[1] Exposure point concentration for residential wells.

TABLE 7-10
Exposure Point Concentration to Constituents of Concern from Ingestion of Household Water for Hypothetical Future Residents, Dirk's Farm

Constituents	Exposure Concentration (mg/L)	Comments
ORGANICS		
Acetone	6.1E+1[b]	maximum
Benzene	5.3E-2[b]	maximum
2-Butanone	6.2E+0[b]	maximum
Chloroform	1.2E-2[a]	maximum
1,1-Dichloroethane	7.9E-2[b]	maximum
1,2-Dichloroethene	2.9E-1[a]	maximum
Ethylbenzene	5.1E-1[b]	maximum
4-Methyl-2-Pentanone	1.7E+1[b]	maximum
Tetrachloroethene	3.0E-2[a]	maximum
Toluene	1.4E+1[b]	maximum
1,1,1-Trichloroethane	2.7E-1[b]	maximum
Trichloroethene	4.2E-1[a]	maximum
Vinyl Chloride	1.2E-1[b]	maximum
Xylenes	4.4E+0[b]	maximum

TABLE 7-10
Exposure Point Concentration to Constituents of Concern from Ingestion of Household Water for Hypothetical Future Residents, Dirk's Farm

Constituents	Exposure Concentration (mg/L)	Comments
INORGANICS		
Aluminum	1.9E+1[a]	maximum
Arsenic	6.5E-3[b]	95% UCL
Barium	4.1E-1[b]	95% UCL
Cadmium	5.0E-3[a]	maximum
Chromium	1.1E-1[a]	maximum
Cyanide	2.3E-1[a]	maximum
Lead*	5.7E-2[a]	maximum
Magnesium*	1.1E+2[b]	maximum
Manganese	1.3E+0[b]	maximum
Nickel	8.4E-2[a]	maximum

* Constituent detected at background level.

a Exposure point concentration in monitoring wells on the site, see Appendix P, Table P-4.

b Exposure point concentration in cluster of highest concentration monitoring wells, see Appendix P, Table P-4 and Appendix N, Table N-2.

TABLE 8-12

EXCESS CANCER RISKS ASSOCIATED WITH INGESTION OF CONTAMINATED GROUNDWATER—ACORN ROAD AREA

	Risk Associated with Ingestion[a] for 2 Years		Risk Associated with Lifetime[b] Ingestion	
Chemical	Mean Concentrations	Maximum Concentrations	Mean Concentrations	Maximum Concentrations
1,1-Dichloro-ethylene	ND	ND	$2x10^{-4}$ [C]	$6x10^{-4}$ [C]
Tetrachloro-ethylene	$1x10^{-7}$ [B2]	$3x10^{-7}$ [B2]	$2x10^{-5}$ [B2]	$3x10^{-5}$ [B2]
Trichloro-ethylene	$7x10^{-7}$ [B2]	$2x10^{-6}$ [B2]	$6x10^{-5}$ [B2]	$2x10^{-4}$ [B2]
Vinyl Chloride	ND	ND	$2x10^{-3}$ [A]	$6x10^{-3}$ [A]
Total Risk	$8x10^{-7}$	$2x10^{-6}$	$2x10^{-3}$	$7x10^{-3}$

ND = Not Detected

[a] For this analysis, the cumulative dose received over two years was expressed as an average daily exposure prorated over a 70-year lifetime, and the corresponding lifetime risk was calculated accordingly. This procedure is recommended in EPA's "Guidelines for Carcinogen Risk Assessment" (EPA 1986d). Residential well concentrations shown in Table 8-4 are used as a basis for calculating risks.

[b] Calculation of lifetime risks is based on monitoring well concentrations shown in Table 8-9.

TABLE 8-13

EXCESS CANCER RISKS ASSOCIATED WITH INGESTION OF CONTAMINATED GROUNDWATER—ROCK RIVER TERRACE AREA

	Risk Associated with Ingestion[a] for 2 Years		Risk Associated with Lifetime[b] Ingestion	
Chemical	Mean Concentrations	Maximum Concentrations	Mean Concentrations	Maximum Concentrations
Tetrachloro-ethylene	$2x10^{-8}$ [B2]	$2x10^{-8}$ [B2]	ND	ND
Trichloro-ethylene	$3x10^{-8}$ [B2]	$2x10^{-7}$ [B2]	$8x10^{-6}$ [B2]	$2x10^{-5}$ [B2]
Total Risk	$6x10^{-8}$	$2x10^{-7}$	$8x10^{-6}$	$2x10^{-5}$

ND = Not Detected

[a] For this analysis, the cumulative dose received over two years was expressed as an average daily exposure prorated over a 70-year lifetime, and the corresponding lifetime risk was calculated accordingly. This procedure is recommended in EPA's "Guidelines for Carcinogen Risk Assessment" (EPA 1986d). Residential well concentrations shown in Table 8-5 are used as a basis for calculating risks.

[b] Calculation of lifetime risks is based on monitoring well concentrations shown in Table 8-5.

TABLE 8-15

SUMMARY OF RISK ASSESSMENT RESULTS

	Acorn Road Residents	Rock River Terrace Residents	South River Road Residents
Total Excess Cancer Risk			
Two Years Ingestion			
Mean Concentrations	8×10^{-7}	5×10^{-8}	2×10^{-8}
Maximum Concentrations	2×10^{-6} (c)	2×10^{-7}	4×10^{-8}
Lifetime Ingestion			
Mean Concentration	2×10^{-3} (c)	8×10^{-6} (c)	2×10^{-4} (c)
Maximum Concentration	7×10^{-3} (c)	2×10^{-5} (c)	2×10^{-4} (c)
Hazard Index (HI) for Noncarcinogenic Health Effects (b)			
Two Years Ingestion			
Mean Concentration	<1	<1	<1
maximum Concentrations	<1	<1	<1
Lifetime Ingestion			
Mean Concentration	<1	<1	>1 (c)
Maximum Concentration	>1 (c)	<1	>1 (c)

a) From Table 8-12, 8-13, and 8-14. Note that excess cancer risk of $>1 \times 10^{-6}$ may be unacceptable.

b) As discussed in Section 8.6, the HI is sum of ratio of environmental concentration of noncarcinogenic substances to corresponding relevant criteria. The HI provides an indication of relative risks associated with a mixture of chemicals. A HI of <1 indicates that adverse noncarcinogenic health effects are not likely from individual or concurrent exposure to the selected contaminants. An HI of >1 suggests a cause for concern that noncarcinogenic health effects could potentially occur.

c) These scenarios may pose unacceptable health risks.

Appendix B

Cost Tables

Water Supply Alternative 1 Cost Estimate: Well, Booster Station, No River Crossing

Byron Superfund Site Feasiblity Study Addendum No. 1

Description	Qty	Units	Unit Cost	Extended Cost	Comments
DIVISION 01					
Freight, Sales Tax, Bonds, Insurance, % of Facility Total	5	%	$1,835,400.00	$91,770	
SUBTOTAL				$91,770	
CONTINGENCY	25	%		$22,943	
TOTAL DIVISON 01				$114,713	
WATER DISTRIBUTION SYSTEM					
River Crossing Corrosion Study	1	ea	$5,000.00	$5,000	
12" Pipe w/grassed surface restoration	5300	LF	$55.00	$291,500	
12" Pipe w/2" pavement restoration	100	LF	$75.00	$7,500	
12" Pipe Bore and Jack	0	LF	$350.00	$0	
12" Pipe on Bridge	0	LF	$275.00	$0	
12" Pipe under River	0	LF	$220.00	$0	
12" Valve and Box	8	ea	$1,500.00	$12,000	
Fire Hydrant Assembly Valve and Box	7	ea	$3,500.00	$24,500	
Connection to Existing Main	1	ea	$500.00	$500	
City of Byron Hookup Fee	5	ea	$4,000.00	$20,000	
Water Service Line & Well Abandonment	5	ea	$2,500.00	$12,500	
SUBTOTAL				$373,500	
CONTINGENCY	25	%		$93,375	
TOTAL				$466,875	
WELLHOUSE					
Wellhouse with access drive	1	LS	$50,000.00	$50,000	
Deep well with 12" casing	1	LS	$150,000.00	$150,000	
well pump	1	LS	$26,000.00	$26,000	
Elec. Controls and Telemetering	1	LS	$85,000.00	$85,000	
Chemical Feed System	1	LS	$50,000.00	$50,000	
SUBTOTAL				$361,000	
CONTINGENCY	25	%		$90,250	
TOTAL				$451,250	
RELOCATION OF BOOSTER STATION					
Removal of existing booster station	1	LS	$15,000.00	$15,000	
Booster station land acquisition	1	LS	$5,000.00	$5,000	
Construction of new booster station	1	LS	$161,000.00	$161,000	
Chemical Feed System	1	LS	$50,000.00	$50,000	
SUBTOTAL				$231,000	
CONTINGENCY	25	%		$57,750	
TOTAL				$288,750	
OPERATION AND MAINTENANCE COSTS					$2.02/LF/year Existing sys. (42,412LF exist.)
Water System Capital Replacement & Long Term Maint.	30	YRS	$92,638.24		$1.29/LF/year New sys. (5,400LF new)
SUBTOTAL				$0	
CONTINGENCY	25	%		$0	
TOTAL				$0	

