

Commonwealth Edison Company

Chicago, Illinois



Phase I Environmental Site
Assessment of
Commonwealth Edison
Joliet #29 Generating Station
1800 Channahon Road
Joliet, Illinois.

ENSR Consulting - Engineering - Remediation

October 1998

Document Number 1801-023-400

Commonwealth Edison Company

Chicago, Illinois

Phase I Environmental Site
Assessment of
Commonwealth Edison
Joliet #29 Generating Station
1800 Channahon Road
Joliet, Illinois.

ENSR Consulting - Engineering - Remediation

October 1998

Document Number 1801-023-400

CONTENTS

1.0 INTRODUCTION 1-1

 1.1 Objectives and Scope of Work 1-1

 1.2 Study Limitations 1-1

 1.3 Report Organization..... 1-2

2.0 SITE LOCATION AND DESCRIPTION..... 2-1

 2.1 Site Location 2-1

 2.2 Description of Property and Facility Layout 2-1

 2.3 Topography, Hydrology, and Geology 2-4

 2.4 Site History 2-4

 2.5 Adjacent Site History 2-5

 2.6 Description of Operations 2-6

 2.7 Utilities 2-7

3.0 ENVIRONMENTAL DOCUMENT REVIEW 3-1

 3.1 Introduction..... 3-1

 3.2 Air Quality 3-1

 3.3 Water Resources..... 3-1

 3.4 Oil and Hazardous Material Storage and Use 3-2

 3.4.1 Material Storage and Use 3-2

 3.4.2 Principal Waste Streams 3-2

4.0 ON-SITE CONTAMINATION POTENTIAL 4-1

 4.1 Introduction..... 4-1

 4.2 Above and Under Ground Storage Tanks (ASTs and USTs)..... 4-1

 4.2.1 Inventory of Underground Tanks 4-1

 4.2.2 Inventory of Aboveground Storage Tanks 4-1

 4.3 Polychlorinated Biphenyls (PCBs)..... 4-2

 4.4 Asbestos-Containing Material (ACM) 4-3

 4.5 Areas of Surface Staining..... 4-4

 4.6 Ash and Coal Pile Runoff Basins..... 4-4

 4.7 Spill History..... 4-5

 4.8 Adjacent Property 4-5

 4.9 Environmental Database Review..... 4-5

 4.9.1 Subject Property..... 4-7

 4.9.2 Surrounding Land Uses..... 4-7

5.0 SUMMARY OF FINDINGS 5-1

6.0 REFERENCES 6-1

 6.1 Persons Interviewed or Contacted..... 6-1

 6.2 Documents and Reports Reviewed 6-1

7.0 SIGNATURES AND QUALITY CONTROL REVIEW 7-1

LIST OF FIGURES

Figure 2-1 Site Location Map 2-2
Figure 2-2 Site Plan 2-3

1.0 INTRODUCTION

1.1 Objectives and Scope of Work

ENSR was retained by Commonwealth Edison to perform a Phase I environmental site assessment of Commonwealth Edison's Joliet #29 Generating Station facility located at 1800 Channahon Road in Joliet, Illinois.

The purpose of this Phase I ESA was to assess the environmental status of the subject site with regard to "recognized environmental conditions," which are defined by the ASTM (see E 1527-97) as, "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property." According to the ASTM, "the term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

The ESA was conducted in general accordance with the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process established by the ASTM (ASTM Designation E.1527-97).

1.2 Study Limitations

This report describes the results of ENSR's initial due diligence investigation to identify the presence of recognized environmental conditions affecting the subject facility and/or property. In the conduct of this due diligence investigation, ENSR has attempted to independently assess the presence of such problems within the limits of the established scope of work, as described in ENSR's July 31, 1998 proposal.

As with any due diligence evaluation, there is a certain degree of dependence upon oral information provided by facility or site representatives which is not readily verifiable through visual inspection or supported by any available written documentation. ENSR shall not be held responsible for conditions or consequences arising from relevant facts that were misconstrued, concealed, withheld, or not fully disclosed by facility or site representatives at the time this investigation was performed.

This report and all field data and notes were gathered and/or prepared by ENSR in accordance with the agreed upon scope of work and generally accepted engineering and scientific practice in effect at the time of ENSR's investigation of the site.

This report, including all supporting field data and notes (collectively referred to hereinafter as "information"), was prepared or collected by ENSR for the benefit of its Client, Commonwealth Edison. ENSR's Client may release the information to other third parties, which may use and rely upon the information to the same extent as ENSR's Client. However, any use of or reliance upon the information by a party other than specifically named above shall be solely at the risk of such third party and without legal recourse against ENSR, its parent or its subsidiaries and affiliates, or their respective employees, officers or directors, regardless of whether the action in which recovery of damages is sought is based upon contract, tort (including the sole, concurrent or other negligence and strict liability of ENSR), statute or otherwise. This information shall not be used or relied upon by a party that does not agree to be bound by the above statement.

