

**FIFTH FIVE-YEAR REVIEW REPORT
FOR
BYRON SALVAGE YARD SUPERFUND SITE
OGLE COUNTY, ILLINOIS**



Prepared by

**U.S. Environmental Protection Agency
Region 5
Chicago, Illinois**

7/26/2018

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LIST OF ABBREVIATIONS & ACRONYMS

ACL	Alternate Concentration Limit
ARAR	Applicable or Relevant and Appropriate Requirement
BSY	Byron Salvage Yard
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
ComEd	Commonwealth Edison Company
DFP	Dirk's Farm Property
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
GMP	Groundwater Monitoring Plan
ICs	Institutional Controls
IEPA	Illinois Environmental Protection Agency
MCL	Maximum Contaminant Level
mg/kg	Milligram/kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OCHD	Ogle County Health Department
PCE	Tetrachloroethylene
RAO	Remedial Action Objectives
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Site	Byron Salvage Yard Superfund Site
TBC	To be considered
TCE	Trichloroethylene
µg/l	Micrograms per liter
UU/UE	Unlimited Use and Unrestricted Exposure
VI	Vapor Intrusion

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fifth Five-Year Review (FYR) for the Byron Salvage Yard Superfund Site (Site) located in Ogle County, near Byron, Illinois. The triggering action for this statutory FYR was the signing of the previous FYR on July 29, 2013. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of four operable units (OUs) and all will be addressed in this FYR. OU1 was conducted to limit site access and provide residences with bottled water. OU2 provided additional residences with bottled water and then carbon filters to affected or potentially affected residences. OU3 involved concurrence with the Illinois Environmental Protection Agency (IEPA) decision to provide a municipal water supply to the affected residences and the extension of the municipal water line to additional residences. OU4 addresses the final soil and groundwater action selected for the site.

This Byron Salvage Yard Superfund Site FYR was led by David Seely, EPA Remedial Project Manager. Participants included Brian Conrath, IEPA Remedial Project Manager, and Janet Pope, EPA Community Involvement Coordinator. The relevant entities such as the IEPA Project Manager and the potentially responsible parties were notified of the initiation of the FYR. The review began on 5/2/2018.

Site Background

The Byron Superfund site consists of the Byron Salvage Yard (BSY) property and the Dirks Farm property (DFP) and is shown on Figure 1. 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 and 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.

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.

Many actions were taken by both EPA and IEPA to address the contamination at the Site. Starting in the mid-1980s, the following actions were conducted: installation of an alternate water supply for the residents; removal of drums and soils impacted with heavy metals, cyanide, and volatile organic contaminants (VOCs); and securing of the BSY property with a fence. Remedy decisions were phased through implementation of four OUs and five Record of Decisions (RODs) in March 1985, September 1986, June 1989, September 1998, and December 1999 respectively. Additionally in July 1986, IEPA signed a ROD calling for an extension of the Byron municipal water supply to the area around the Site.

All four Site OUs are addressed in this FYR and are summarized in Table 1. OU1 was conducted to limit site access and provide residences with bottled water. OU2 provided additional residences with bottled water and then carbon filters to affected or potentially affected residences. OU3 involved concurrence with IEPA's decision to provide a municipal water supply to the affected residences and the extension of the municipal water line to additional residences. OU4 addresses the final soil and groundwater action selected for the site and was implemented through two Record of Decisions (RODs), a residual contaminated soils component and a contaminated groundwater component. The OU4 Soils ROD was further modified by an Explanation of Significant Differences (ESD) in 2002. The IC requirements required by the OU3 ROD and OU4 Groundwater ROD were further clarified by a memorandum to the file in 2013.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Byron Salvage Yard		
EPA ID: ILD010236230		
Region: 5	State: IL	City/County: Byron / Ogle
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name: David Seely		
Author affiliation: EPA		
Review period: 5/2/2018 – 5/29/2018		
Date of site inspection: 6/26/2018		
Type of review: Statutory		
Review number: 5		
Triggering action date: 7/29/2013		
Due date (five years after triggering action date): 7/29/2018		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The BSY received drums of electroplating wastes and other materials (oil sludges, paint sludges, cutting wheels, solvents, and scrap metal) in the mid-1960s to around 1972. Industrial wastes were reportedly dumped directly on the ground at the BSY and at times of heavy rainfall, the waste would be carried off the BSY by the resulting surface water runoff.

Similar dumping practices were also carried out during this same time period 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.

In 1972, following the report of a red discharge into Woodland Creek, located adjacent to the BSY, IEPA conducted investigations and concluded that hazardous substances were disposed of on the BSY. Subsequently, various Site investigations and remediation activities have been carried out at the Site for both the BSY and the DFP properties.

The presence of contaminants at the Site triggered the soil and groundwater cleanup activities. Public health was threatened by the impacted groundwater in the residential wells northwest of the Site. Chemicals present in the Site soils and groundwater included: (1) metals - including chromium, copper, lead, zinc, mercury, and nickel; (2) cyanide; and (3) organic chemicals- including toluene, tetrachloroethylene (PCE), ethylbenzene, xylenes, and trichloroethylene (TCE). Response actions were implemented to prevent long-term health effects of exposure to the contaminants and to monitor the effectiveness of the cleanup of the site. The soil contamination was considered to present a risk to trespassers and future residents/developers. The groundwater contamination presented a risk as a drinking water source.

Response Actions

- July 1984 emergency action – EPA began supplying bottled water to residents whose private water supplies indicated actual or probable TCE contamination and in April 1985 the affected residents were subsequently supplied carbon adsorption treatment units.
- May 1985 - EPA initiated Remedial Investigation/Feasibility Study (RI/FS) activities to further investigate groundwater impacts emanating from the Site. The RI/FS was expanded to include a Phased FS for investigation of residential well impacts in the Rock River Terrace subdivision. Also EPA erected a fence along the BSY perimeter and posted warning signs.
- July 1986 - IEPA signed a ROD for the design and construction of a water line to distribute potable water from the City of Byron to residences in the Rock River Terrace subdivision and to residences along Acorn and Razorville Roads.
- From 1990 to 1994 EPA determined that a number of unanswered questions remained concerning the nature and extent of contamination on the DFP. A RI was initiated to:
 - 1) 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 BSY and DFP.

Multiple interim remedy decisions were selected with final remedy decisions selected in the OU4 soils (September 1998) and groundwater (December 1999) RODs. A summary of the remedial action objectives (RAOs) and remedy decisions is provided in Table 1.

Table 1: Summary of Byron Salvage Yard Remedy Decisions

OU	Remedial Action Objectives	Remedy Decision Date	Remedy Requirements
OU1	Source control to remove the imminent threat and to minimize the continued spread of the contaminated groundwater plume	ROD March 13, 1985	<ul style="list-style-type: none"> • Removal of surficial drums and excavation/removal of buried drums • Removal of soils impacted with heavy metals and volatile organic compounds (VOCs) that exhibit the characteristics of hazardous wastes (i.e. EP toxicity characteristic) • Sodium hypochlorite in-situ treatment of soils with cyanide concentrations greater than 1 milligram/kilogram (mg/kg)
OU2	Implement an interim remedy to provide a reliable safe water supply until the implementation of a final permanent groundwater remedy	ROD September 23, 1986	<ul style="list-style-type: none"> • Providing additional residences (seasonal, summer-use homes) with bottled water • Supplying affected or potentially affected residences with carbon adsorption unit. <p>Note: The remedy for OU2 was not implemented because of the actions taken by IEPA pursuant to the July 14, 1986 IEPA ROD. This decision was documented in the June 30, 1989 EPA ROD for OU3.</p>
OU3	Extend the IEPA-funded municipal water supply to an additional 27 residences	ROD June 30, 1989	<ul style="list-style-type: none"> • Extend the existing municipal water-line to an additional 27 residents in the Rock River Terrace subdivision • Remove all wastes generated during the Remedial Investigation at the Site; • Install additional monitoring wells near the Rock River; • Collect and analyze groundwater samples from the new wells at the Rock River; • Perform surface water sampling at the Meyer Spring Pond and Rock River; and • Establish institutional controls (ICs) (including such things as deed restrictions or mandatory hook-ups to available public water supplies), plugging and abandoning residential wells, and/or other such actions which will provide measures that will preclude human exposure to contaminated ground water at any point between the site boundary and all known and projected points of entry of such ground water into surface water. <p>Note: This ROD determined that Maximum Contaminant Levels (MCLs) were not relevant and appropriate given the site conditions and set the groundwater remedy performance criteria at the current concentrations existing in the groundwater. These criteria are known as Alternate Concentration Limits (ACLs) and they can be found in Appendix E. The Groundwater Monitoring Plan (GMP) approved by EPA in 2003 specifies the required groundwater monitoring efforts until the contaminant concentrations are below drinking water standards.</p>