Water Supply Alternative 1 Cost Estimate: Well, Booster Station, No River Crossing
Byron Superfund Site Feasibility Study Addendum No. 1

Description	Qty	Units	Unit Cost	Extended Cost	Comments
ENGINEERING DESIGN AND SPECIFICATIONS					
Well Siting Study	1	LS	$40,000.00	$40,000	
Permitting	1	LS	$4,000.00	$4,000	
Project Management	1	LS	$36,708.00	$36,708	2%
Engineering Design and Drawings	1	LS	$73,416.00	$73,416	4%
Engineering Specifications	1	LS	$73,416.00	$73,416	4%
SUBTOTAL				$227,540	
CONTINGENCY	25	%		$56,885	
TOTAL				$284,425	
CONSTRUCTION QUALITY ASSURANCE					
Construction Management	1	LS	$91,770.00	$91,770	5%
Construction Inspection and Testing	1	LS	$91,770.00	$91,770	5%
SUBTOTAL				$183,540	
CONTINGENCY	25	%		$45,885	
TOTAL				$229,425	
			Capital Costs:	$1,835,400	
			Annual O&M:	$92,600	
			PV of O&M:	$1,149,100	at 7% for 30 years
			Total Present Value:	$2,984,500	

Note:

The cost estimates were prepared based on information available at the time of the analyses and investigations summarized in this report. The estimates are based on a combination of information provided by the City of Byron for local construction costs, review of recent bid prices for similar projects, published cost reference materials, and the estimator's experience. Final project costs will depend on the actual labor and material costs, competitive market conditions, final project design, implementation schedule, and other variable factors at the time the project is bid. As a result, the final construction costs will vary from the estimates shown. The attached tables provide a detailed breakdown of each component of the cost estimates. The capital cost estimates presented herein are order-of magnitude accuracy and are considered appropriate for preliminary engineering and planning purposes. According to the American Association of Cost Engineers, this type of cost estimate is considered to be accurate to within +50 to –30 percent. The costs presented are based on January 1999 dollars. These cost will vary with economic changes and should be adjusted according to changes in the Engineering News Record Construction Cost Index (ENR-CCI). The referenced ENR-CCI for January 1999 is 6,000.

Water Supply Alternative 2: Cost Estimate: Well, Booster Station, Under River Crossing
Byron Superfund Site Feasiblity Study Addendum No. 1

Description	Qty	Units	Unit Cost	Extended Cost	Comments
DIVISION 01					
Freight, Sales Tax, Bonds, Insurance, % of Facility Total	5	%	$2,779,300.00	$138,965	
SUBTOTAL				$138,965	
CONTINGENCY	25	%		$34,741	
TOTAL DIVISON 01				$173,706	
WATER DISTRIBUTION SYSTEM					
River Crossing Corrosion Study	1	ea	$5,000.00	$5,000	
12" Pipe w/grassed surface restoration	7695	LF	$55.00	$423,225	
12" Pipe w/2" pavement restoration	1805	LF	$75.00	$135,375	
12" Pipe Bore and Jack	0	LF	$350.00	$0	
12" Pipe on Bridge	0	LF	$275.00	$0	
12" Pipe under River	1000	LF	$220.00	$220,000	
12" Valve and Box	15	EA	$1,500.00	$22,500	
Fire Hydrant Assembly Valve and Box	14	EA	$3,500.00	$49,000	
Connection to Existing Main	2	EA	$500.00	$1,000	
City of Byron Hookup Fee	5	EA	$4,000.00	$20,000	
Water Service Line & Well Abandonment	5	EA	$2,500.00	$12,500	
SUBTOTAL				$888,600	
CONTINGENCY	25	%		$222,150	
TOTAL				$1,110,750	
ELLHOUSE					
Wellhouse with access drive	1	LS	$50,000.00	$50,000	
Deep well with 12" casing	1	LS	$150,000.00	$150,000	
well pump	1	LS	$26,000.00	$26,000	
Elec. Controls and Telemetering	1	LS	$85,000.00	$85,000	
Chemical Feed System	1	LS	$50,000.00	$50,000	
SUBTOTAL				$361,000	
CONTINGENCY	25	%		$90,250	
TOTAL				$451,250	
RELOCATION OF BOOSTER STATION					
Removal of existing booster station	1	LS	$15,000.00	$15,000	
Booster station land acquisition	1	LS	$5,000.00	$5,000	
Construction of new booster station	1	LS	$161,000.00	$161,000	
Chemical Feed System	1	LS	$50,000.00	$50,000	
SUBTOTAL				$231,000	
CONTINGENCY	25	%		$57,750	
TOTAL				$288,750	
OPERATION AND MAINTENANCE COSTS					$2.02/LF/year Existing sys. (42,412LF exist.)
ater System Capital Replacement & Long Term Maint.	30	YRS	$97,991.74		$1.29/LF/year New sys. (9,550LF new)
SUBTOTAL				$0	
CONTINGENCY	25	%		$0	
TOTAL				$0	
ENGINEERING DESIGN AND SPECIFICATIONS					
Well Siting Study	1	LS	$40,000.00	$40,000	
Permitting	1	LS	$8,000.00	$8,000	Assumes no wetland impact permits necessary
Project Management	1	LS	$55,586.00	$55,586	2%
Engineering Design and Drawings	1	LS	$111,172.00	$111,172	4%
Engineering Specifications	1	LS	$111,172.00	$111,172	4%
SUBTOTAL				$325,930	
CONTINGENCY	25	%		$81,483	
TOTAL				$407,413	

Water Supply Alternative 2: Cost Estimate: Well, Booster Station, Under River Crossing
Byron Superfund Site Feasiblity Study Addendum No. 1

Description	Qty	Units	Unit Cost	Extended Cost	Comments
CONSTRUCTION QUALITY ASSURANCE					
Construction Management	1	LS	$138,965.00	$138,965	5%
Construction Inspection and Testing	1	LS	$138,965.00	$138,965	5%
SUBTOTAL				$277,930	
CONTINGENCY	25	%		$69,483	
TOTAL				$347,413	
			Capital Costs:	$2,779,300	
			Annual O&M:	$98,000	
			PV of O&M:	$1,216,100	at 7% for 30 years
			Total Present Value:	$3,995,400	

Note:
The cost estimates were prepared based on information available at the time of the analyses and investigations summarized in this report. The estimates are based on a combination of information provided by the City of Byron for local construction costs, review of recent bid prices for similar projects, published cost reference materials, and the estimator's experience. Final project costs will depend on the actual labor and material costs, competitive market conditions, final project design, implementation schedule, and other variable factors at the time the project is bid. As a result, the final construction costs will vary from the estimates shown. The attached tables provide a detailed breakdown of each component of the cost estimates. The capital cost estimates presented herein are order-of magnitude accuracy and are considered appropriate for preliminary engineering and planning purposes. According to the American Association of Cost Engineers, this type of cost estimate is considered to be accurate to within +50 to –30 percent. The costs presented are based on January 1999 dollars. These cost will vary with economic changes and should be adjusted according to changes in the Engineering News Record Construction Cost Index (ENR-CCI). The referenced ENR-CCI for January 1999 is 6,000.