1.3 Report Organization

ENSR reviewed a substantial volume of information regarding the ComEd facility during the course of this environmental due diligence investigation. This report represents our best efforts to synthesize the most salient information collected and reviewed. The report contains the following sections:

- *Chapter 2: Site Location and Description*, provides an overview of the subject property, including a description of the site history and a discussion of the various activities currently taking place.
- *Chapter 3: Environmental Document Review*, provides a description of ComEd's documents reviewed at each facility and at ComEd's corporate office. The document review included only materials that pertained to site contamination and not documents regarding environmental regulatory compliance.
- *Chapter 4: On-Site Contamination*, evaluates the subject property for the presence of a hazardous material or petroleum hydrocarbon contamination problem due to past or present activities taking place on the site. This analysis also considers land uses in the immediate vicinity that may adversely affect the subject property through off-site migration of contaminants from known releases.
- *Chapter 5: Summary of Findings*, provides our summary regarding recognized environmental conditions.
- *Chapter 6: References*, identifies the various sources of information used in the preparation of this report, including persons interviewed, and documents and files evaluated.

-
- *Chapter 7: Signatures and Quality Control Review*, identifies the report author and the individual responsible for conducting senior review.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

Commonwealth Edison operates a coal-fired electric power generating and distribution facility at 1800 Channahon Road in Joliet, Illinois. The facility has the capability to use alternative fuel sources including fuel oil, natural gas, and waste oils.

Channahon Road borders the subject property to the north and the Des Plaines River borders the property on the south. To the west is a Caterpillar Equipment, Inc. facility and to the east is vacant land beyond which is the Brandon Road Lock and Dam on the Des Plaines River. Access to the subject property is from Channahon Road at Larkin Avenue. Figure 2-1 is a site location map.

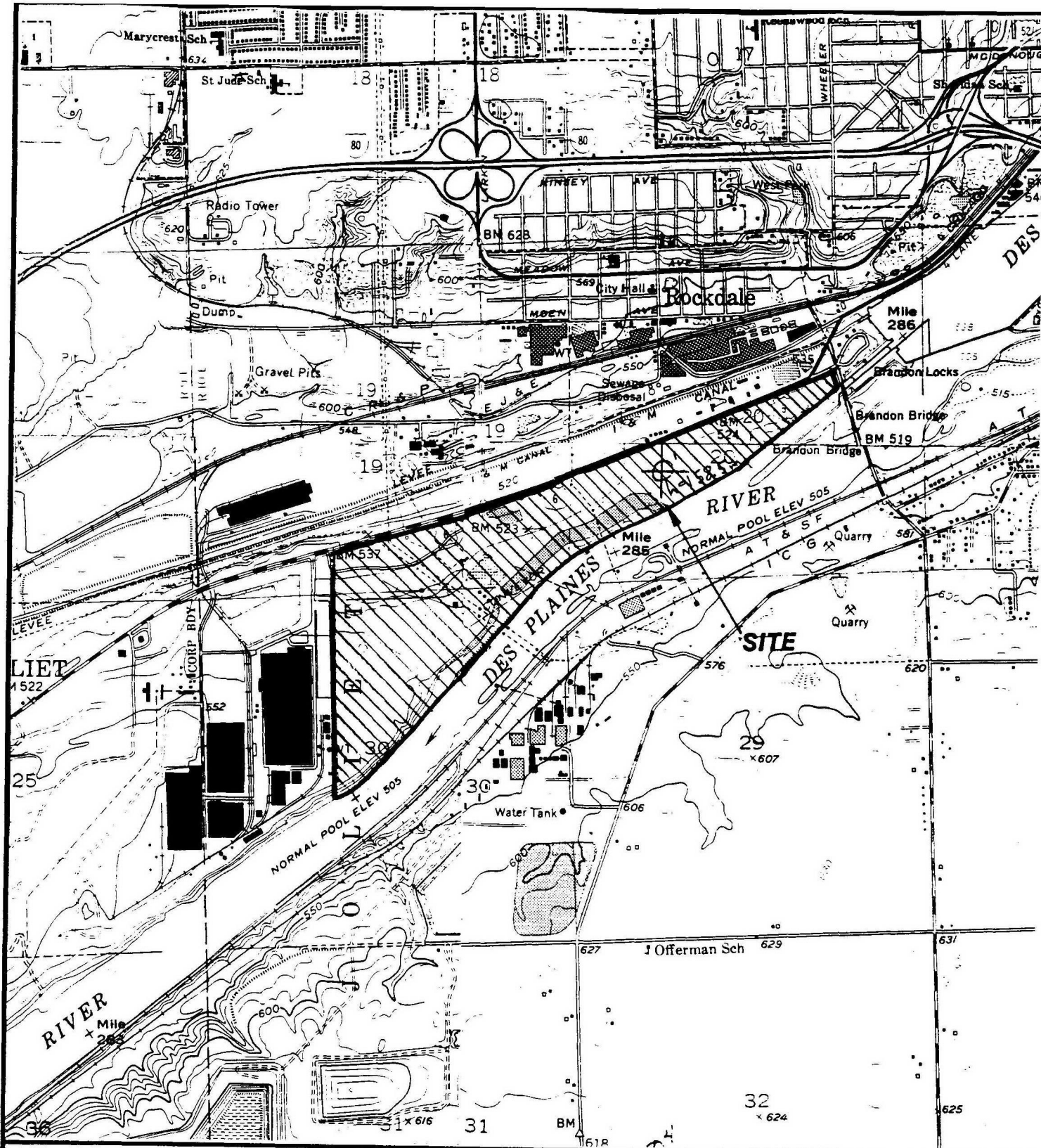
2.2 Description of Property and Facility Layout