OU	Remedial Action Objectives	Remedy Decision Date	Remedy Requirements
	<ul style="list-style-type: none"> - 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 <p>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</p>	<p>Memo to File October 23, 2013</p>	<p>bounded by Razorville Road, Spring Creek Road, and the Rock River.</p> <p>Further clarified the remedy requirements that Ogle County Code Division 3, Section 10-3-1 through 10-3-8 are sufficient ICs prohibiting groundwater withdrawal for potable uses until drinking water standards are attained and deed restrictions no longer required.</p>

Status of Implementation

By 2003, the remedies selected for all OUs were completed and subsequent site activities have consisted of groundwater monitoring efforts. A long-term GMP was prepared and submitted to EPA in September 2003 by the Settling Defendants. EPA approved the GMP in a letter dated October 6, 2003. The Settling Defendants are conducting the long-term monitoring and maintenance consistent with the GMP.

Institutional Controls

The OU4 soils component September 24, 1998 ROD specified ICs to protect the soil cover and prevent exposure to metal-contaminated soils. However, on September 20, 2002, EPA signed an ESD modifying portions of the soils remedy. Based upon pre-design sampling efforts, there were no samples that exceeded the remediation objectives for the metals-contaminated areas on BSY and at the north disposal area on the DFP. The ESD modified the September 24, 1998 ROD as follows:

- Capping requirements for the metals-contaminated areas on the BSY and the north disposal area on the DFP were deleted; and
- IC requirements for the metals-contaminated areas on the BSY and the DFP were deleted.

As a result, ICs are not required for the soil portions of the Site and the remedy allows UU/UE for the Site soils.

The June 30, 1989 OU3 ROD and the December 23, 1999 OU4 ROD identified the need for deed restrictions prohibiting groundwater withdrawal for potable use until drinking water standards are achieved for properties affected by contaminated groundwater. On December 18, 2001, the Ogle County Health Department (OCHD) established code restrictions prohibiting the installation of potable wells in the areas impacted by contaminated groundwater.

These restrictions continue to be in place, and are effective and considered to be protective. Therefore individual deed restrictions were determined not to be necessary to prevent unacceptable exposure to contaminated groundwater. A Memorandum to the File was issued on October 23, 2013 which further clarified the remedy requirements that Ogle County Code Division 3, Section 10-3-1 through 10-3-8 are sufficient ICs prohibiting groundwater withdrawal for potable uses until drinking water standards are attained and deed restrictions are no longer required.

Table 2: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	Yes	OU3/OU4 Groundwater contaminant plume	Prohibit potable use of groundwater	Ogle County Health Department Code restrictions December 18, 2001

Figure 1 in Appendix B shows the historical contaminated groundwater plume area in which the ICs apply.

Systems Operations/Operation & Maintenance

The primary activities associated with operation and maintenance (O&M) include the following:

- Collecting groundwater samples from monitoring wells;
- Collecting samples from residential wells;
- Repair and maintenance of existing monitoring wells, as required; and
- Abandonment of wells removed from the GMP.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 3: Protectiveness Determinations/Statements from the 2013 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy for OU1 is protective of human health and the environment through the removal of surficial drums and excavation/removal of buried drums, the removal of soils impacted with heavy metals and VOCs that exhibit the characteristics of hazardous wastes (i.e., EP toxicity characteristic), and through in-situ treatment of soils with cyanide concentrations greater than 1 mg/kg.
2	Protective	The remedy for OU2 is protective of human health and the environment as it has been supplanted by the requirements of OU3 and OU4. The remedy for OU2 was not implemented because of the actions taken by IEPA pursuant to the July 14, 1986 EPA

		ROD, which is documented in the June 30, 1989 EPA ROD for OU3.
3	Protective	The remedy for OU3 is protective of human health and the environment through extension of the existing municipal water-line to an additional twenty-seven residents in the Rock River Terrace subdivision, removal of all wastes generated during the Remedial Investigation at the Site, installation of additional monitoring wells near the Rock River, ground- and surface water sampling at the Rock River and Meyer Spring Pond, and an institutional control in the form of a groundwater use restriction is in place and is effective to restrict current and future unacceptable exposures to contaminated groundwater.
4	Protective	<p>The remedy for OU4 for soil is protective of human health and the environment as it allows for unlimited use and unrestricted exposure.</p> <p>The groundwater component of the OU4 remedy is protective of human health and the environment. Exposure pathways that could result in unacceptable risks are being controlled because:</p> <ul style="list-style-type: none"> - the ingestion of contaminated ground water by residential users at concentrations that exceed Maximum Contaminant Levels, pose a total cancer risk of greater than 1×10^{-6}, have a hazard index of greater than 1, and exceed IEPA Class 1 Groundwater values is being prevented; - contaminants in the aquifer are below the Alternate Concentration Limits specified in the OU3 ROD which were established to ensure that surface water criteria would not be exceeded; - an institutional control in the form of a groundwater use restriction is in place and effective to restrict current and future unacceptable exposures to contaminated groundwater; - the Byron municipal water supply was extended to those houses where the residential water supply wells were impacted by contaminants above drinking water limits; - a municipal water supply well was installed on the south side of the Rock River to protect

		<p>against the failure of the water supply line which crossed the Rock River; and</p> <p>- the GMP is in place to monitor the groundwater at the site.</p>
Sitewide	Protective	<p>The remedy of the Site is protective of human health and the environment. The remedy removed contaminated soils and surface and buried drums, extended the Byron municipal water supply to those homes with wells impacted by the plume, constructed a municipal water supply well on the south side of the Rock River, and placed institutional controls in the form of groundwater use restrictions to prevent current and future exposures to the groundwater plume. All the remedial actions within the Operable Units have been completed for soil and groundwater. Groundwater sampling is conducted on a routine basis to monitor attenuation of the contaminants. The remedies provide for unlimited use/unlimited exposures (UU/UE) to site soils.</p>

There were no issues identified in the 2013 FYR that affect the current or future protectiveness of the remedy.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A notice was published in the local newspaper, the “Rockford Register Star,” on July 8, 2018, stating that there was a FYR and inviting the public to submit any comments to EPA. The results of the review and the report will be made available at the Site information repository located at Byron Public Library, 109 N. Franklin Street, Byron, Illinois 61010.

Data Review

Soil Remediation

As soil remediation had been completed by 2003 at the Site, there have not been any additional activities related to the soils component since the Third FYR Report. The remedies removed contaminated soils and surface and buried drums. The remedy was modified by the 2002 ESD removing the need for ICs for the soil portions of the Site. The remedy has achieved UU/UE for the BSY and DFP soils.

Groundwater Monitoring

Groundwater monitoring has been conducted periodically at the Site, and surrounding areas since the late 1980s. In general, most contaminants were reported at their highest levels early in the removal/remedial history (1984-1990). Groundwater monitoring is ongoing and is required until groundwater concentrations are consistently below MCLs.

The Settling Defendants submitted a Remedial Design (RD) Work Plan which outlined the necessary steps and considerations for the GMP. As described in the RD Work Plan, the goals of the GMP included the following:

- Detection of northwest and southwest plume boundaries and whether or not changes have occurred; and
- To summarize contamination levels.

EPA approved the GMP on October 6, 2003, and the first event under the GMP was conducted in September of 2004. The ACLs which were established to protect against unacceptable discharges to surface waters are reported in the GMP, and are shown in Appendix E.