Water Supply Alternative 3 Cost Estimate: Well, Booster Station, Railroad Bridge River Crossing

Byron Superfund Site Feasiblity Study Addendum No. 1

Description	Qty	Units	Unit Cost	Extended Cost	Comments
DIVISION 01					
Freight, Sales Tax, Bonds, Insurance, % of Facility Total	5	%	$3,472,000.00	$173,600	
SUBTOTAL				$173,600	
CONTINGENCY	25	%		$43,400	
TOTAL DIVISON 01				$217,000	
WATER DISTRIBUTION SYSTEM					
River Crossing Corrosion Study	1	ea	$5,000.00	$5,000	
12" Pipe w/grassed surface restoration	12020	LF	$55.00	$661,100	
12" Pipe w/2" pavement restoration	1880	LF	$75.00	$141,000	
12" Pipe Bore and Jack	500	LF	$350.00	$175,000	
12" Pipe on Bridge	600	LF	$275.00	$165,000	
12" Pipe under River	0	LF	$220.00	$0	
12" Valve and Box	20	EA	$1,500.00	$30,000	
Fire Hydrant Assembly Valve and Box	18	EA	$3,500.00	$63,000	
Connection to Existing Main	2	EA	$500.00	$1,000	
City of Byron Hookup Fee	5	EA	$4,000.00	$20,000	
Water Service Line & Well Abandonment	5	EA	$2,500.00	$12,500	
SUBTOTAL				$1,273,600	
CONTINGENCY	25	%		$318,400	
TOTAL				$1,592,000	
WELLHOUSE					
Wellhouse with access drive	1	LS	$50,000.00	$50,000	
Deep well with 12" casing	1	LS	$150,000.00	$150,000	
well pump	1	LS	$26,000.00	$26,000	
Elec. Controls and Telemetering	1	LS	$85,000.00	$85,000	
Chemical Feed System	1	LS	$50,000.00	$50,000	
SUBTOTAL				$361,000	
CONTINGENCY	25	%		$90,250	
TOTAL				$451,250	
RELOCATION OF BOOSTER STATION					
Removal of existing booster station	1	LS	$15,000.00	$15,000	
Booster station land acquisition	1	LS	$5,000.00	$5,000	
Construction of new booster station	1	LS	$161,000.00	$161,000	
Chemical Feed System	1	LS	$50,000.00	$50,000	
SUBTOTAL				$231,000	
CONTINGENCY	25	%		$57,750	
TOTAL				$288,750	
OPERATION AND MAINTENANCE COSTS					$2.02/LF/year Existing sys. (42,412LF exist.)
Water System Capital Replacement & Long Term Maint.	30	YRS	$103,603.24		$1.29/LF/year New sys. (13,900LF new)
SUBTOTAL				$0	
CONTINGENCY	25	%		$0	
TOTAL				$0	
ENGINEERING DESIGN AND SPECIFICATIONS					
Well Siting Study	1	LS	$40,000.00	$40,000	
Permitting	1	LS	$4,000.00	$4,000	
Project Management	1	LS	$69,440.00	$69,440	2%
Engineering Design and Drawings	1	LS	$138,880.00	$138,880	4%
Engineering Specifications	1	LS	$138,880.00	$138,880	4%
SUBTOTAL				$391,200	
CONTINGENCY	25	%		$97,800	
TOTAL				$489,000	

Water Supply Alternative 3 Cost Estimate: Well, Booster Station, Railroad Bridge River Crossing
Byron Superfund Site Feasibility Study Addendum No. 1

Description	Qty	Units	Unit Cost	Extended Cost	Comments
CONSTRUCTION QUALITY ASSURANCE					
Construction Management	1	LS	$173,600.00	$173,600	5%
Construction Inspection and Testing	1	LS	$173,600.00	$173,600	5%
SUBTOTAL				$347,200	
CONTINGENCY	25	%		$86,800	
TOTAL				$434,000	
			Capital Costs:	$3,472,000	
			Annual O&M:	$103,600	
			PV of O&M:	$1,285,600	at 7% for 30 years
			Total Present Value:	$4,757,600	

Note:

The cost estimates were prepared based on information available at the time of the analyses and investigations summarized in this report. The estimates are based on a combination of information provided by the City of Byron for local construction costs, review of recent bid prices for similar projects, published cost reference materials, and the estimator's experience. Final project costs will depend on the actual labor and material costs, competitive market conditions, final project design, implementation schedule, and other variable factors at the time the project is bid. As a result, the final construction costs will vary from the estimates shown. The attached tables provide a detailed breakdown of each component of the cost estimates. The capital cost estimates presented herein are order-of magnitude accuracy and are considered appropriate for preliminary engineering and planning purposes. According to the American Association of Cost Engineers, this type of cost estimate is considered to be accurate to within +50 to –30 percent. The

Groundwater Alternative 1 - No Actiohn
Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
ACCESS AND DEED					
Legal Document Preparation	0	Hrs	$158	$0	Plager, Hasting, & Krug, LTD.
Signs	0	EA	$26	$0	Includes installation, Engineer Estimate
Sampling Plan Design	0	LS	$26,350	$0	Includes FSP, Subcontracts, Data
TOTAL				$0	
OPERATION AND MAINTENANCE					
Groundwater Sampling & Water Level Measurements	0	EA	$31,030	$0	13 sampling events for 4 residential & 31 MWs. Annual for 1st 5 yrs, every three yrs thereafter. VOCs and Metals analysis.
Water Level Measurements	0	EA	$3,830	$0	16 WL events (qtrly the 1st yr, annually yrs. 2 - 5, every 3 yrs thereafter)
Annual Maintenance and Repair	0	YR	$2,635	$0	
SUBTOTAL				$0	
CONTINGENCY	25	%		$0	
TOTAL				$0	
			Capital Costs:	$0	
			Annual O&M:	$0	
			PV of O&M:	$0	(30 years, 7% interest, Multiplier = 15.3725)
			Total Present Value:	$0	

Groundwater Alternative 2 - Groundwater Monitoring and Institutional Controls
Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cos	Comments
ACCESS AND DEED RESTRICTIONS					
Legal Document Preparation	40	Hrs	$158	$6,324	Plager, Hasting, & Krug, LTD.
Signs	20	EA	$26	$527	Includes installation, Engineer Estimate
Sampling Plan Design	1	LS	$26,350	$26,350	Includes FSP, Subcontracts, Data Validation, etc.
TOTAL				$33,201	
OPERATION AND MAINTENANCE					
Groundwater Sampling & Water Level	13	EA	$31,030	$403,390	13 sampling events for 4 residential & 31 MWs. Annual for 1st 5 yrs, every three yrs thereafter. VOCs and Metals analysis.
Water Level Measurements	16	EA	$3,830	$61,280	16 WL events (qtrly the 1st yr, annually yrs. 2 - 5, every 3 yrs thereafter)
Annual Maintenance and Repair	30	YR	$2,635	$79,050	
SUBTOTAL				$543,720	
CONTINGENCY	25	%		$135,930	
TOTAL				$679,650	
			Capital Costs:	$33,201	
			Annual O&M:	$37,495	
			PV of O&M:	$465,277	(30 years, 7% interest, Multiplier = 15.3725)
			Total Present Value:	**$498,478**	

Byron Superfund Site Feasibility Study Addendum
Groundwater Alternative 3 - Monitored Natural Attenuation and Institutional Controls

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
ACCESS AND DEED RESTRICTIONS					
Legal Document Preperation	40	Hrs	$158	$6,324	
Signs	20	EA	$26	$527	Includes installation
Sampling Plan Design	1	LS	$47,430	$47,430	Includes FSP, Subcontracts, Data Validation, etc.
TOTAL				$54,281	
OPERATION AND MAINTENANCE					
Groundwater Sampling & Water Level Measurements	13	EA	$31,030	$403,390	13 sampling events for 4 residential & 31 MWs. Annual for 1st 5 yrs, every three yrs thereafter. VOCs and Metals analysis.
Water Level Measurements	16	EA	$3,830	$61,280	16 WL events (qtrly the 1st yr, annually yrs. 2 - 5, every 3 yrs thereafter)
Annual Maintenance and Repair	30	YR	$3,689	$110,670	
SUBTOTAL				$575,340	
CONTINGENCY	25	%		$143,835	
TOTAL				$719,175	
			Capital Costs:	$54,281	
			Annual O&M:	$38,549	
			PV of O&M:	$478,356	(30 years, 7% interest, Multiplier = 15.3725)
			Total Present Value:	**$532,637**	

TABLE 1

Groundwater Alternative 4 - Onsite Groundwater Extraction, Treatment, and Discharge to Surface Wate

Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
DIVISION 01					
Freight, Sales Tax, Bonds, Insurance, % of Facility Total	5	%	$2,316,021	$115,801	Cost is 5% of total capital cost.
SUBTOTAL				$115,801	
CONTINGENCY	25	%		$28,950	
TOTAL DIVISION 01				$144,751	
ACCESS AND DEED RESTRICTIONS					
Legal Document Preperation	40	Hrs	$158	$6,324	
Signs	20	EA	$26	$527	Includes installation
Sampling Plan Design	1	LS	$47,430	$47,430	
SUBTOTAL				$54,281	
CONTINGENCY	25	%		$13,570	
TOTAL				$67,851	
SITE PREPARATION/CONSTRUCTION FACILITIES					
Field Office, Utilities Install/Use, Phone, Supplies	3	MO	$2,108	$6,324	
Site Mobilization/Demobilization	1	LS	$5,270	$5,270	
SUBTOTAL				$11,594	
CONTINGENCY	25	%		$2,898.50	
TOTAL				$14,493	
DIVISION 03					
Concrete for Air Stripper Slab	15	CY	$290	$4,347.75	
SUBTOTAL				$4,348	
CONTINGENCY	25	%		$1,087	
TOTAL				$5,435	
TRENCH EXCAVATION/PIPE INSTALLATION					
ONSITE EXTRACTION WELLS					
Trench (EW-1 to EW-2) w/8" Pipe Installed	550	FT	$32	$17,391	
Trench (EW-2 to EW-3) w/16" Pipe Installed	500	FT	$32	$15,810	
Trench (EW-4 to EW-2) w/8" Pipe Installed	1,500	FT	$32	$47,430	
Trench (EW-5 to EW-4) w/8" Pipe Installed	10	FT	$32	$316	
Trench (EW-6 to EW-1) w/8" Pipe Installed	10	FT	$32	$316	
Trench (EW-3 to Manhole) w/16" Pipe Installed	300	FT	$32	$9,486	
Trench (TS to Woodland Creek) w/16" Pipe Installed	350	FT	$32	$11,067	
8" HDPE Piping	2,050	FT	$8	$16,745.43	
16" HDPE Piping	800	FT	$26	$21,080	
16" HDPE Piping (Discharge to Woodland Creek)	350	FT	$26	$9,223	
HDPE Fittings	1	LS	$12,226	$12,226	
4' Diameter Manhole	1	EA	$3,162	$3,162	
SUBTOTAL				$164,253	
CONTINGENCY	25	%		$41,063	
TOTAL				$205,316	

TABLE 1

Groundwater Alternative 4 - Onsite Groundwater Extraction, Treatment, and Discharge to Surface Wate

Byron Superfund Site Feasibility Study Addendum

Description		Quantity	Units	Unit Cost	Extended Cost	Comments
EXTRACTION WELL INSTALLATION						
Drill Extraction Well		60	MH	$184	$11,067	
Pump Test Support		60	MH	$316	$18,972	
Well Development		10	MH	$158	$1,581	
Extraction Well Casing		1,000	LF	$47	$47,430	Assume 100 ft wells with 20 ft screen
Extraction Well Screen		100	LF	$132	$13,175	Assume 20 ft screen
End Caps		6	EA	$53	$316	
Weld Rings		6	EA	$53	$316	
Sand (Coarse)		140	Bags	$16	$2,213	
Sand (Fine)		100	Bags	$16	$1,581	
Portland Cement		600	Bags	$16	$9,486	
Bentonite		120	Bags	$13	$1,518	
Concrete		60	Bags	$13	$759	
Pumps		6	EA	$1,001	$6,008	
Pitless Adaptors		6	EA	$632	$3,794	
Miscellaneous Gages and Valves		6	EA	$4,216	$25,296	
Disposable PPE		80	EA	$11	$843	
	SUBTOTAL				$144,356	
	CONTINGENCY	25	%		$36,089	
TOTAL					$180,445	
TREATMENT SYSTEM CONSTRUCTION						
Treatment Building		1	EA	$263,500	$263,500	
Air Stripper Installation		1	LS	$119,102	$119,102	Includes Air Stripper, Labor, Equipment, and Flow Meters
Aerator		1	EA	$26,350	$26,350	
Clarifier		1	EA	$137,020	$137,020	
Filter		1	EA	$79,050	$79,050	
Sludge Processing System		1	EA	$131,750	$131,750	
Chemical Feed Unit		1	EA	$21,080	$21,080	
Pumps/Piping		1	EA	$105,400	$105,400	
System Automation		1	EA	$79,050	$79,050	
Pilot Test		1	EA	$47,430	$47,430	
	SUBTOTAL				$1,009,732	
	CONTINGENCY	25	%		$252,433	
TOTAL					$1,262,165	
MECHANICAL						
Extraction Well Pumps		6	EA	$4,216	$25,296	
NENA Weatherproof Control Panel (Installed)		6	EA	$1,686	$10,118	
1	SUBTOTAL				$35,414	
	CONTINGENCY	25	%		$8,854	
TOTAL					$44,268	
ELECTRICAL						
Install Power to Onsite Extraction Wells		3,500	FT	$8	$29,512	
	SUBTOTAL				$29,512	
	CONTINGENCY	25	%		$7,378	
TOTAL					$36,890	

TABLE 1

Groundwater Alternative 4 - Onsite Groundwater Extraction, Treatment, and Discharge to Surface Water

Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
MISCELLANEOUS ITEMS					
Decontamination Pad/Equipment Decontamination	1	LS	$21,080	$21,080	
SUBTOTAL				$21,080	
CONTINGENCY	25	%		$5,270	
TOTAL				$26,350	
SAMPLING AND ANALYSIS					
Groundwater Sampling & Water Level Measurements	13	EA	$31,030	$403,390	13 sampling events for 4 residential & 31 MWs. Annual for 1st 5 yrs, every three yrs thereafter. VOCs and
Water Level Measurements	16	EA	$3,830	$61,280	16 WL events (qtrly the 1st yr, annually yrs. 2 - 5, every 3 yrs thereafter)
Effluent Sampling	30	years	$5,270	$158,100	
Annual Maintenance and Repair	30	years	$3,689	$110,670	
SUBTOTAL				$733,440	
CONTINGENCY	25	%		$183,360	
TOTAL				$916,800	
OPERATIONS AND MAINTENANCE COSTS					
Annual Maintenance and Repair to Monitoring Wells	30	years	$632	$18,972	
Energy Cost - Air Stripper	30	years	$26,350	$790,500	
Maintenance of GW collection System	30	years	$29,512	$885,360	
Gas, Electric, and Treatment	30	years	$47,430	$1,422,900	Include electric and gas costs
Sludge Disposal	30	years	$13,702	$411,060	
SUBTOTAL				$3,528,792	
CONTINGENCY	25	%		$882,198	
TOTAL				$4,410,990	
ENGINEERING DESIGN AND SPECIFICATIONS					
Project Management	1	LS	$29,196	$29,196	
Engineering Design and Drawings	1	LS	$58,286	$58,286	
Engineering Specifications	1	LS	$58,286	$58,286	
SUBTOTAL				$145,768	
CONTINGENCY	25	%		$36,442	
TOTAL				$182,210	
CONSTRUCTION QUALITY ASSURANCE					
Construction Management	1	LS	$29,195.80	$29,196	
Construction Inspection and Testing	1	LS	$87,482.00	$87,482	
SUBTOTAL				$116,678	
CONTINGENCY	25	%		$29,169	
TOTAL				$145,847	
			Capital Costs:	$2,316,020	
			Annual O&M:	$161,445	
			PV of O&M:	$2,003,383	
			Total Present Value:	**$4,319,403**	

TABLE 2

Groundwater Alternative 5 - Onsite and Offsite Groundwater Extraction, Treatment, and Discharge to Surface Wate

Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
DIVISION 01					
Freight, Sales Tax, Bonds, Insurance, % of Facility Tot	5	%	$2,854,422	$142,721	Cost is 5% of total capital cost.
SUBTOTAL				$142,721	
CONTINGENCY	25	%		$35,680	
TOTAL DIVISION 01				$178,401	
ACCESS AND DEED RESTRICTIONS					
Legal Document Preperation	40	Hrs	$158	$6,324	
Signs	20	EA	$26	$527	Includes installation
Sampling Plan Design	1	LS	$47,430	$47,430	
SUBTOTAL				$54,281	
CONTINGENCY	25	%		$13,570	
TOTAL				$67,851	
SITE PREPARATION/CONSTRUCTION FACILITIES					
Field Office, Utilities Install/Use, Phone, Supplies	3	MO	$2,108	$6,324	
Site Mobilization/Demobilization	1	LS	$5,270	$5,270	
Deed Restrictions	20	EA	$5,270	$105,400	
SUBTOTAL				$116,994	
CONTINGENCY	25	%		$29,249	
TOTAL				$146,243	
DIVISION 03					
Concrete for Air Stripper Slab	15	CY	$290	$4,348	
SUBTOTAL				$4,348	
CONTINGENCY	25	%		$1,087	
TOTAL				$5,435	
TRENCH EXCAVATION/PIPE INSTALLATION					
ONSITE EXTRACTION WELLS					
Trench (EW-1 to EW-2) w/8" Pipe Installed	550	FT	$32	$17,391	
Trench (EW-2 to EW-3) w/16" Pipe Installed	500	FT	$32	$15,810	
Trench (EW-4 to EW-2) w/8" Pipe Installed	1,500	FT	$32	$47,430	
Trench (EW-3 to Manhole) w/16" Pipe Installed	300		$32	$9,486	
Trench (EW-5 to EW-4) w/8" Pipe Installed	10	FT	$32	$316	
Trench (EW-6 to EW-1) w/8" Pipe Installed	10	FT	$32	$316	
Trench (EW-7 to EW-8) w/8" Pipe Installed	1,500		$32	$47,430	
Trench (EW-7/8 to Manhole) w/2" PVC Installed	3,600	FT	$32	$113,832	
Trench (TS to Woodland Creek) w/16" Pipe Installed	350	FT	$32	$11,067	
2" PVC Piping	3,600		$4	$15,178	
8" HDPE Piping	3,570	FT	$8	$30,102	
16" HDPE Piping	1,300	FT	$26	$34,255	
16" HDPE Piping (Discharge to Woodland Creek)	350	FT	$26	$9,223	
HDPE Fittings	2	LS	$12,226	$24,453	
4' Diameter Manhole	1	EA	$3,162	$3,162	
SUBTOTAL				$379,451	
CONTINGENCY	25	%		$94,863	
TOTAL				$474,314	