The subject property encompasses approximately 271 acres and is occupied by the main generating building near the center of the property, and several other ancillary buildings surrounding the main building. The other buildings are used for offices, equipment and material storage, and sewage treatment facilities. Other structures on site include a conveyor for coal transfer, silos for fly ash storage, and various above ground storage tanks. Figure 2-2 is a site plan for the facility.

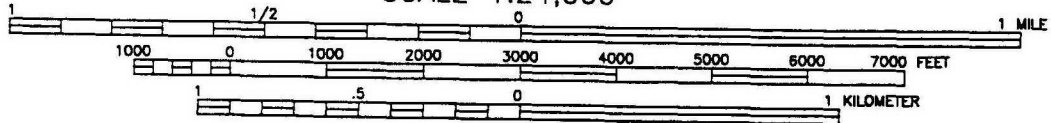
As mentioned in Section 2.1, Channahon Road borders the triangular-shaped subject property to the north. North of Channahon Road is open land and commercial and industrial facilities. To the south, the subject property is bordered by the Des Plaines River beyond which is another ComEd generating station (Joliet #9). The subject property is bordered to the east by Brandon Road and the Brandon Road Lock and Dam on the Des Plaines River. Caterpillar, Inc., a heavy equipment manufacturing facility, is immediately west of the subject property.

The main structure on the subject property is a ten-story building that houses two electric generating units each consisting of two boilers and twin turbines. The two generating units were installed in 1965 to 1966. Attached to the southeast corner of the main building is a three-story structure that contains the administrative offices for the facility.

On the south side of the main building are the two main transformers, the cooling water intake crib house, and the turbine oil/water separator that is located in a concrete-lined pit. At the southwest corner of the building are the make-up water storage tanks and the water treatment chemical storage tanks. West of the water tanks are the coal pile runoff collection basin and the main coal



SCALE 1:24,000



Contour interval 10 feet

Dwg No: JOUET29SL



U.S.G.S.
ELWOOD, CHANNAHON,
PLAINFIELD & JOLIET, IL

SITE LOCTION MAP

JOLIET GENERATING STATION NO. 29
1800 CHANNAHON ROAD
JOLIET, ILLINOIS

FIGURE 2-1

COMMONWEALTH EDISON COMPANY



September 1998 File No: 6916-023-400

LEGEND:

- PROPERTY BOUNDARY
- ⊕ MW-1 MONITORING WELL
- B-4 SOIL BORING
- ⊕ S-1 OBSERVATION SUMP
- ++++ RAILROAD LINE
- x-x-x- FENCE
- - - - CONVEYOR LINE

Note:
 * All dimensions and locations are approximate.
 Source:
 * ENSR field observations.