The GMP is routinely updated based on the sample results. After four consecutive rounds of sampling reporting non-detects for chemicals of concern, monitoring wells may be removed from the GMP and abandoned upon EPA approval. Appendix E presents the GMP currently being implemented and also documents the changes that have been made to the GMP.

Given the monitoring data indicated stable or declining concentrations, EPA approved a reduction of the monitoring frequency from annual to once every two years in November 2013. Since the 2013 FYR, groundwater monitoring events occurred in 2014 and 2016.

The following figures (Appendix B) present the data in several formats:

- Figure 1 provides the historical boundaries of the contaminated groundwater plumes (i.e. northwest plume and southwest plume) and the extents of these plumes from the most recent 2016 monitoring event.
- Figure 2 provides the groundwater contours from the 2016 monitoring event.
- Figure 3a provides a summary of the northwest plume groundwater monitoring results (2002-2016).
- Figure 3b provides a summary of southwest plume groundwater monitoring results (2002-2016)

For each sampling round, groundwater elevation measurements have been collected. The groundwater flow direction continues to be consistent with historical data and is towards the river.

Analysis of the data indicates that groundwater contaminant concentrations remain at or below the ACLs and, in general, either stable or decreasing. However, during the 2016 sampling event, the concentration of TCE was 5.2 micrograms per liter ($\mu\text{g/l}$) in monitoring well RR-1 in the northwest plume and was slightly elevated compared to previous monitoring events. This result appears to be generally inconsistent with upgradient locations across the northwest plume. Although slightly above the established ACL of $5 \mu\text{g/l}$, the result may be due to sample variability.

Other than this result, the northwest contaminant plume appears to have receded approximately 1600 feet upgradient of the RR-1 location as shown on Figure 1. There continues to be no exceedances of the ACLs or MCLs in the southwest plume other than wells on the DFP which are generally associated with the northwest plume.

Concentrations of trichloroethylene (TCE) in the northwest plume were reported above MCLs in 2016 at the following locations: MW-41, MW-15, and, DF-12, but continue to be stable or are decreasing in concentration (see figures).

Monitoring well PC-3B is specifically monitored for VOCs as well as metals. Analysis of the data indicates that there have been no exceedances of MCLs for VOCs, however, MCLs have been exceeded for aluminum, iron, and manganese.

Surface Water Monitoring

Surface water data indicate that contaminant levels from Benesh Spring were below detection for the 2008 and 2009 monitoring periods after which monitoring of this location was ceased. The Meyers Spring continues to be monitored and contaminant levels have remained well below the ACLs and were below the MCLs for all but the 2009 monitoring period where concentrations were found slightly above the MCL. Although no clear trend was identified, TCE concentrations appear to be stable and were not detected in 2016. (See Figure 3a)

Discharge to the Rock River has been monitored through groundwater wells located adjacent to the river. Contaminant concentrations for this five-year period are below both the ACLs and MCLs for these wells with the exception of the 2016 TCE detections noted above.

Vapor Intrusion

The site data was screened for potential vapor intrusion (VI) concerns during the 2013 FYR. Groundwater monitoring data was screened against the target concentration in EPA's VI Screening Level Calculator. Data from the well closest to inhabited structures continues to fall well within EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} . Given that groundwater samples from this well are collected greater than 100 feet below ground surface, concentrations in the plume have been trending downward, it is expected that plume concentrations beneath the structures would be even lower. As a result, it was

determined that further VI investigations are not necessary to ensure the protectiveness of the remedy.

Site Inspection

The inspection of the Site was conducted on 6/26/2018. No issues were identified during the inspection that impact the protectiveness of the remedy. The inspection consisted of driving throughout the areas which were impacted by the northwest and southwest groundwater plumes and visual inspections of the majority of wells within the groundwater monitoring program.

The inspection noted one well had a crack in its outer protective casing and requires maintenance. Additionally, it was evident that recent Rock River water levels had encroached close to monitoring wells adjacent to the river. Evidence was not observed that would indicate that these wells were submerged or otherwise compromised as monitoring locations.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary:

Yes, the remedy is functioning as intended by the decision documents. A groundwater restriction is currently in place. Based on monitoring and interviews with county officials, there continues to be compliance with the groundwater use restriction.

Remedial Action Performance

The 1998 ROD selected a number of remedial actions for contaminated soils and included: excavating VOC-contaminated soils for off-site disposal, placing a soil cover over metal-contaminated soils areas, and ICs. Sampling conducted during the RD in November 2001 documented that levels of metal contamination were below action levels on the BSY and DFP. EPA approved a modification to the 1998 ROD through an ESD which concluded that no soil cover was necessary and ICs on soils were not required because the soils allow for UU/UE.

The ROD from 1999 regarding groundwater required a long-term municipal water supply and water line, groundwater monitoring, and ICs. In 2003, the long-term municipal water supply and water line was installed, and groundwater monitoring under the GMP was initiated in 2004. Installation of drinking water wells continues to be prohibited by the OCHD.

System Operations/O&M

The municipal well and water line was installed in 2003 and is operated and maintained by the City of Byron. The Settling Defendants continue to implement the GMP. Routine inspections of the monitoring wells are conducted to ensure their integrity as a monitoring point is maintained.

Groundwater concentrations remain at or below the ACLs and, in general, either stable or decreasing. However, during the 2016 sampling event, the concentration of TCE was 5.2 µg/l in monitoring well RR-1 in the northwest plume and was slightly elevated compared to previous monitoring events. This result appears to be generally inconsistent with upgradient locations across the northwest plume. Although slightly above the established ACL of 5 µg/l, the result may be due to sample variability.

Other than the RR-1 result noted above, the northwest contaminant plume appears to have receded significantly. The monitoring data for the southwest plume currently have no exceedances of the ACLs or MCLs.

Implementation of Institutional Controls and Other Measures

The June 30, 1989 OU3 ROD and the December 23, 1999 OU4 ROD identified the need for deed restrictions prohibiting groundwater withdrawal for potable use until drinking water standards are achieved for properties affected by contaminated groundwater. On December 18, 2001, OCHD established code restrictions prohibiting the installation of potable wells in the areas impacted by contaminated groundwater.

A Memorandum to the File was issued on October 23, 2013 which further clarified that the remedy requirements of Ogle County Code Division 3, Section 10-3-1 through 10-3-8 are sufficient ICs prohibiting groundwater withdrawal for potable uses until drinking water standards are attained and restrictions no longer required.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Summary:

Yes, there have been no changes in the physical conditions that would affect the protectiveness of the remedy. The OCHD groundwater use restrictions remain in place prohibiting potable use and preventing exposure to contaminated groundwater.

Exposure Assumptions

Land use and exposure pathways at and around the site remain consistent with those contemplated in the RODs. As outlined in the Data Review section, the groundwater sample results have been stable or decreasing thereby reducing overall exposures. Sampling and monitoring of groundwater contaminants will continue. No further sampling, monitoring or other work will be done regarding the soils at the Site as it meets UU/UE.

The Site data was screened for potential VI concerns during the 2013 FYR. Concentrations from the well nearest to any structures were found to fall well within EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} . Given that groundwater samples from this well are collected greater than 100 feet below ground surface, and that concentrations in the plume have been trending downward, it is expected that plume concentrations beneath the structures would be even lower.

Toxicity Data and Cleanup Levels

Since the remedial actions were completed in September 2003, no standards identified in the RODs have been modified or would call into question the protectiveness of the remedy. Compliance with the Applicable or Relevant and Appropriate Requirements (ARAR) has been met, and any changes in limits or contaminant toxicity have not affected the protectiveness of the remedy.

Remedial Action Objectives

The 1998 ROD identified that the RAOs for the soil are to prevent ingestion and direct contact with soil contaminants with a total cancer risk greater of than 1×10^{-6} . Sampling conducted in November 2001 at the BSY and the north disposal area of DFP indicated levels of metal contaminants were below action levels and the excavation of impacted soils was completed at the DFP in 2002. Therefore, the remedial actions with respect to soil have been completed and soil is not a threat.