TABLE 2

Groundwater Alternative 5 - Onsite and Offsite Groundwater Extraction, Treatment, and Discharge to Surface Water

Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
EXTRACTION WELL INSTALLATION					
					Note: The estimates are based on four extraction wells
Drill Extraction Well	80	MH	$184	$14,756	
Pump Test Support	80	MH	$316	$25,296	
Well Development	16	MH	$158	$2,530	
Extraction Well Casing	720	LF	$47	$34,150	Assume 100 ft wells with 20 ft screen
Extraction Well Screen	160	LF	$132	$21,080	Assume 20 ft screen
End Caps	8	EA	$53	$422	
Weld Rings	8	EA	$53	$422	
Sand (Coarse)	200	Bags	$16	$3,162	
Sand (Fine)	80	Bags	$16	$1,265	
Portland Cement	600	Bags	$16	$9,486	
Bentonite	120	Bags	$13	$1,518	
Concrete	80	Bags	$13	$1,012	
Pumps	8	EA	$1,001	$8,010	
Pitless Adaptors	8	EA	$632	$5,059	
Miscellaneous Gages and Valves	8	EA	$4,216	$33,728	
Disposable PPE	110	EA	$11	$1,159	
SUBTOTAL				$163,054	
CONTINGENCY	25	%		$40,763	
TOTAL				**$203,817**	
TREATMENT SYSTEM CONSTRUCTION					
Treatment Building	1	EA	$263,500	$263,500	
Air Stripper Installation	1	LS	$119,102	$119,102	Includes Air Stripper, Labor, Equipment, and Flow Meters
Aerator	1	EA	$26,350	$26,350	
Clarifier	1	EA	$137,020	$137,020	
Filter	1	EA	$79,050	$79,050	
Sludge Processing System	1	EA	$131,750	$131,750	
Chemical Feed Unit	1	EA	$21,080	$21,080	
Pumps/Piping	1	EA	$105,400	$105,400	
System Automation	1	EA	$79,050	$79,050	
Pilot Test	1	EA	$47,430	$47,430	
SUBTOTAL				$1,009,732	
CONTINGENCY	25	%		$252,433	
TOTAL				**$1,262,165**	
MECHANICAL					
Extraction Well Pumps	8	EA	$4,216	$33,728	
NENA Weatherproof Control Panel (Installed)	8	EA	$1,686	$13,491	
Pump Station	1	EA	$31,620	$31,620	
SUBTOTAL				$78,839	
CONTINGENCY	25	%		$19,710	
TOTAL				**$98,549**	
ELECTRICAL					
Install Power to Onsite Extraction Wells	6,000	FT	$8	$50,592	
SUBTOTAL				$50,592	
CONTINGENCY	25	%		$12,648	

TABLE 2

Groundwater Alternative 5 - Onsite and Offsite Groundwater Extraction, Treatment, and Discharge to Surface Water

Byron Superfund Site Feasibility Study Addendum

Description	Quantity	Units	Unit Cost	Extended Cost	Comments
TOTAL				$63,240	
MISCELLANEOUS ITEMS					
Decontamination Pad/Equipment Decontamination	1	LS	$21,080	$21,080	
SUBTOTAL				$21,080	
CONTINGENCY	25	%		$5,270	
TOTAL				$26,350	
SAMPLING AND ANALYSIS					
Groundwater Sampling & Water Level Measurements	13	EA	$31,030	$403,390	1st 5 yrs, every three yrs thereafter. VOCs and Metals analysis.
Water Level Measurements	16	EA	$3,830	$61,280	16 WL events (qtrly the 1st yr, annually yrs. 2 - 5, every 3 yrs thereafter)
Effluent Sampling	30	years	$5,270	$158,100	
Annual Maintenance and Repair	30	years	$3,689	$110,670	
SUBTOTAL				$733,440	
CONTINGENCY	25	%		$183,360	
TOTAL				$916,800	
OPERATIONS AND MAINTENANCE COSTS					
Annual Maintenance and Repair to Monitoring Wells	30	years	$527	$15,810	
Energy Cost - Air Stripper	30	years	$28,458	$853,740	
Maintenance of GW collection System	30	years	$29,512	$885,360	
Gas, Electric, and Treatment	30	years	$47,430	$1,422,900	Include electric and gas costs
Sludge Disposal	30	years	$15,810	$474,300	
SUBTOTAL				$3,652,110	
CONTINGENCY	25	%		$913,028	
TOTAL				$4,565,138	
ENGINEERING DESIGN AND SPECIFICATIONS					
Project Management	1	LS	$29,196	$29,196	
Engineering Design and Drawings	1	LS	$58,286	$58,286	
Engineering Specifications	1	LS	$58,286	$58,286	
SUBTOTAL				$145,768	
CONTINGENCY	25	%		$36,442	
TOTAL				$182,210	
CONSTRUCTION QUALITY ASSURANCE					
Construction Management	1	LS	$29,196	$29,196	
Construction Inspection and Testing	1	LS	$87,482	$87,482	
SUBTOTAL				$116,678	
CONTINGENCY	25	%		$29,169	
TOTAL				$145,847	
			Capital Costs:	$2,854,421	
			Annual O&M:	$165,556	
			PV of O&M:	$2,054,391	
			Total Present Value:	**$4,908,813**	

Appendix C

ARARs

Table 2-2a
Initial Screening of Potential ARARs for Groundwater and Surface Water
Federal Requirements
Byron Superfund Site
(Page 1 of 3)

Description	Prerequisite(a)	Requirement	Citation	Comments
Chemical-Specific				
Water Quality Criteria	Discharge to surface water used by aquatic organisms and humans; human consumption of aquatic organisms.	Water source must not exceed numerical criteria for certain indicator chemicals, and other water quality related standards.	Clean Water Act (33 USC 125)	(See Table 2-2)
National Pollutant Discharge Elimination System (NPDES) Permit Regulations	Wastewater and waste material discharged into surface water.	Regulation of wastewater and waste material discharge into surface water.	Clean Water Act 40 CFR Parts 122, 125 and Subchapter N	May be an ARAR if treated groundwater is directly discharged into surface water
Point Source Discharge to Surface Water	Surface water discharge of treated effluent.	Applicable federal water quality criteria for the protection of aquatic life must be complied with when environmental factors are being considered. Applicable federally approved state water quality standards must be complied with. These standards may be in addition to or more stringent than other federal standards under the CWA. The discharge must be consistent with the requirements of the state's Water Quality Management Plan approved by the U.S. EPA.	Clean Water Act (CWA) 40 CFR 122.44 CWA Section 208(b).	Where state regulations are more stringent than federal water quality standards, the state standards will be applicable to direct discharges. The IEPA has authority under 40 CFR 131 to implement direct discharge requirements within the state.