Dwg. No: JOLIET29

JOLIET GENERATING STATION NO. 29
 1800 CHANNAHON ROAD
 JOLIET, ILLINOIS

COMMONWEALTH EDISON COMPANY

September 1998

File No: 1801-023-400

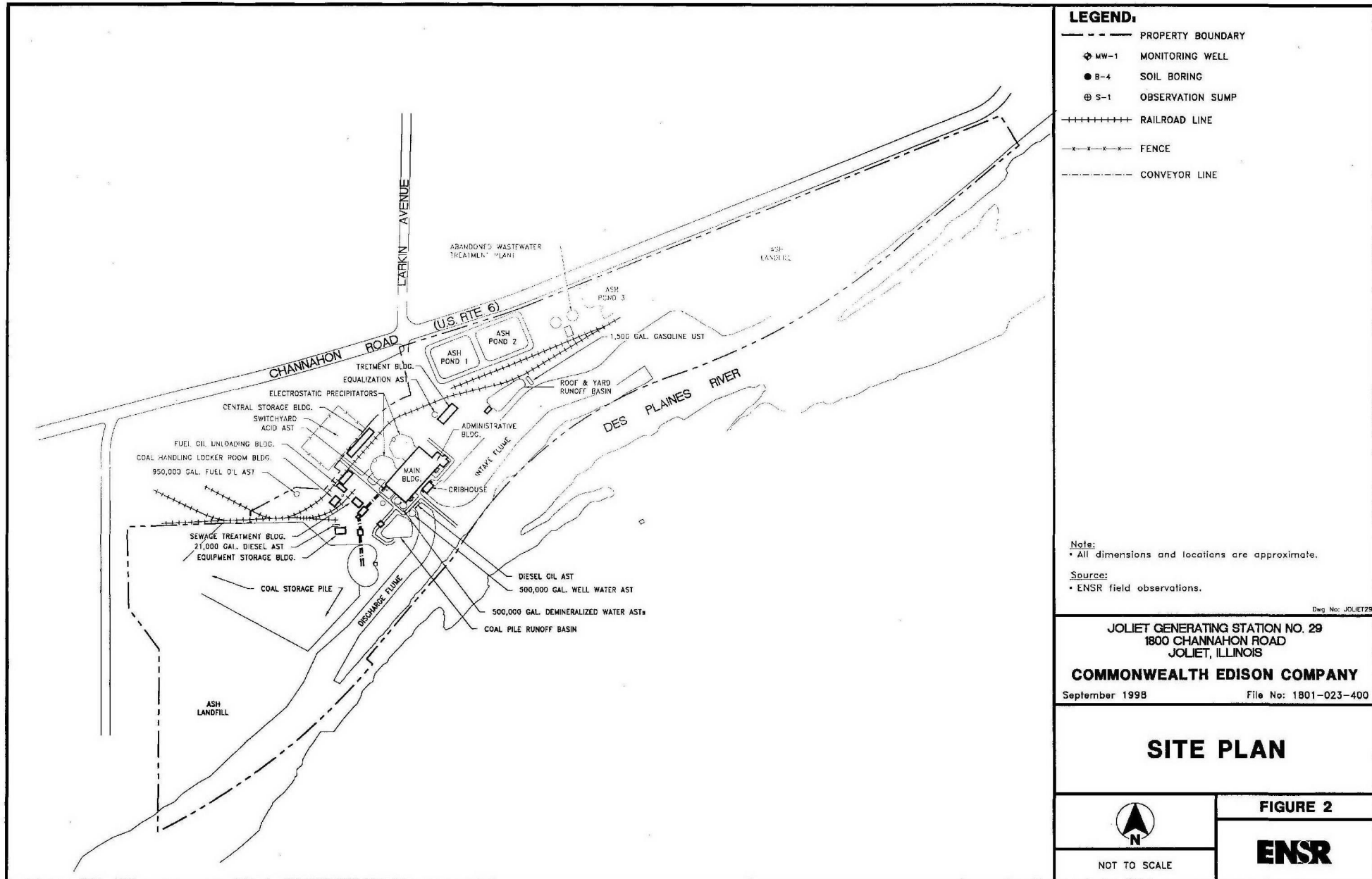
SITE PLAN



NOT TO SCALE

FIGURE 2

ENSR



MWG13-15_25149

storage pile. An abandoned rail switchtrack extends onto the property from the northwest and continues east across the property immediately north of the main building. Between the switchtrack and the coal pile is the main equipment storage building and a 21,000-gallon diesel fuel aboveground storage tank (AST). Northwest of the main building are the sewage treatment building, the coal handling building, the valve house, the fuel oil unloading building, and beyond the buildings is an abandoned 950,000-gallon fuel oil AST.

On the north side of the main building are the induced draft fan units and the two main chimneys. Beyond the fan units are the central storage building and the main power switchyard. Note that for the purpose of this report, the switchyard is not considered part of the subject property. Rather, it is considered an adjacent site. Equipment and materials used on site are unloaded and stored at the storage building.

Asphalt-paved employee and visitor parking areas are located east of the main building. A small training building is located on the east side of the main building across the parking area. Further east are the ash-handling ponds, the fly ash silos, an abandoned wastewater treatment facility, and the roof and yard runoff basin.

2.3 Topography, Hydrology, and Geology

The subject property is relatively flat with a slight slope to the south. The topographic elevation is approximately 520 feet above mean sea level, according to the USGS Channahon, Illinois Quadrangle 7.5-Minute Series topographic map.

According to the USDA SCS Soil Survey for Will County, Illinois, the soils on the subject property consist mostly of silty loam. The inferred depth to groundwater is between 15 feet and 60 feet below grade surface (bgs). The regional groundwater is expected to flow toward the Des Plaines River adjacent to the south side of the subject property.

2.4 Site History

Historical information for the subject site is based on a review of building department records, tax assessors records, zoning and planning files, aerial photographs, topographic quadrangle maps, city directories, ComEd files, and interviews from site personnel and local government officials. Sanborn Fire Insurance maps were not available for the subject property vicinity. Based upon the lack of available standard historical reference sources, ENSR was unable to track the history of the subject property prior to 1965.

According to ComEd, the site was used for coal ash disposal by the Joliet # 9 station prior to the construction of Joliet # 29 in 1964-1965. Coal ash was primarily disposed in a landfill on the eastern portion of the site. A second abandoned ash disposal landfill lies on the southwest portion of the site between the coal pile and the Caterpillar, Inc. site. A topographic map dated 1954 and

photorevised in 1973 depicts the change in the property usage from undeveloped to developed with the generating station. No other records of previous land usage were identified during the historical information search.