The RAOs for the groundwater are to prevent ingestion of impacted groundwater by residential users and prevent surface water concentrations greater than the ACLs. In September 2003 the permanent municipal water supply well and water line were completed thus ensuring a constant supply of potable water to residents within the impacted area. Annual monitoring is currently being conducted consistent with the GMP to monitor the natural attenuation of the residual constituents in groundwater. Monitoring has shown that the level of contaminants in the groundwater is decreasing or is stable.

The site has met the RAOs. Contaminated soil is no longer a concern at the Site. The soil remediation activities are complete, and soils meet UU/UE. The

groundwater remedial actions are also complete, and on-going activities are limited to monitoring of the contaminant plumes and the maintenance of the water distribution system by the City of Byron. The data from annual sampling events indicate stable or decreasing concentrations of contaminants.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No new information has come to light that would call into question the protectiveness of the remedy.

Technical Assessment Summary

The remedy is functioning as intended by the 1998 and 1999 RODs, as modified by the ESD. There have been no changes in the physical conditions in the area that would affect the protectiveness of the remedy. The ARARs have also been met. Sampling events for groundwater conducted in the past five-year period have shown consistent, stable results or decreasing results. There is no other information that calls into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

There were no issues identified that affect the current or future protectiveness of the remedy.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> The remedy for OU1 is protective of human health and the environment through the removal of surficial drums, excavation and removal of buried drums, the removal of soils impacted with heavy metals and VOCs that exhibit the characteristics of hazardous wastes (i.e., EP toxicity characteristic), and through in-situ treatment of soils with cyanide concentrations greater than 1 mg/kg with sodium hypochlorite.	
<i>Operable Unit:</i> OU2	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> The remedy for OU2 is protective of human health and the environment as it has been supplanted by the requirements of OU3 and OU4. The remedy for OU2 was not implemented because of the actions taken by IEPA pursuant to the July 14, 1986 EPA ROD which is documented in the June 30, 1989 EPA ROD for OU3.	
<i>Operable Unit:</i>	<i>Protectiveness Determination:</i>

OU3	Protective
<p><i>Protectiveness Statement:</i> The remedy for OU3 is protective of human health and the environment through extension of the existing municipal water-line to an additional twenty-seven residents in the Rock River Terrace subdivision, removal of all wastes generated during the Remedial Investigation at the Site, installation of additional monitoring wells near the Rock River, groundwater and surface water sampling at the Rock River and Meyer Spring Pond, and implementation of effective ICs.</p>	
<p><i>Operable Unit:</i> OU4</p>	<p><i>Protectiveness Determination:</i> Protective</p>
<p><i>Protectiveness Statement:</i> The remedy for OU4 for the soil component is protective of human health and the environment as it allows for UU/UE. The groundwater component of the OU4 remedy is protective of human health and the environment. Exposure pathways that could result in unacceptable risks are being controlled because:</p> <ul style="list-style-type: none"> - contaminants in the aquifer are at or below the ACLs specified in the OU3 ROD which were established to ensure that surface water criteria would not be exceeded; - an IC in the form of a groundwater use restriction is in place and effective to restrict current and future unacceptable exposures to contaminated groundwater; - the Byron municipal water supply was extended to those houses where the residential water supply wells were impacted by contaminants above drinking water limits; - a municipal water supply well was installed on the south side of the Rock River to protect against the failure of the water supply line which crossed the Rock River; and - groundwater will continue to be monitored per the GMP. 	

Sitewide Protectiveness Statement	
<p><i>Protectiveness Determination:</i> Protective</p>	
<p><i>Protectiveness Statement:</i> The remedy of the Site is protective of human health and the environment. The remedy removed contaminated soils and surface and buried drums, extended the Byron municipal water supply to those homes with wells impacted by the plume, constructed a municipal water supply well on the south side of the Rock River, and placed effective ICs in the form of groundwater use restrictions to prevent current and future exposures to the groundwater plume. All the remedial actions within the OUs have been completed for soil and groundwater. Exposure pathways that could result in unacceptable risks are being controlled or have been eliminated. Groundwater sampling is conducted on a routine basis to monitor attenuation of the contaminants. The remedies provide for UU/UE to site soils.</p>	

VIII. NEXT REVIEW

The next FYR report for the Byron Salvage Yard Superfund Site is required no less than five years from EPA's signature date of this review.

APPENDIX A – Reference List

Records of Decisions, Explanation of Significant Differences, Memorandum to File:

OU1 ROD, March 13, 1985

OU2 ROD, September 23, 1986

OU3 ROD, June 30, 1989

OU4 ROD [Soils Component], September 24, 1998

ESD, September 20, 2002

OU4 ROD [Groundwater Component/Permanent Water Supply], December 23, 1999

Memorandum to the File, October 23, 2013

Five-Year Reviews:

Fourth Five-Year Review, July 29, 2013.

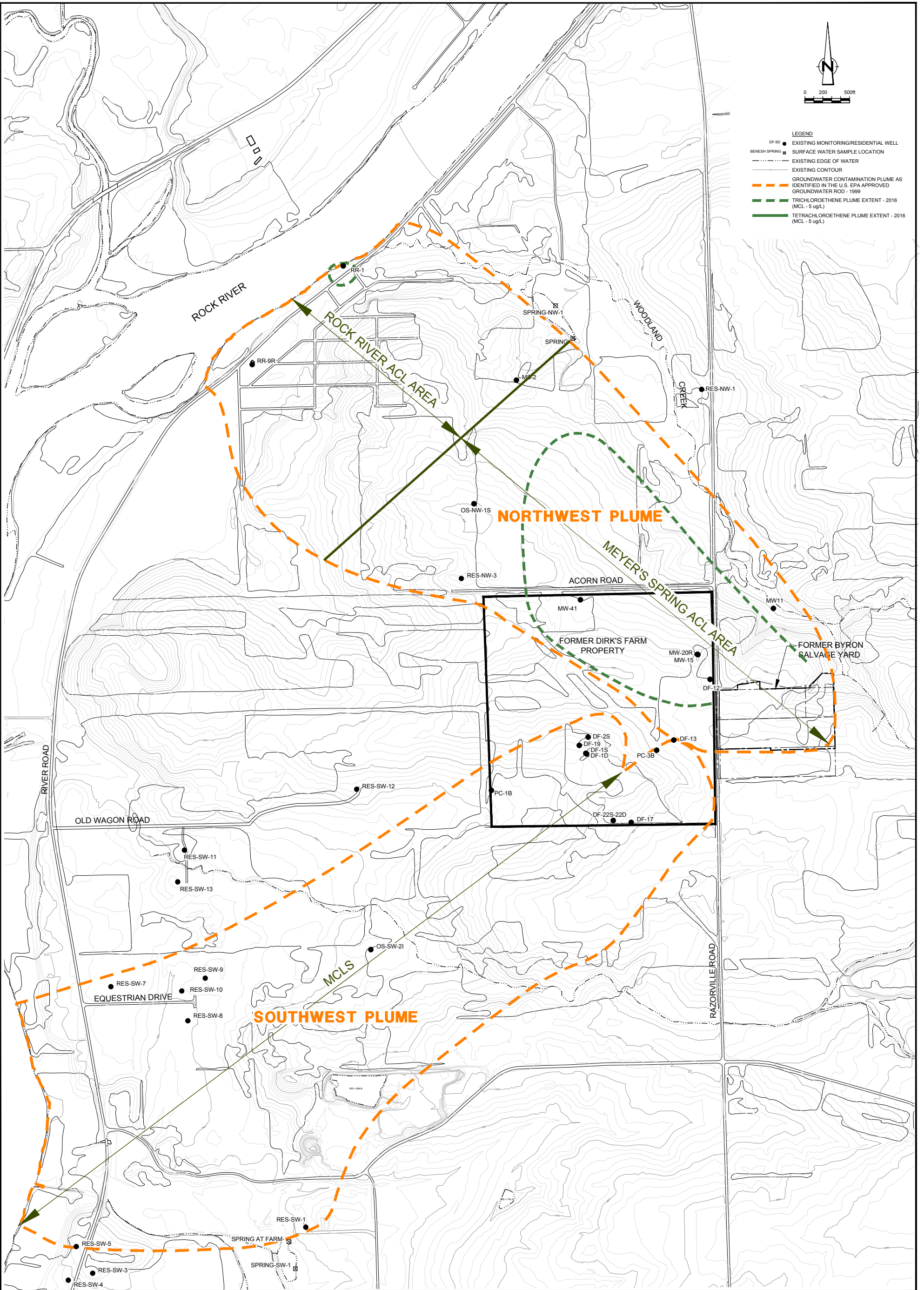
Preliminary Close-out Report, September 16, 2003