Table 2-2a
Initial Screening of Potential ARARs for Groundwater and Surface Water
Federal Requirements
Byron Superfund Site
(Page 2 of 3)

Description	Prerequisite(a)	Requirement	Citation	Comments
Point Source Discharge to Surface Water (Cont'd)		Use of best available technology (BAT) economically achievable is required to control toxic and nonconventional pollutants. Use of the best conventional control technology (BCT) is required to control conventional pollutants. Technology-based limitations may be determined on a case-by-case basis.	40 CFR 122(a)	If treated effluent is discharged to surface waters, these treatment requirements will be applicable. IEPA is the permitting authority and should be contacted to determine effluent standards.
		Discharge limitations must be established for all toxic pollutants that are or may be discharged at levels greater than those that can be achieved by technology-based standards.	40 CFR 122/44(e)	Exact limitations are based on review of the proposed treatment system and receiving water characteristics, and are usually determined on a case-by-case basis.
		Discharge must be monitored to include: • The mass of each pollutant • The volume of effluent • Frequency of discharge and other measurements as appropriate.	40 CFR 122.44(i)	These requirements are generally incorporated into permits, which are not required for onsite discharge. The substantive requirements are applicable in that verifiable evidence must be offered that the discharge standards are being met. IEPA is the permitting authority and should be contacted to determine monitoring and operational requirements.
		Approved test methods for waste constituents to be monitored must be followed. Detailed requirements for analytical procedures and quality controls are provided. Monitor and report results as required by permit (at least annually).	40 CFR 122.41(l)	

Table 2-2a
Initial Screening of Potential ARARs for Groundwater and Surface Water
Federal Requirements
Byron Superfund Site
(Page 3 of 3)

Description	Prerequisite(a)	Requirement	Citation	Comments
Point Source Discharge to Surface Water (Cont'd)	Surface water discharge of treated effluent to waters of the United States.	Comply with additional permit conditions such as: • Duty to mitigate any adverse effects on any discharge. • Proper operation and maintenance of treatment systems.	40 CFR 122.41(1)	
		Develop and implement a Best Management Practice (BMP) program and incorporate measures that prevent the release of toxic constituents to surface waters. The BMP Program must: • Establish specific procedures for the control of toxic and hazardous pollutant spills. • Include a prediction of direction, rate of flow, and total quantity of toxic pollutants where experience indicates a reasonable potential for equipment failure. • Assure proper management of solid and hazardous waste in accordance with regulations promulgated with RCRA.	40 CFR 125.100 and 104	These issues are determined on a case-by-case basis by the National Pollutant Discharge Elimination System (NPDES) permitting authority for any proposed surface water discharge.
		Requires consultation when federal department or agency proposes or authorizes any modifications to any stream or other water body and adequate provision for protection of fish and wildlife.	16 USC 661-666	If an alternative involves any modifications of nearby streams.
Maximum Contaminant Levels (MCLs)	Actual or potential drinking water source.	Insure that the chemical constituents do not exceed water quality standards.	Safe Drinking Water Act (42 USC.300); 40 CFR Part 141	May be an ARAR if groundwater is used or potentially used for drinking water, or designated for public and/or private water.
Groundwater Protection Standards	Hazardous constituents left onsite in groundwater at a CERCLA site.	Long-term detection monitoring at CERCLA sites where hazardous constituents which exceed standards remain onsite	40 CFR Part 264, Subpart F; RCRA Groundwater Protection Standards	General groundwater protection standards are ARARs at a CERCLA site when constituents remain in groundwater
Location-Specific		None		

Table 2-2b
Initial Screening of Potential ARARs for Surface Water
State Requirements
Byron Superfund Site
(Page 1 of 3)

Description	Prerequisite(s)	Requirement	Citation	Comments
Chemical-Specific				
State of Illinois Rules and Regulations General Use Water Quality Standards	Discharge to waters of the state.	General use water quality standards protect the state's water for aquatic life, agricultural use, most industrial use, and ensure the aesthetic quality of the State's aquatic environment.	Title 35; Environmental Protection Subtitle C: Water Pollution Subpart B, General Use Water Quality Standards 35 IAC 302.208	Promulgated State Law.
One-tenth of the 96-hour Median Tolerance Limit (TLm)	Discharge of pollutants to waters of the state.	Section 302.210 states that any substance toxic to aquatic life shall not exceed one-tenth of the 96-hour TLm for native fish or food organisms.	Sate of Illinois Rules and Regulations Title 35: Environmental Protection Subtitle C: Water Pollution Subpart B: General Use Water Quality Standards Section 302.210.	
Surface Water Discharge Resulting in Offensive Conditions	Discharge of pollutants to waters of the state.	Waters of the state must be free from sludge or bottom deposits, floating debris, visible oil, odor, plant or algae growth, color turbidity of other than natural origin.	Title 35: Environmental Protection Act Subtitle C: Water Pollution Section 302.203	An ARAR because it provides general prohibition of concentrations in surface water of taste and odor producing substances which impart impalatable flavor to food, fish, or otherwise interfere with the reasonable use of the surface water in the state.
Acute Toxicity of Discharges	Discharge of acutely toxic substances to surface water.	Avoid acutely toxic substances from entering the surface water.	Title 35: Environmental Protection Act Subtitle C: Water Pollution Section 302.210.621	Surface water discharge must not be acutely toxic to aquatic life (except in small zones from initial dilution at discharge points).
Chronic Toxicity of Discharges	Discharges of chronically toxic substances to surface water.	Avoid chronically toxic substances from entering the surface water.	Title 35: Environmental Protection Act Subtitle C; Water Pollution, Sections, 302.210, .627, .630	Surface water discharge with designated or existing aquatic life uses shall not be chronically toxic to aquatic life (except in mixing zones and below critical low-flow conditions).

Table 2-2b
Initial Screening of Potential ARARs for Surface Water
State Requirements
Byron Superfund Site
(Page 2 of 3)

Description	Prerequisite(s)	Requirement	Citation	Comments
Chemical-Specific (cont.)				
General Toxicity of Discharges	Discharge of generally toxic substances to surface water.	Avoid generally toxic substances from entering the surface water.	Section 302.210	Surface water discharge must not be toxic or injurious to man or to terrestrial or aquatic life.
Human Toxicity of Discharges	Discharge of human toxic substances to surface water.	Avoid human toxic substances from entering the surface water.	Section 302.210	Surface water must be maintained to preclude adverse toxic effects on human health resulting from contact recreation, consumption of aquatic organisms, or consumption of drinking water after reasonable treatment.
LC50 Toxicity Criteria of Discharge	Exposure of aquatic organisms to toxic concentrations within discharge with a median lethal concentration (LC50).	Avoid toxic concentrations of discharge substances based on LC50 doses.	Title 35: Environmental Protection Act Subtitle C; Water Pollution 35 IAC 302.621	Concentrations of toxic materials for which no numerical criteria have been specified must not exceed values which are chronically toxic to representative, sensitive aquatic organisms, as determined from appropriate chronic toxicity data.
Standards for Effluents Discharge to State Waters	Discharge to waters of the state.	General requirements for discharge of effluents to state waters.	Title 35: Environmental Protection Act Subtitle C: Water Pollution 35 IAC 304.102-106, .141, 305.102-.103, 306.102	Relevant to ground water treatment technologies.
Nondegradation of Receiving Water Standard	Water quality of discharge must be better than the water quality standards of receiving water.	Avoid degrading waters with lower water quality standards.	Title 35: Environmental Protection Act Subtitle C: Water Pollution Chapter I Section 302.105	The maintenance and protection of existing water quality when better than water quality standards, especially when discharging wastewater.

Table 2-2b
Initial Screening of Potential ARARs for Surface Water
State Requirements
Byron Superfund Site
(Page 3 of 3)

Description	Prerequisite(s)	Requirement	Citation	Comments
Site-specific Designated Uses and Criteria	Wastewater discharge to surface water.	Designated uses of surface water must be protected.	General Use Water, Act 245 Part 4, Rule 100: Site-specific Designated Uses	The basic uses for a surface water, such as navigation, agricultural water supply, industrial raw water supply, public water supply, recreation, and sustenance of aquatic life and wildlife must be maintained and protected for all surface water in which these uses can be achieved.
Underground Injection Control (UIC)	The movement of fluid containing any contaminant into underground sources of drinking water which may violate any primary drinking water standard under 40 CFR 142 or may adversely affect the health of persons (Section 104.122).	Avoid injection of fluids into the groundwater which may violate 40 CFR 142 primary drinking water standards or adversely affect the health of persons. A permit may be required from the Illinois EPA.	Environmental Protection, Waste Disposal, 35 IAC Part 704	May be an ARAR if remediation could involve the ingestion of contaminants into the groundwater.
Action-Specific Point Source Discharge to Surface Water	Discharge of treated effluent to surface waters.	Must comply with substantive requirements for treatment, pretreatment and discharges requiring NPDES permit.	Title 35: Environmental Protection Act, Subpart C: Water Pollution 35 IAC 309.20.282	Applicable/relevant for groundwater treatment systems.
Excavation or Consolidation of Site Materials	Land disturbance practices, including clearing, grading, excavating or development.	Provide for control of soil erosion and prevent sedimentation of surface water.	Standards and Specifications for Soil and Sediment Control, 1987, IEPA	
Location-Specific		None	None	

Appendix D

Responsiveness Summary

Byron Superfund Site
Responsiveness Summary

This summary provides the responses to public comments on the Byron Salvage Yard/Dirks Farm Property Site Proposed Plan. The comments were grouped by theme: Remedy or General. Multiple sources of comments were noted where appropriate. Each comment (sometimes paraphrased in order to group) is provided with the response below.