An aerial photograph dated 1990 shows the generating station in its current configuration. According to building department records, six additional structures were constructed on the property from 1975 to 1992. Building department records were not very specific regarding the building usage or construction dates. Building department records also did not contain any information regarding USTs at the site. The fuel unloading building was originally constructed in 1975 but burned down in 1980. The building was re-built in 1983 using most of the original floor. A single-story steel-frame building was constructed in 1986. This building does not match the size of any buildings on ComEd's facility maps. A steel-framed office and employee locker room building was constructed in 1992. Also erected in 1992 was a small steel storage shed. The wastewater treatment plant on the west side of the property was constructed in 1978 in a pre-fab metal building.

2.5 Adjacent Site History

Historical information for the subject site vicinity is based on a review of zoning records, aerial photographs, a topographic quadrangle map, city directories, and interviews from site personnel and local government officials. Sanborn Fire Insurance maps were not available for the subject property vicinity.

Channahon Road borders the subject property to the north, beyond which are open lands and commercial and industrial facilities. The 1990 aerial photograph shows the abutting properties to the north as undeveloped. A topographic map dated 1962 shows these abutting properties as mostly undeveloped. The topographic map was revised in 1973 and shows the abutting facilities in their present configuration. City directories dated 1947, 1953, 1955, 1960, 1965, 1969, 1974, 1979, 1984, 1989, and 1995 do not have a listing for these abutting properties.

Brandon Road and the Brandon Locks on the Des Plaines River border the subject property to the east. The 1990 aerial photograph shows the adjacent property to the east as vacant undeveloped land. The topographic maps were revised in 1973 and show the adjacent property in its present configuration.

The Des Plaines River defines the southern boundary of the property, beyond which is the ComEd Joliet # 9 Generating Station. ComEd records indicate the generators at Joliet # 9 were installed beginning in 1917.

Currently, the Caterpillar, Inc. manufacturing facility borders the subject property to the west. The 1990 aerial photograph shows the abutting properties to the west in approximately their present

configuration. The Channahon quadrangle topographic map dated 1954 and photorevised in 1973 shows the abutting facilities in their present configuration.

2.6 Description of Operations

The subject property is a coal-fired electric power generating station. Supporting operations include water treatment, wastewater treatment, equipment maintenance and repair, and coal-handling equipment maintenance and repair. Electrical power is transmitted to the area grid via overhead power transmission lines.

The generating station receives coal from the Joliet # 9 generating station, located to the south across the river, and stores the coal in a pile located to the west of the main building. The coal pile has a storage capacity of 1,000,000 tons. The coal is then crushed and fed into the boiler via conveyors located west of the main building. Steam from the boilers is used to drive a pair of turbines for each generating unit. Electricity generated by the turbines is then distributed to the adjacent switchyard.

Condenser cooling-water is drawn from the Des Plaines River at a rate of approximately 1,073 million gallons per day (MGD). Boiler make-up water is obtained from on-site water wells. Water treatment chemicals including ammonia, hydrazine, and phosphate are added to the boiler make-up water to inhibit corrosion and scaling. Sodium hypochlorite and/or sodium bromide is used in the condenser cooling and house service water system to control biofouling. Sodium bisulfite is added to these systems prior to final discharge to detoxify the biocides.

Coal burning produces waste fly ash, bottom ash, and economizer ash. Bottom ash and economizer ash from the boilers is mixed with water to form slurry that is pumped to one of two geo-textile fabric lined ash-handling ponds for dewatering. The water then flows to a geotextile-fabric lined secondary ash-handling pond for clarification. Clarified water from the ash ponds is recycled for slurry make-up water. The primary flow path for the slurry is via a pipe across the river to an abandoned quarry located east of the Joliet # 9 station. The Joliet # 9 station currently uses this quarry for ash and slag disposal. Fly ash is transferred to two storage silos located east of the main building. The fly ash is eventually sold as construction material.

Sanitary wastewater is treated in an on-site sewage treatment plant located west of the main building. The treatment system consists of primary separation, a rotating biological contactor (RBC), and clarification. Treated wastewater is discharged to the Des Plaines River under the conditions of an NPDES permit. Sewage treatment plant sludge is land-applied to a two-acre site on the Joliet # 9 property in accordance with an IEPA Water Pollution Control Permit. The NPDES permit also covers discharges of condenser cooling water, demineralizer regenerant wastes, boiler blowdown water, storm water runoff, intake screen backwash, and ash pond effluents.

Plant drains, coal pile runoff, and west plant and roof area runoff are directed to the west basin for treatment. The effluent from the west basin is discharged to the local ash pond system prior to discharge. East roof and yard runoff is directed to the east basin that historically has rarely discharged. Other facilities of note include an abandoned wastewater treatment plant to the east near the ash-handling ponds which was used to treat non-chemical metal-cleaning wastes, and at the east end of the property, an inactive ash landfill once used to dispose of ash from the Joliet # 9 generating station. The facility stores large quantities of the following materials: turbine oil, sulfuric acid, sodium hypochlorite, lubricating oil, liquid nitrogen, ion exchange resin, ethylene glycol, diesel fuel sodium hydroxide, sodium bromide, sodium bisulfate, hydrazine, gasoline, fly ash, carbon dioxide, and aluminum sulfate.