Long-Term Ground Water Monitoring Plan, Conestoga-Rovers & Associates, October 6, 2003

Annual Progress Reports [2013, 2014, 2015, 2016]

APPENDIX B– Figures

- Figure 1: site location and historical boundaries of the contaminated groundwater plumes (i.e. northwest plume and southwest plume) and the extents of these plumes from the most recent 2016 monitoring event.
- Figure 2: groundwater contours from the 2016 monitoring event.
- Figure 3a: summary of the northwest plume groundwater monitoring results (2002-2016).
- Figure 3b: summary of southwest plume groundwater monitoring results (2002-2016)



No.	Revision	Date	Initial

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

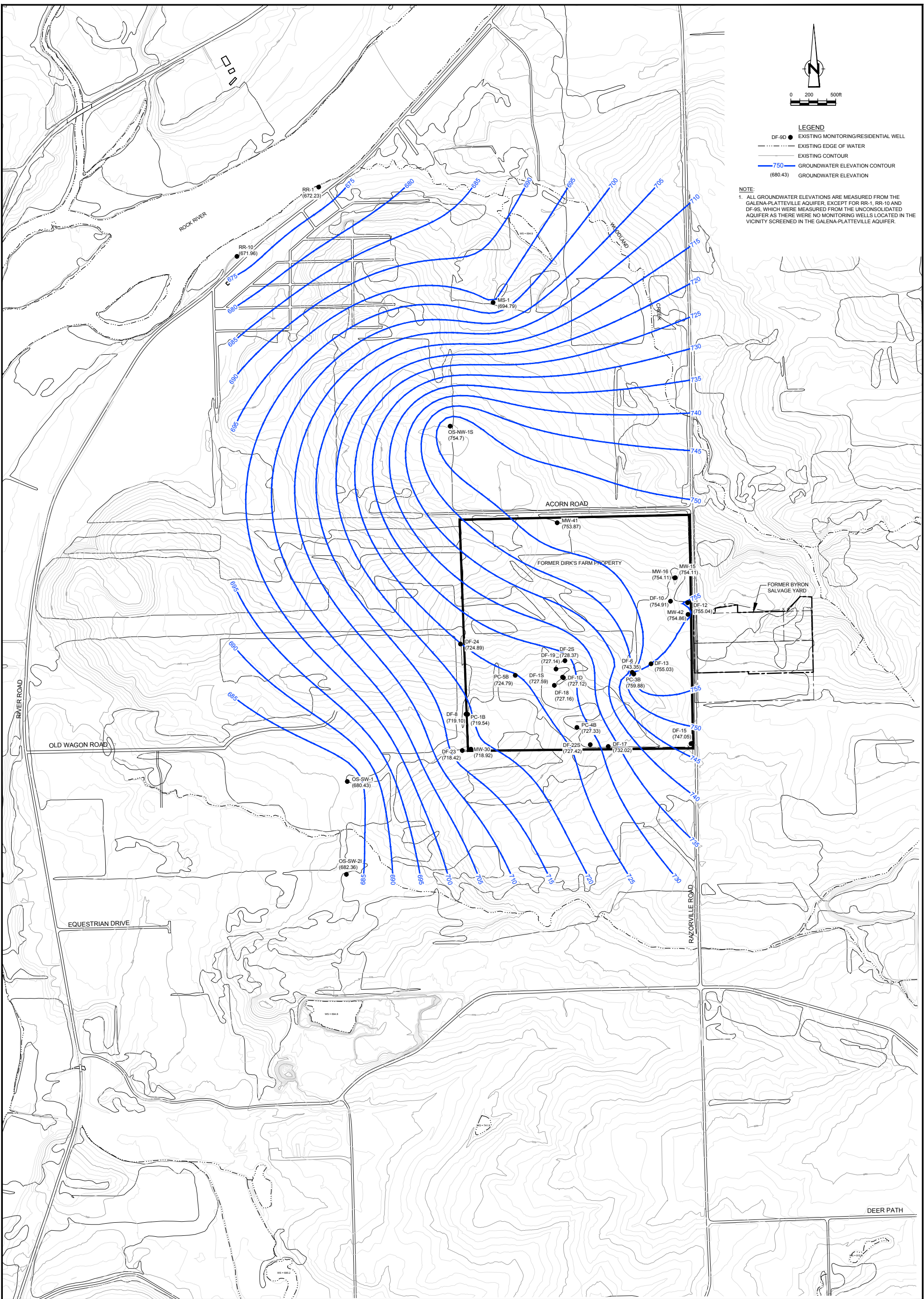
Approved _____

BYRON SALVAGE YARD
BYRON, ILLINOIS

APPROXIMATE EXTENT OF
GROUNDWATER CONTAMINATION PLUME
(1999-GROUNDWATER ROD AND 2016 CURRENT)

Source Reference:

Project Manager:	Reviewed By:	Date:
M.T.	J.P.	JULY 2018
Scale:	Project No.:	Report No.:
1"=800'	16925-00	SEEL017
		Drawing No.:
		figure 1