The text of these full comments can be found in the U.S. EPA Byron Salvage Yard Site Administrative Record. Comments were provided by interested parties during the public comment period which was from August 23, 1999 through October 21, 1999. No verbal comments were made at the public meeting held on August 25, 1999.

Remedy

Comment No. 1

The Agency proposes to require the construction of a redundant water supply system, to respond to purely hypothetical scenarios in which one of the City's two existing water supply wells might fail, or in which the water main connecting the Rock River Terrace subdivision to the City of Byron water system might for some reason be interrupted.

There is no factual or legal basis for such a plan. Under CERCLA, there is no precedent or other legal support for including redundant water supply systems within the statutorily recoverable "necessary costs of response." 42 U.S.C. 9607(1). Nor does the National Contingency Plan authorize the construction of such redundant systems. See, e.g., 40 CFR 300.430. EPA has already extended the Byron water supply system to the Rock River Terrace subdivision and other areas potentially affected by groundwater contamination from the Byron site. That system has served the needs of the potentially affected residents without any service interruptions in the past, nor is there any basis in the Administrative Record of any service interruptions in the past, nor is there any basis in the Record of Decision for any concern about the future performance of the system.

Response:

Due to groundwater contamination associated with the site, affected residents were connected to the City of Byron's municipal water supply as an interim measure until a final groundwater remedy determination was made. All waterline extension work was completed in 1991. However, U.S. EPA determined that a number of unanswered questions remained concerning the nature and extent of contamination at the site.

In January 1999, U.S. EPA performed groundwater modeling to assess the effectiveness of various pump and treat scenarios. Based on the modeling performed, only through complete source removal is it projected that levels of trichloroethene (TCE) will reach health based drinking water standards and that could still take well over 200 years for all affected residents. [1] Ground water data obtained during the investigations between 1990 and 1998, indicate that Dense Non-Aqueous Phase Liquids (DNAPLs), which are highly concentrated liquid sources which are hard to extract, likely exist under the Byron Salvage Yard. DNAPLs could act as continuing groundwater contamination sources. Given the information to date, i.e., the fractured bedrock nature of the geology, and the likely existence of DNAPLs, the U.S. EPA is not currently confident that pumping and treating the contaminated groundwater will be effective in reducing contaminate levels to all affected residents within a reasonable period of time. Therefore, the U.S. EPA has proposed monitored natural attenuation as the final groundwater remedy for the site.

However, the existence of DNAPLs on site will extend the period of time for ground water in the area to reach drinking water standards through natural processes. [2] Because of this, the existing municipal water supply line from the City of Byron was examined in terms of long-term reliability. The comment characterizes the failure of the existing water line as a "purely hypothetical scenario". In evaluating and selecting remedial alternatives, EPA must look to select alternatives that reasonably address scenarios in the future, such as future land use. In this case, EPA had selected a temporary remedy of the extension of the Byron water main. With this Record of Decision, EPA is selecting a permanent remedial alternative for the affected residences. The permanent remedial alternative requires that these residences have an independent uncontaminated dependable drinking water supply. Using the existing line would not provide this minimum requirement because a failure in the river crossing will isolate affected residences from the drinking water supply. A waterline break under the river could not be repaired easily or quickly, subjecting the affected residents to no drinking water for an extended period of time. It's necessary to ensure that the affected residences will have an uncontaminated drinking water source in the event of such an occurence.

Therefore, using standard engineering practices for a water supply system, it was determined that a new well on the eastern side of the river was needed to provide water to the affected residents. This new well would act as the primary drinking water source to the affected residents and river crossing acting as the back up for when the new well is down for maintenance. Should either the well or the river crossing fail, the affected residents will still have a dependable drinking water supply while the system failure is

[1] Figure 10 of the Groundwater Model Report and Remedial Alternatives Cost Update, August 23, 1999, Administrative Record Update #5, Item #7.

[2] Figure 12 of the Groundwater Model Report and Remedial Alternatives Cost Update, August 23, 1999, Administrative Record Update #5, Item #7.

fixed. This level of redundancy in the water supply is needed to insure long-term operation of a dependable drinking water source to the affected residents.

Comment No. 2

The City of Byron supports the proposal of Water Supply Alternative 1 - Well, Booster Station, and No River Crossing and Groundwater Alternative 2 - Groundwater Monitoring and Institutional Controls. However, as the City of Byron will be the entity ultimately be responsible for maintaining and operating the capital improvements to be installed, the City would like to have input on the specifications for such improvements. The City of Byron already operates and maintains water infrastructure in this area, and it would be advantageous to have all valves, hydrants and other equipment to be of the same manufacturers and models.

Response

The U.S. EPA notes the City's support for the proposed waterline and monitoring alternatives outlined in the U.S. EPA Proposed Plan. The U.S. EPA will work closely with the City of Byron and the entity(s) implementing the remedy, to ensure that capital improvements made to the existing water supply system are either made up of the same or similar manufacturers and models.

Comment No. 3

The U.S. EPA should be aware that any action which has a direct impact on the Illinois Nature Preserve portion of the 500+ acre Forest Preserve property will require review by and approval of the Illinois Nature Preserve Commission. In addition, any action on or in the vicinity of the Nature Preserve or any of the endangered species occurring there will require that all state and municipal agencies involved (including the Byron Forest Preserve District) file an Action Report with the Illinois Department of Natural Resources and go through the appropriate IDNR "consultation" process.

Response

The U.S. EPA is aware of the nature preserve on the Byron Forest Preserve property. If there are no other locations available for placement of the new well, outside the boundaries of the nature preserve, the U.S. EPA will work with and coordinate any well on or near the nature preserve with all the appropriate agencies. Even if the new well is not placed on or near the nature preserve the well development and municipal water line work will be coordinated with all appropriate state and municipal agencies including the Illinois Nature Preserve Commission.

General

Comment No. 4

General Motors requests that the deadline for submission of comments to the Proposed Plan be extended until the Agency has completed its investigation of the alleged malfeasance of Agency personnel who worked on this matter and release the results of that investigation to interested parties. The Agency should suspend the public comment period until the results of the fraud and malfeasance investigation have been completed so that possible impacts on the Agency's final Site remedial action decisions can be reviewed.

Response

The original public comment period, August 23, 1999 through September 21, 1999, was extended for 30 days and ended on October 21, 1999.

However, the public comment period will not be suspended indefinitely because of the alleged misconduct by agency personnel working in the lab. According to a review of agency records, approximately 23 hours were billed to the site in 1985 and 26 hours were billed to the site in 1989 by the agency staffers under investigation. According to a review of laboratory records the agency staffers were involved in the analysis of site samples obtained September 3rd and 4th in 1985, April 25th, 27th and 28th in 1989, and September 14th through 20th in 1990.

The September 1985 data analysis was for 8 water samples looking for PCBs, toxophen, and lindane. The samples did not show the presence of these contaminants. From the paperwork discovered, it's not clear what wells were sampled during this event.

The April 1989 data analysis was for 6 water samples looking for volatile organic chemicals (VOCs). Samples showed the presence of trichloroethene (TCE) ranging from 4 ppb to 6 ppb, 1,2-dichloroethene at 4 ppb and 1,2-dichloroethane at 3 ppb. However, from the paperwork it's not clear what wells were sampled during this event.

The September 1990 data analysis was 6 water samples (including two blanks) looking for VOCs. One sample was taken at Rock River Terrace well RR-5, one was taken at Meyer's Spring and the other samples were taken at Dirks Farm wells DF-2D and DF-6-A/B. Well RR-5 showed TCE at 6 ppb while Meyer's Spring showed TCE at 40 ppb. Dirks Farm samples showed 1,1-dichloroethane (1,1 DCEA) ranging from 11 to 24 ppb and 1,1,1-trichloroethane (1,1,1-TCEA) ranging from 14 to 20 ppb.

Rock River Terrace well RR-5 has shown levels of TCE ranging from 3 ppb in June 1999 to 8 ppb in April & August 1990. Levels of TCE at Meyer's Spring has ranged

from 28 ppb in March 1992 and October 1998 to 58 ppb in June 1999. TCE between these levels has been detected in May 1986, October 1987, November 1989, April, August, and September 1990.

TCEA in Dirks Farm wells DF-2 and DF-6 ranged from 24 to 52 ppb during sampling in May 1991 and from non-detect to 6 ppb in November 1991. DCEA in Dirks Farm wells DF-2 and DF-6 were 22 ppb in May 1991 and from non-detect to 11 ppb in November 1991.