2.7 Utilities

Currently, the Joliet generating station obtains potable and process water from on-site water wells. The Des Plaines River supplies cooling water. According to facility personnel and building department records, the facility obtains potable and process water from wells located on the subject property.

The Joliet # 29 generating station treats sanitary wastewater on site in a wastewater treatment facility consisting of primary separation, a rotating biological contactor (RBC), and clarification. Treated wastewater is discharged to the Des Plaines River.

Natural gas is provided to the subject property by Northern Illinois Gas Company and is used as a supplemental fuel source for the boilers.

3.0 ENVIRONMENTAL DOCUMENT REVIEW

3.1 Introduction

This environmental document review is based upon information provided by ComEd coupled with observations made by Brian O'Neil and James Paulson of ENSR during the site walk through which took place on August 25-26, 1998. The information provided by ComEd included Community Right-To-Know and other documents relative to the various regulatory areas described below. Also, certain state and federal enforcement databases were screened by Environmental Data Resources, Inc. (EDR).

3.2 Air Quality

Although no formal emissions inventory was prepared as part of this Phase I assessment, a preliminary review of the facility indicates air permits are required for the facility. The Illinois Environmental Protection Agency (IEPA) oversees the state's air permitting compliance programs. The facility currently has four operating permits from the IEPA. The air permits cover the operation of four boilers with electrostatic precipitators, turbine oil tanks, coal ash silos, fuel handling (coal) with a radial boom stacker and conveyor belt, ash handling, a fuel dispensing facility, diesel "peaker" units, and a 2.0 mmBtu/hr natural gas-fired boiler. According to Ms. Lorinda Lamb, the facility has applied for a Title V operating permit and is awaiting regulatory approval.

3.3 Water Resources

The facility is permitted to discharge wastewater and stormwater from eight outfalls in accordance with the conditions of NPDES Permit No. IL0064254. Permitted wastewater streams include condenser cooling and house service water, demineralizer regenerant wastes, sewage treatment plant effluent, boiler blowdown, plant drains, ash pond blowdown, and storm water runoff to the Des Plaines River. Storm water runoff from the main plant area, coal pile, and other areas on the west and north side of the property is treated in the facilities' wastewater treatment plant.

For storm water runoff not collected in the station's on-site wastewater treatment system, a Storm Water Pollution Prevention Plan (SWPPP) has been prepared as a condition of the NPDES permit. The SWPPP describes best management practices in place at the facility to prevent the release of harmful materials into the waters of the state.

The facility also operates under IEPA Water Pollution Control Permit number 1997-SC-4800 for the land application of 1.06 dry tons/year of aerobically digested sludge to a 2-acre tract of land on the Joliet # 9 property. The sludge is generated in the on-site sewage treatment plant.

A wetland investigation performed in September 1993 by Harza Engineering identified two wetland areas on the site totaling 11 acres. The wetland areas were described as a narrow strip along the western edge of the station boundary and the banks of the Des Plaines River.

3.4 Oil and Hazardous Material Storage and Use

3.4.1 Material Storage and Use

Several types of fuels, oils, and hazardous materials are stored and used on site. These materials are stored in underground and aboveground tanks, drums, and various other containers located both indoors and outdoors.

The facility has prepared contingency plans, including a Spill Prevention, Control, and Countermeasures Plan (SPCC) to prevent the discharge of oil from the aforementioned containers, and to mitigate any adverse effects from such a spill.

3.4.2 Principal Waste Streams

The facility generates several waste streams from its operation and maintenance activities. Some of the waste streams may be considered hazardous waste and are generated on an intermittent basis. According to the 1995 Annual Hazardous Waste Report, the Joliet # 29 Station is a small quantity generator. The facility's generator ID number is ILD 000803650. Hazardous wastes generated at the facility were laboratory wastes, disposed at the Laidlaw facility in Pecatonica, Illinois, and a monoethylamine/water mixture, a D001 (ignitable) hazardous waste, disposed at LWD in Calvert City, Kentucky.

Non-hazardous special wastes and solid waste are also generated at the facility. Non-hazardous waste streams generated typically include general refuse, used oils, used oil filters, oil-soaked adsorbents, slag, fly ash, and boiler bottom ash. Non-hazardous special wastes are stored in various types of containers including dumpsters, drums, bins, silos, and basins. Com Ed has a permit to burn waste turbine and lubricating oils, boiler wash, resins, and antifreeze in the boilers. Non-hazardous special wastes were disposed at SD Meyers in Tallmadge, Ohio, Great Northern in Huntington, Indiana, Envotech in Belleville, Michigan, and ENSR Operations in Columbus, Ohio.