Nº	Revision	Date	Initial

SCALE VERIFICATION
 THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

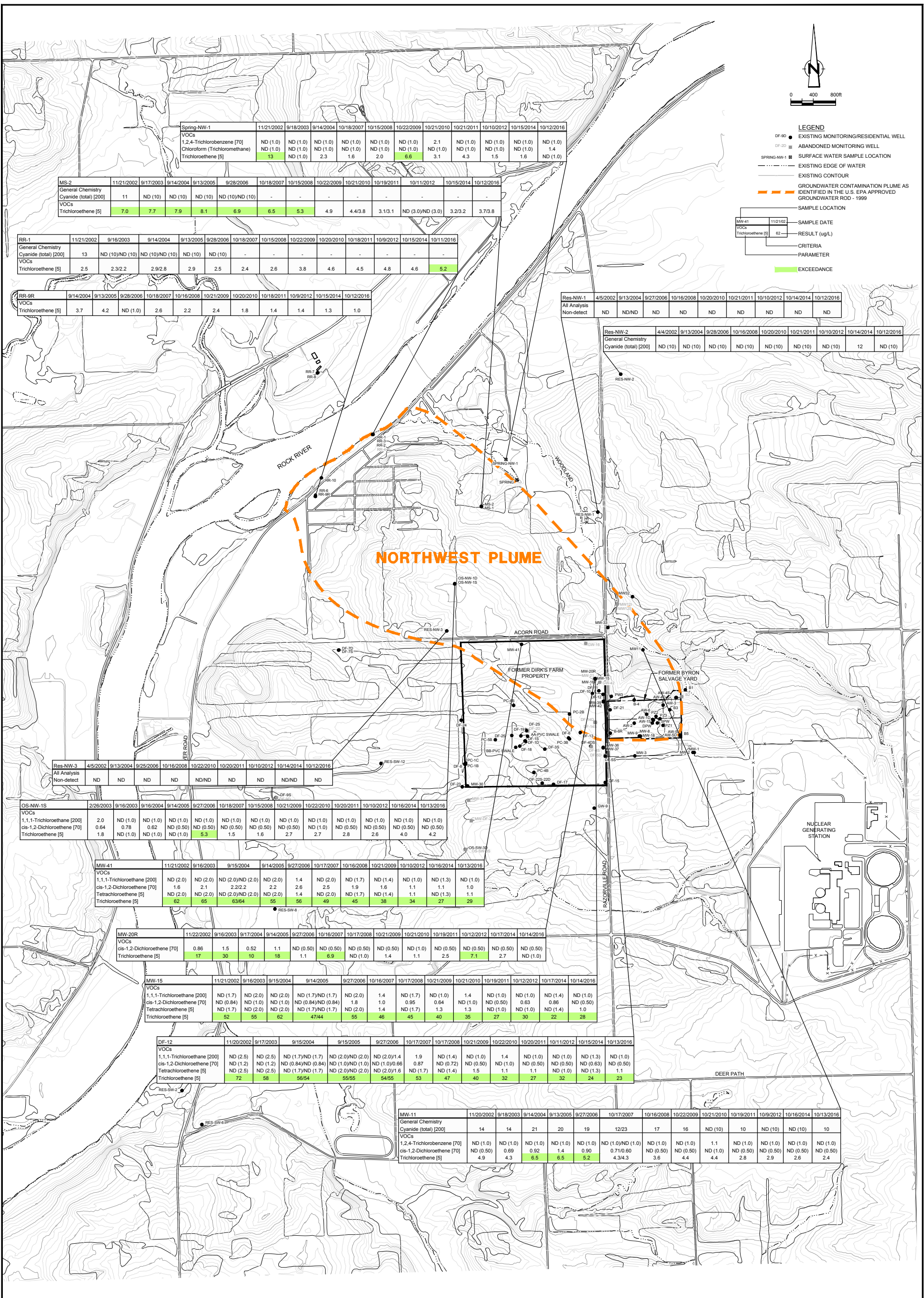
Approved _____

**BYRON SALVAGE YARD
 BYRON, ILLINOIS**

2016 GROUNDWATER CONTOURS

Source Reference:

Project Manager: M.T.	Reviewed By: J.P.	Date: JULY 2018
Scale: 1"=800'	Project Nº: 16925-00	Report Nº: SEEL017 figure 2



No	Revision	Date	Initial	SCALE VERIFICATION		BYRON SALVAGE YARD BYRON, ILLINOIS	
	THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.				Project Manager: M.T. Reviewed By: J.P. Date: JULY 2018		
Approved				Project Manager: M.T. Reviewed By: J.P. Date: JULY 2018		SUMMERY OF GROUNDWATER MONITORING RESULTS (2002-2016) IN NORTHWEST PLUME	
				Project Manager: M.T. Reviewed By: J.P. Date: JULY 2018		Scale: 1"=800' Project No: 16925-00 Report No: SEEL017 Drawing No: figure 3a	

APPENDIX C – Site Chronology

Event	Date
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.	1972
ComEd investigates reports of contamination on DFP and undertakes removal of drums.	1975
Site proposed for placement on the NPL.	December 30, 1982
State conducts RI/FS on BSY.	May 1983 to June 1984
Site placed on the NPL.	September 8, 1983
Emergency action to supply area residents with an alternate water supply (i.e. bottled water).	July 1984
RI/FS expanded to include Phased FS to investigate residential well contamination in the Rock River Terrace subdivision.	1985
EPA issues OU1 ROD requiring offsite disposal of all surface and buried drums and highly contaminated soils exhibiting EP toxicity characteristic, and the in-situ treatment of cyanide contaminated soils.	March 13, 1985
Emergency action installing carbon adsorption treatment units for residences along Acorn Road and Razorville Road that were currently receiving bottled water.	April 1985
EPA erected a fence along the BSY perimeter restricting access and posted warning signs.	1985
Illinois Environmental Protection Agency (IEPA) selected an Interim Remedial Action (IRA) for the BSY which included the excavation of soils and buried drums.	1986
IEPA signed a ROD for construction of a water line to residences in Rock River Terrace and along Acorn and Razorville Roads.	July 1986
EPA issues OU2 ROD for installation of whole-house carbon filtration units and alternate water supply. Note: This remedy was not implemented due to IEPA construction of the municipal water line.	September 1986
IEPA conducted removal activities removing drums, liquids, sludge, and contaminated soils from the Site.	October 1986-January 1987
EPA completes RI.	August 1988
EPA begins another RI focusing on DFP.	August 1988
EPA signed the OU3 ROD concurring with the extension of the Byron municipal water supply by IEPA and further extending it to area residents in danger of ingesting contaminated ground water.	June 30, 1989

Event	Date
EPA completes RI.	1994
FS is completed.	February 1997
OU4 soils remedy ROD is signed.	September 24, 1998
First Five-Year Review.	September 30, 1998
OU4 Water supply and groundwater monitoring ROD is signed.	December 23, 1999
Consent Decree (CD) entered for DFP Work.	December 28, 2000
Remedial Design (RD) Work Plan for BSY submitted by the Settling Defendants.	June 21, 2001
RD Quality Assurance Project Plan (QAPP) for BSY approved by EPA.	November 1, 2001
Soil Investigation as outlined in the RD Work Plan conducted.	November 2001
RD complete for DFP soil removal.	April 18, 2002
Remedial action (RA) completed at DFP.	September 17, 2002
Explanation of Significant Differences to the 1998 soil ROD.	September 20, 2002
CD entered for BSY soils, installation of BSY fence, and ground water monitoring.	October 25, 2002
CD entered for construction of permanent water supply.	October 25, 2002
Installation of new off-Site wells for use in groundwater monitoring program.	January and February 2003
Soil remedy completed at DFP.	January 13, 2003
Design completed for Byron municipal well and water line.	April 28, 2003
Second Five-Year Review.	August 29, 2003
Construction completed for Byron municipal well and water line.	September 16, 2003
GMP approved by EPA.	October 6, 2003
Annual groundwater monitoring for BSY and DFP.	2003-present
Biennial residential well monitoring for BSY and DFP.	2004, 2006, 2008, 2010, 2011 and 2012
Third Five-Year Review	July 29, 2008
Fourth Five-Year Review Site Inspection conducted by EPA, IEPA and CRA, a representative of the Settling Defendants	July 9, 2013

APPENDIX D – Site Background

Physical Characteristics

The Site is comprised of primarily two parcels of land - the BSY of approximately 22 acres and the DFP of approximately 150 acres. The location of the Site is shown on Figure 1. The City of Byron, Illinois with a population of approximately 3,800, lies to the northeast of the Site and about 50 people live within a mile radius of the Site. The Site is located approximately one mile southeast of the Rock River.

Hydrology

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 from four to 33 feet thick, and is usually 15 feet thick. In general, the unconsolidated material consists of silts and clays. Based on boring logs from previous investigations as well as the United States Geological Survey (USGS) Groundwater Atlas of the United States, bedrock beneath the Site consists of Galena and Platteville (GP) groups (Dolomite), which overlie the St. Peter Sandstone (SS). 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 approximately 200 feet thick. Near the Rock River the dolomites pinch out to a thickness of less than 20 feet. The base of the Rock River appears to be directly underlain by the SS as the dolomites appear to have been completely eroded. The Harmony Hill Shale semi-confining unit separates the dolomite and sandstone and is approximately 10 to 20 feet thick in the area.

The unconsolidated material at the Site is generally unsaturated, except adjacent to the Rock River, and in valleys to the north, northeast, and the west of the Site. In the dolomite bedrock, water was encountered about 15 to 80 feet below ground surface on the uplands. The water table in the dolomite generally mirrors surface topography. Groundwater flow directions are from the Site to the northwest and southwest. Flow from the Site discharges to at least two springs, Benesh Spring which is located about 5,000 feet southwest of the Site, and Meyer's Spring which is located about 3,000 feet north of the Site.

Groundwater flow is preferential along large fracture or fault zones in the dolomite bedrock in two directions. The primary pathway from the Site is northwest, and the second flow path from the Site is to the southwest.

Land and Resource Use

The historic land use of the BSY portion of the Site from the mid 1960s to 1972 was a salvage yard/dump where miscellaneous waste and debris were disposed. The remainder of the BSY was leased for motorcycle racing or used as residential property. Today, the BSY is no longer used as a salvage yard/dump. The residential and commercial uses of the property continue. Waste was also disposed of at portions of the DFP during the same time period. The DFP now is primarily used as farmland or open space. The land surrounding the Site is primarily used for agricultural with a few residents, as well as a nuclear power generating station that is located southeast of the Site.