Investigations have occurred on the site since the 1970's. In the early 1980's the Illinois EPA (IEPA) conducted an RI/FS which indicated that groundwater, soils and sediments were contaminated with cyanide, heavy metals, and organics. In 1984, periodic sampling by IEPA and the Illinois Department of Public Health showed that private residential wells located near the site on Acorn and Razorville Roads contained TCE in excess of health based drinking water standards. The U.S. EPA has obtained investigation samples to characterize contamination associated with the site in September and December 1985, May 1986, January and October 1987, February, August, September, November and December 1988, February, March, May, June, August and November 1989, April, August, and September of 1990, May and November 1991, January and March 1992, October 1998, and April and June 1999.

Sampling conducted in June 1999 still show trichloroethene, 1,2-dichloroethene, tetrachloroethene, and cyanide in groundwater above health based drinking water standards for residents along Acorn and Razorville Roads and in Rock River Terrace.

Even if the sampling data collected in September 1985, April 1989 and September 1990 are excluded from consideration in any groundwater decision by EPA, the additional data spanning decades show groundwater contamination above health based drinking water standards is associated with the site and therefore supports the selected remedial action. Omission of these three data sets does not result in a change in the final groundwater remedy decision.

APPENDIX E

STATE LETTER OF CONCURRENCE

NOT AVAILABLE AS OF 3/22/00

Appendix F

Administrative Record Index

ADMINISTRATIVE RECORD
(Index and Documents)

FOR THE

BYRON SALVAGE YARD SITE

DIRK'S FARM PROPERTY OPERABLE UNIT

UPDATE #1

BYRON, ILLINOIS

APRIL 1991

United States Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

01/16/91

ADMINISTRATIVE RECORD INDEX
BYRON SALVAGE YARD SITE - DIRK'S FARM PROPERTY OPERABLE UNIT
BYRON, IL

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
	46	90/09/00	Aerial Photographic and Fracture Trace Analyses of the Byron Salvage Yard Ogle County, IL	L.G. Ogiela-Lockheed Engineering and Sciences Company & USEPA/Office of Research and Development		Reports/Studies	1
	60	90/09/04	RI/FS Work Plan for the Dirk's Farm Property Operable Unit on the Byron/Johnson Salvage Yard Superfund Site	USEPA/Technical Support Unit		Reports/Studies	2

04/17/91

ADMINISTRATIVE RECORD INDEX - UPDATE #1
BYRON SALVAGE YARD SITE - DIRK'S FARM PROPERTY OPERABLE UNIT
BYRON, IL

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCNUMBER
	14	91/05/23	Memo re: Work Plan Amendment - Additional field work required at the Byron Salvage Yard/ Dirk's Farm Property for the RI	S. Bolen-USEPA,SPM	File	Memorandum	1

04/17/91

ACRONYM GUIDE for the Administrative Record - Update #1
BYRON SALVAGE YARD SITE - DIRK'S FARM PROPERTY OPERABLE UNIT
BYRON, IL

ACRONYM	DEFINITION
RI	Remedial Investigation
RPM	Remedial Project Manager
TCE	Trichloroethylene
USEPA	United States Environmental Protection Agency

02/05/92

ADMINISTRATIVE RECORD INDEX
BYRON SALVAGE YARD FARM PROPERTY OPERABLE UNIT - UPDATE #3
BYRON, ILLINOIS

FICHE/FRAME	PAGES	DATE	TITLE	AUTHOR	RECIPIENT	DOCUMENT TYPE	DOCUMENT#
	57	91/12/19	Revised Community Relations Plan Byron Salvage Yard Superfund Site Ogle County, Illinois	PRC	U.S. EPA	Reports/Studies	1

ADMINISTRATIVE RECORD
FOR
BYRON SALVAGE YARD SITE
OPERABLE UNIT #4--DIRK'S FARM PROPERTY
BYRON, OGLE COUNTY, ILLINOIS

UPDATE #3
APRIL 11, 1997

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	04/29/94	U.S. EPA		Remedial Investigation Report: Volume 1 of 3 (Text, Tables, and Figures)	397
2	04/29/94	U.S. EPA		Remedial Investigation Report: Volume 2 of 3 (Appendices A-J)	770
3	04/29/94	U.S. EPA		Remedial Investigation Report: Volume 3 of 3 (Appendices K-W)	515
4	01/13/96	Yeskis, D., U.S. EPA	Bolen, W., U.S. EPA	Memorandum re: Assessment of Potential of Vinyl Chloride to Migrate into Residential Basements at the Byron Salvage Yard Site	4
5	02/04/97	CH2M Hill	U.S. EPA	Feasibility Study Report for the Byron Johnson Salvage Yard Site	147
6	03/00/97	U.S. EPA/OPA	Public	Proposed Plan for the Byron Salvage Yard Superfund Site	16
7	03/00/97	U.S. EPA	File	Proposed Plan for the Byron Salvage Yard Superfund Site (CONTAINS ADDITIONAL MAPS NOT INCORPORATED INTO DOCUMENT #6)	28

UPDATE #4
SEPTEMBER 15, 1998

1	09/16/98	CH2M Hill	Bolen, W., U.S. EPA	Technical Memorandum: Comparison of Byron Superfund Risk Assessment Soil Exposure Results to Feasibility Study Areas Exceeding PRGs	3

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
2	09/24/98	U.S. EPA	Public	Record of Decision for Operable Unit #4 at the Byron Salvage Yard Site	120
			UPDATE #5 AUGUST 31, 1999		
1	00/00/94	U.S. DOI/U.S. Geological Survey	Public	Report: Interaction of Groundwater with the Rock River Near Byron, Illinois (Water-Resources Investigations Report 94-4034)	26
2	09/24/98	U.S. EPA	Public	Record of Decision for the Soil Component of Operable Unit #4 at the Byron Salvage Yard Site	118
3	05/20/99	USDHHS/ PHS/ATSDR	Public	Public Health Assessment for the Byron Salvage Yard Site	42
4	07/10/99	Kay, R., U.S. DOI/U.S. Geological Survey	Short, T., U.S. EPA	Memorandum re: Results of Sampling in Meyer's Spring	3
5	08/00/99	U.S. EPA	Public	Proposed Plan for the Byron Salvage Yard Superfund Site	10
6	08/18/99	CH2M Hill	U.S. EPA	Addendum No. 1 to the July 1996 Feasibility Study Report for the Byron Johnson Salvage Yard Superfund Site	32
7	08/23/99	CH2M Hill	U.S. EPA	Groundwater Model Report and Remedial Alternatives Cost Update for the Byron Salvage Yard Site	89
			UPDATE #6 DECEMBER 13, 1999		
1	08/11/99	*Rockford Register Star*	Public	U.S. EPA Public Notice Announcing the August 25, 1999 Public Meeting and Public Comment Period for the Byron Johnson Salvage Yard Superfund Site	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	08/16/99	*Ogle County Life/Rock Valley Shopper*	Public	U.S. EPA Public Notice Announcing the August 25, 1999 Public Meeting and Public Comment Period for the Byron Johnson Salvage Yard Superfund Site	1
3	08/25/99	In Totidem Verbis	U.S. EPA	Transcript of the August 25, 1999 Proposed Plan Public Meeting for the Byron Salvage Yard Superfund Site	65
4	09/02/99	Alesandrini, J., Illinois Nature Preserves Commission	Pope, J., U.S. EPA/ OPA	Letter re: INPC's Comments on the Proposed Plan for the Byron Salvage Yard Site w/Attachments	5
5	09/16/99	Running, A., *Kirkland & Ellis*	Pope, J. & T. Short; U.S. EPA	Letter re: Keystone Consolidated Industries' Comments on U.S. EPA's August 1999 Proposed Plan for the Byron Salvage Yard Superfund Site and Request for Additional Time to Submit Further Technical Comments	3
6	09/20/99	Maynard, J., *Dykema Gossett*	Pope, J. & T. Short; U.S. EPA	Letter re: General Motors' Comments on the Proposed Plan for the Byron Salvage Superfund Site	2
7	09/20/99	Yeskis, D., U.S. EPA	Short, T., U.S. EPA	Memorandum re: June 28-30, 1999 Residential/ Private Well Sampling Trip Report to the Byron Salvage Yard Site w/Attachments	50
8	10/04/99	*Ogle County Life/Rock Valley Shopper*	Public	U.S. EPA Public Notice Announcing the Extension of the Public Comment Period for the Byron Salvage Yard Superfund Site	1
9	10/29/99	Short, T., U.S. EPA	File	Memorandum re: Impact of Central Regional Lab(CRL)/ ESAT Laboratory Analysis on the Proposed Groundwater Record of Decision for OU#4 at the Byron Salvage Yard Superfund Site	4

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
10	11/29/99	Short, T., U.S. EPA	File	Memorandum re: Well Location Meeting for the Byron Salvage Yard Super-Fund Site	4
11	00/00/00	U.S. EPA	Public	Groundwater Record of Decision for Operable Unit #4 at the Byron Salvage Superfund Site **(PENDING)**	