4.0 ON-SITE CONTAMINATION POTENTIAL

4.1 Introduction

Based on ENSR's review of the facility there is a potential for on-site contamination at ComEd's Joliet # 29 Station in Joliet, Illinois. The following sections describe the specific areas identified as having the potential for contributing to on-site contamination.

4.2 Above and Under Ground Storage Tanks (ASTs and USTs)

4.2.1 Inventory of Underground Tanks

According to the EDR database search, there are currently no registered underground storage tanks (USTs) located on the subject property. During the ENSR site visit fill pipes and one fuel pump were observed at the vehicle-fueling island adjacent to the roof and yard runoff basin. According to the SPCC Plan, there is one 1,500-gallon gasoline UST associated with the fueling island. The tank is approximately 12-years old and is equipped with fill protection and automatic leak detection systems. According to Mr. Paul Murphy, this tank was registered with the Office of the State Fire Marshal (OSFM) on March 11, 1988.

According to Mr. Murphy, there is also an oil/water separator on site that was inadvertently registered as an UST. This separator is to be delisted.

There is also a 3,000-gallon emergency spill diesel fuel UST that has never been used. This tank was originally registered with the OSFM but has been delisted.

4.2.2 Inventory of Aboveground Storage Tanks

Table 4-1 provides a list of aboveground storage tanks identified at the Joliet # 29 Station.

**TABLE 4-1
Aboveground Storage Tanks
Joliet # 29 Station**

Tank type	Tank Location	Est. Capacity (gal)
Turbine Oil Receiving Tank	Unit 7 & 8 Main Building	17,000
Clean Turbine Oil Tank	Unit 7 & 8 Main Building	17,000
Turbine Oil	Unit 7 Main Building	10,000
Turbine Oil	Unit 8 Main Building	10,000
Boiler Feed Pump Oil Tank	Boiler 71 Main Building	750
Boiler Feed Pump Oil Tank	Boiler 72 Main Building	750

TABLE 4-1
Aboveground Storage Tanks
Joliet # 29 Station

Tank type	Tank Location	Est. Capacity (gal)
Boiler Feed Pump Oil Tank	Boiler 81 Main Building	750
Boiler Feed Pump Oil Tank	Boiler 82 Main Building	750
Fuel Oil Tank (Retired)	Northwest of Main Building	950,000
Waste Oil Tank	East of Roof & Yard Runoff Basin	7,500
Diesel Oil Tank-Unit 7	Unit 7 Main Building	500
Diesel Oil Tank-Unit 8	Unit 8 Main Building	2 @ 250
Diesel Oil Tank	Equipment Storage Building	21,000
Diesel Oil Tank (Retired)	Diesel Oil Unloading Building	3,000
Gasoline Tank	East of Roof & Yard Runoff Basin	500
Diesel Fuel Tank (Fire Pump)	Discharge Channel	560
Sulfuric Acid Tank	West Side of Main Building	5,000
Well Water	Southwest Corner of Main Building	500,000
Demineralized Water	Southwest Corner of Main Building	2 @ 500,000
Sodium Hypochlorite Tank	Next to Unit 7 Main Transformer	7,000

The 950,000-gallon fuel oil storage tank is no longer used; it was closed in 1993. The 3,000-gallon diesel oil tank at the unloading building has also not been used since the fuel oil tank was closed.

4.3 Polychlorinated Biphenyls (PCBs)

Numerous oil-filled electrical equipment was observed on the subject property. According to Mr. Dave Rubner, ComEd PCB Specialist, a fluid exchange process to remove PCB-containing dielectric fluid from transformers at all of the ComEd stations was conducted during the 1980s. Since the completion of the fluid exchange process, all transformers at the Joliet # 29 Station are believed to be PCB free (i.e. below 50 ppm). Table 4-2 lists the Joliet # 29 transformers that ComEd has identified as having the potential for leachback to levels in excess of 50 ppm. ComEd has a procedure in place to re-test the fluid every two years for these transformers.

Table 4-2
Transformers Having Potential for PCB Leach-back
Joliet # 29 Station

Serial Number	Original Fluid	Gallons	KVA	ID #/Location
E688593D	Askeral	265	840	81
E688593C	Askarel	265	750	71
E688593B	Askarel	265	840	82
E688591D	Askarel	515	840	86

**Table 4-2
Transformers Having Potential for PCB Leach-back
Joliet # 29 Station**

E688592A	Askarel	265	750	CH7
E693014	Askarel	140	300	CH8
E688591A	Askarel	515	1500	75
E688592B	Askarel	265	750	CH6
E693013	Askarel	205	500	CH9

ENSR observed evidence of leakage or spillage near the fill pipes of many transformers on the site, particularly those around the main building. The stains varied in size from 5 square feet to 25 square feet.

Although no permitting requirements currently apply to the use of equipment containing or potentially containing PCB coolants, equipment containing more than 50 ppm PCBs must be marked with the appropriate warning labels (40 CFR 761.45, PCB).