History of Contamination

The BSY received drums of electroplating wastes and other materials (oil sludges, paint sludges, cutting wheels, solvents, and scrap metal) in the mid 1960s to around 1972. Industrial wastes were reportedly dumped directly on the ground at the BSY and at times of heavy rainfall, the waste would be carried off the BSY by the resulting surface water runoff.

Similar dumping practices were also carried out during this same time period 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.

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. The discovery of these dumping practices by the State of Illinois and the subsequent investigations prompted a series of regulatory actions that culminated in the Site being placed on the National Priorities List in 1983. Various Site investigation and remediation activities have been carried out at the Site for both the BSY and the DFP properties since contamination was documented.

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.

Initial Response

In July 1984 under an emergency action, the EPA began supplying bottled water to residents along Razorville Road and Acorn Road whose private water supplies indicated actual or probable TCE contamination. In April 1985 the residents receiving bottled water were subsequently supplied carbon adsorption treatment units.

From late 1984 to May 1985, EPA issued a contract for the execution of Remedial Investigation/Feasibility Study (RI/FS) activities specifically designed to supplement the Illinois Environmental Protection Agency (IEPA) RI/FS and to further investigate groundwater impacts emanating from the Site. The RI/FS was expanded to include a Phased FS for investigation of residential well impacts in the Rock River Terrace subdivision. Also, during 1985 EPA erected a fence along the BSY perimeter and posted warning signs.

On March 13, 1985, EPA issued a Record of Decision (ROD) that required the off-site disposal of all surface and buried drums on BSY, the off-site disposal of contaminated soils in-situ treatment with sodium hypochlorite and ammonia of all soil that contains cyanide over 1 ppm; disposal at a lined RCRA approved landfill and, if possible incineration or treatment of liquids. This remedy was implemented by IEPA and completed in 1987. Beginning in the fall of 1986, IEPA conducted cleanup and removal actions at the Site. Activities included excavation of buried drums; removal of surface drums; removal of soils impacted with heavy metals and VOCs; removal of soils with cyanide concentrations greater than 100 mg/kg, in situ treatment of soils with cyanide contamination less than 100 mg/kg; removal of miscellaneous debris; and, backfilling and grading for erosion control. These activities were completed in January 1987.

In July 1986 the IEPA signed a ROD for the design and construction of a water line to distribute potable water from the City of Byron to residences in the Rock River Terrace subdivision and to residences along Acorn and Razorville Roads.

In June 1989 the EPA signed a ROD concurring with the July 1986 IEPA ROD and providing for the extension of the IEPA-funded Rock River Terrace subdivision water supply system to provide additional residents with an alternative supply of potable water.

From 1990 to 1994 the EPA determined that a number of unanswered questions remained concerning the nature and extent of contamination on the DFP. A RI was initiated to:

- 1) 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 BSY and DFP.

The RI found that several disposal areas on the DFP were contaminated with metals, including zinc, chromium, copper, and lead. One area, the West Disposal Area, had elevated levels of VOCs, primarily toluene, ethylbenzene, xylenes, tetrachloroethene (PCE), and TCE. Based upon the soil data collected during Phase I and Phase II of the RI conducted in 1985 through 1988, soil at the BSY was found to be contaminated with heavy metals immediately on and adjacent to the roadways at the BSY. EPA issued a ROD in September 1998 to address the soil contamination on the BSY and DFP. EPA issued a final ROD in December 1999 that addressed groundwater contamination at the Site.

REMEDIAL ACTIONS

Remedy Selection

The Site was divided into four operable units. OU1 addressed limiting access, providing bottled water for impacted residences, and removing the contamination found in soil from BSY. OU2 provided bottled water to additional residences and carbon filters to residences that were affected or could be affected. OU3 involved EPA's decision to extend the municipal water line to provide a long-term permanent water supply to the affected residences. OU4 addressed the final soil and groundwater action selected for the Site.

A. OU1

The remedial objectives of the EPA OU1 Emergency Removal Action in July 1984 included:

- Supplying bottled water to residents along Razorville Road and Acorn Road whose private water supplies indicated actual or probable trichloroethylene contamination; and
- Supplying carbon adsorption treatment units in April 1986.

The remedial objectives of the EPA OU1 ROD issued on March 13, 1985 included the removal of the source of the contamination and mitigating its continued migration by:

- Removal of surficial drums and excavation/removal of buried drums;
- Removal of soils impacted with heavy metals and VOCs that exhibit the characteristics of hazardous wastes (i.e. EP toxicity characteristic); and
- Sodium hypochlorite in-situ treatment of soils with cyanide concentrations greater than 1 mg/kg;

This action was implemented by IEPA.

B. OU2

The remedial objectives of the EPA OU2 ROD issued in September 1986 included:

- Providing additional residences (seasonal, summer-use homes) with bottled water; and
- Supplying affected or potentially affected residences with carbon adsorption units.

Note: The remedy for OU2 was not implemented because of the actions taken by IEPA pursuant to the July 14, 1986 IEPA ROD. This decision was documented in the June 30, 1989 EPA ROD for OU3.

C. OU3

The remedial objective of the IEPA ROD dated July 14, 1986, was:

- Construction of a municipal water-line to residents of Rock River Terrace and along Acorn and Razorville Roads;

The remedial objectives of the EPA ROD dated June 30, 1989, were to:

- Extend the existing municipal water-line to an additional twenty-seven residents in the Rock River Terrace subdivision;
- Remove all wastes generated during the Remedial Investigation at the Site;
- Install additional monitoring wells near the Rock River;
- Collect and analyze groundwater samples from the new wells at the Rock River;
- Perform surface water sampling at the Meyer Spring Pond and Rock River; and
- Establish ICs (including such things as deed restrictions or mandatory hook-ups to available public water supplies), plugging and abandoning residential wells, and/or other such actions which will provide measures that will preclude human exposure to contaminated ground water at any point between the site boundary and all known and projected points of entry of such ground water into surface water.

Note: This ROD determined that MCLs were not relevant and appropriate given the site conditions and set ACLs as the groundwater remediation criteria at the current concentrations existing in the groundwater. These criteria are found in Appendix D.

D. OU4

OU4 was broken up into two components. One component focused on the residual contaminated soils at the; BSY and DFP. The second component focused on the contaminated groundwater throughout the Site.

The soils component had the following remedial action objectives which were identified in the EPA ROD dated September 24, 1998:

- Prevent ingestion and direct contact with impacted soil with a total cancer risk greater than 1×10^{-6} or a hazard index exceeding the Superfund remediation goal of 1; and
- Prevent leaching of contaminants to groundwater that would result in contaminant concentrations that exceed Illinois EPA Groundwater Class I values.

The selected remedy included the following activities:

- Cover metal-contaminated soil areas at BSY and the north and east disposal areas on the DFP with clean soil. On the BSY, the cover would extend over those areas where the concentration of lead exceeds 400 mg/kg, and the concentration of zinc exceeds

21,726 mg/kg. On the DFP, the cover would extend over the north and east disposal areas where the concentration of lead exceeds 400 mg/kg, the concentration of copper exceeds 2,801 mg/kg, or the concentration of zinc exceeds 21,726 mg/kg;

- Provide surface control technologies such as grading and re-vegetation to protect the soil cover;
- Excavate VOC contaminated soil at DFP and dispose of it off-Site at a subtitle D landfill.
- Excavation of VOC-contaminated soils would require the removal of contaminated materials that have toluene concentrations exceeding 20.67 mg/kg and PCE exceeding 2.3 mg/kg, and;
- Obtain access and deed restrictions for the Site to protect the soil cover and prevent exposure to the metal contaminated soils.

The contaminated groundwater component had the following remedial action objectives which were identified in the EPA ROD dated December 23, 1999:

- Prevent ingestion of impacted groundwater by residential users at concentrations that:
 - exceed MCLs
 - pose a total cancer risk greater than 1×10^{-6}
 - have a hazard index greater than 1, and
 - exceed Illinois EPA Class I Groundwater values;
- Prevent release of groundwater 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;
- Because of the availability of a municipal water supply, the proximity of a river to which the contaminated aquifer discharge without significant impact, and no statistically significant increase in constituents from ground water to surface water, the ACLs established in the June 30, 1989 ROD remain appropriate; and
- Provide affected residences with an independent uncontaminated and uninterrupted drinking water supply.

The selected remedy included the following activities:

- Construct and maintain a permanent water supply well on the same side of the Rock River as Rock River Terrace subdivision and connect to the existing water line;
- Implement a groundwater monitoring program to monitor the boundaries of the contaminant plume until drinking water standards are achieved; and
- Obtain access and deed restrictions for properties potentially affected by impacted groundwater prohibiting ground water withdrawal for potable use until drinking water standards are achieved. These restrictions are required for the area generally bounded by Razorville Road, Spring Creek Road, and the Rock River.

On September 20, 2002, EPA signed an Explanation of Significant Differences (ESD) modifying portions of the soils remedy. Based upon pre-design sampling efforts, there were no samples that exceeded the remediation objectives for the metals contaminated

areas on BSY and at the north disposal area on the DFP. The ESD modified the September 24, 1998 ROD as follows:

- Capping requirements for the metals contaminated areas on the BSY and the north disposal area on the DFP were deleted; and
- Institutional control requirements for the metals contaminated areas on the BSY and the DFP were deleted.

Remedy Implementation

In 1975 cleanup activities at the DFP were initiated by Commonwealth Edison (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 July 1984 EPA began supplying bottled water to residents along Razorville Road and Acorn Road whose private water supplies indicated actual or probable contamination.

In April 1985 through an emergency removal action, the EPA provided carbon adsorption units to those individuals receiving bottled water. The carbon units treated the entire household water supply.

Between October 1986 and January 1987, the IEPA conducted cleanup actions at the Site. Activities included:

- excavation of buried drums;
- removal of surficial drums;
- removal of soils heavily impacted with heavy metals and VOCs;
- removal of soils with cyanide concentrations greater than 100 mg/kg;
- in-situ treatment of soils with cyanide contamination less than 100 mg/kg;
- removal of miscellaneous debris; and
- backfilling and grading for erosion control.

In August 1987 IEPA extended the municipal water supply system from the City of Byron to the Rock River Terrace subdivision. In the summer of 1989, additional residents in the Rock River Terrace subdivision as well as residences along Razorville Road were connected to the municipal water supply system.

On September 30, 1998, EPA completed the first Five-Year Review Report evaluating the remedies for OU1, OU2, and OU3. This report concluded that at the time of the review the remedies selected were protective of human health and the environment.

In December 2000 ComEd entered into a Consent Decree (CD) with EPA to conduct the soils portion of the OU4 remedy on the DFP. Soil sampling conducted as part of the Remedial Design efforts documented that concentrations of metals in the northern disposal area did not exceed remediation objectives. Portions of the soil remedy on the DFP were completed and documented by the January 13, 2003 Remedial Action

Completion Report prepared by Levine Fricke, Commonwealth Edison's consultant. These efforts excavated the metals contamination which exceeded the remediation objectives in the east disposal area and the VOC contamination in the west disposal area for off-site disposal. By excavating the soils contaminated with metals so as to allow for unlimited use/unrestricted exposure in the east disposal area instead of covering them as required by the ROD, the need for institutional controls for this area was eliminated. No institutional controls were required for any other areas of the DFP.

EPA and the Settling Defendants signed two Consent Decrees (CDs) in June 2001, one for soil and one for groundwater at the BSY. The Settling Defendants agreed to perform the remedial design/remedial actions (RD/RA) for the soil impacted with lead and zinc at the BSY, for the groundwater monitoring plan for the Site, and to fund the design, installation, and maintenance of the municipal water supply well and water line extension. The Settling Defendants began remedial design upon their execution of the Consent Decree in 2001, though the CDs were not entered by the Court until October 2002.

As part of the pre-design for the RD Work Plan, soil samples were collected from the BSY during the week of November 5, 2001, to delineate the extent of impacts. The results of the soil samples indicated that concentrations of lead and zinc were below the action levels identified in the 1998 soil ROD. On September 20, 2002, EPA approved the Explanation of Significant Differences (ESD), documenting the following modifications to the 1998 soil ROD:

- There will be no capping of metal contaminated soils on the BSY portion of the site or of the north disposal area of the DFP; and
- There will be no institutional controls regarding the soils for the BSY or of the north disposal area of the DFP.

In a December 18, 2001 letter, the OCHD confirmed that they were denying any water well permits within the vicinity of the Site, thus preventing the installation of drinking water wells in the vicinity of the Site. This restriction is still in force.

The design of the Byron municipal water supply well and water line was completed on April 28, 2003. The installation of the municipal water supply well and water line were completed on September 16, 2003. The City of Byron now operates and maintains the well and water line system.

On August 29, 2003, EPA completed the second Five-Year Review Report evaluating the remedies for OU1, OU2, OU3, and OU4. This report concluded that the remedies selected remain protective of human health and the environment.

EPA approved the GMP prepared by the Settling Defendants on October 6, 2003, specifying annual monitoring efforts. The first event under the GMP was conducted in September of 2004. The goals of the GMP included the following:

- Detection of northwest and southwest plume boundaries and whether or not changes

have occurred; and

- To summarize contamination levels.

Due to access issues, no groundwater monitoring has been completed on a portion of the BSY property since 2001. If, at any time in the future, access is granted to this portion of the BSY property, any existing monitoring wells will be abandoned or included in the monitoring system.

On September 16, 2003, EPA signed a Preliminary Closeout Report documenting that the construction of the remedies was completed.

On July 29, 2008, EPA completed the third Five-Year Review Report evaluating the remedies for OU1, OU2, OU3, and OU4. This report concluded that the remedies selected remain protective of human health and the environment.

Institutional Controls

Soil

ICs were initially required in the OU4 ROD for the soil remedy at BSY and DFP. However, the 2002 ESD deleted the IC requirements for BSY and the north disposal area on the DFP based on sampling results during the pre-design. The ICs for the east disposal area on the DFP became unnecessary when the Settling Defendant enhanced the remedy by the removal of contamination as opposed to the selected remedy of capping. Thus, no ICs are required since the Site remedy for soil has achieved UU/UE for all Site soils.

Groundwater

The groundwater at the Site is not anticipated to reach concentrations that would allow for UU/UE standards for many years. Groundwater use restrictions are necessary to prohibit usage of the groundwater until groundwater concentrations reach those levels which would allow for UU/UE throughout the plume. OCHD has the authority to deny water well drilling permits pursuant to Ogle County Code Division 3, Section 10-3-1 through 10-3-8 concerning Water Supply Wells. In letters dated December 18, 2001 and July 9, 2008, Ogle County has stated that wells in the Site plume area were sealed and future well drilling in the area of the Site would be denied. In addition, Section 10-3-2 states that where a public water supply is reasonably available, such water shall be used. The BSY Site plume area is located entirely within Ogle County, and thus the public water supply must be used in the BSY Site plume area. Based on interviews with city officials and the Settling Defendants, EPA is not aware of any wells installed within the groundwater restricted area and all previously existing wells have been plugged and abandoned when residences were hooked up to the municipal water line. The groundwater restriction code is functioning as intended. The Settling Defendants contact the Ogle County Health Department annually to confirm that the groundwater use restriction is still in place and that no new potable wells have been installed in the area of the restriction.

APPENDIX E – Alternative Concentration Levels

Alternative Concentration Levels (ACLs) for Volatile Organic Compounds and Cyanide for Groundwater (µg/L)		
Contaminant	Point of Compliance	
	Meyer's Spring	Rock River
Trichloroethylene (TCE)	52	<5
Tetrachloroethene (PCE)	<5	< 5
1,2-Dichloroethene (1,2-DCE)	2	< 5
1,1,1-Trichloroethane (1,1,1-TCA)	< 5	< 5
1,1-Dichloroethene (1,1-DCE)	< 5	< 5
1,2-Dichloroethane (1,2-DCA)	< 5	< 5
Toluene	< 5	< 5
Methylene chloride	< 5	< 5
Cyanide	18.7	< 10
Chloroform	< 5	< 5