4.4 Asbestos-Containing Material (ACM)

ENSR representatives who are State of Illinois Department of Public Health licensed Asbestos Building Inspectors performed a visual suspect asbestos-containing material (ACM) inspection of the main building and outlying structures as part of this investigation, however, bulk sampling was not performed. The suspect materials identified at the station included pipe and pipe fitting insulation, boiler and equipment insulation, and roof insulation materials. According to Mr. Dan Maul and Mr. Jeff Wakefield, a significant portion of ACM within the main building has been removed and replaced with non-ACM material. Mr. Maul estimated that approximately 25% of the pipe and pipe fitting insulation is still ACM. Although the removal of all ACM is not required at this time, Table 4-3 presents the types and estimated quantities of suspected ACM and estimated removal costs.

**Table 4-3
Asbestos-Containing Material
Joliet # 29 Station**

Type of Material	Estimated Quantity	Estimated Removal Cost
Pipe & Pipe Fitting Insulation	15,000 Lineal Feet	\$ 300,000
Boiler & Equipment Insulation	20,000 Square Feet	\$ 500,000
Roof Insulation	84,000 Square Feet	\$ 2,100,000

The total suspect ACM removal cost is estimated at \$ 2,900,000. The cost estimate is based on ACM location and quantity information provided by ComEd, ENSR's visual inspection of

accessible areas of the facility, and generally accepted ACM removal unit costs. The cost estimate does not include project consulting or reinsulation fees. The estimated removal cost provided above is subject to change and as a result of the potential variability in material quantities and location, contractor fees, disposal fees, and project scheduling may fluctuate as much as 50%.

4.5 Areas of Surface Staining

The ENSR site inspection was conducted on August 25-26, 1998. In general, housekeeping conditions at the subject facility were good with individual areas, particularly on the west side, requiring more attention than others. The following areas of surface staining were identified during the environmental investigation of the property:

- Dark oily stains were observed on the ground around some of the transformers. One stain approximately 3' by 10' was adjacent to a new concrete containment for the auxiliary transformer by the crib house. A 4' by 4' stain was observed adjacent to the transformers east of the main building.
- Two dark oily stains were observed on the ground surface near the oil/water separator adjacent to the cooling water crib. The stains were approximately 5' by 5'.
- Surface staining was also evident on the base of several of the large transformers, particularly adjacent to the induced draft fan units. Stains were approximately 2' by 8'.

4.6 Ash and Coal Pile Runoff Basins

Plant drains, coal pile runoff, and west plant and roof area runoff are directed to the west basin for treatment. The effluent from the west basin is discharged to the local ash pond system prior to discharge. East roof and yard runoff is directed to the east basin that historically has rarely discharged. Other facilities of note include an abandoned wastewater treatment plant to the east near the ash-handling ponds which was used to treat non-chemical metal-cleaning wastes, and at the east end of the property, an inactive ash landfill once used to dispose of ash from the Joliet # 9 generating station. Both the west and east runoff ponds are covered under the facility's NPDES permit. The NPDES permit allows the ponds to discharge to the Des Plaines River.

A series of three ash settling ponds are located northeast of the main building. A slurry of bottom ash and slag from the boilers is discharged to the one of the first two ponds. The third pond receives effluent from ponds 1 & 2 for secondary clarification. Supernatant from the third pond is typically recycled for slurry make-up. These ponds are also covered under the NPDES permit for discharge to the river. An optional flow path for the ash slurry is via a pipe across the river to the settling quarry used by ComEd's Joliet # 9 station.

4.7 Spill History

According to ComEd's spill logs, a 165-gallon hydraulic oil spill was reported to the Illinois Emergency Management Agency (IEMA) on July 29, 1996. The spill resulted from a loose pipe flange. None of the oil was discharged to any waterways and the spill was cleaned up immediately using adsorbent pads. A similar spill of 250 gallons of lubricating oil was reported to IEMA on August 21, 1995 when a pipe coupling broke. This spill was also cleaned up with adsorbent pads and no oil escaped to any waterways. These spills occurred beneath the induced-draft fans associated with the electrostatic precipitators. Surface soils may have been impacted by the spills.

4.8 Adjacent Property

At the east side of the subject property is an abandoned ash disposal landfill. The landfill was used for the disposal of waste ash from the Joliet # 9 Station located to the south across the river. The area has been inactive for approximately 30 years and is covered with topsoil and vegetation. The type of ash deposited in this area is from the burning of high-sulfur content coal and is suspected to be highly acidic. It is unknown whether leachate from the ash has had an adverse impact on soil and/or groundwater quality.

4.9 Environmental Database Review

ENSR reviewed a variety of federal and state governmental databases using Environmental Data Resources (EDR) of Southport, Connecticut. Table 4-4 describes the federal and state contamination-related databases that were searched for the area surrounding the subject property; the various search distances used are also noted.

**TABLE 4-4
Databases Searched and Radii**

Database Acronym	Description	Search Distance ¹ (miles)
Federal Databases		
NPL ²	Existing and proposed Superfund sites on the National Priorities List	1.0
CERCLIS ²	Abandoned, uncontrolled or inactive hazardous waste sites reported to the U.S. EPA, which have been or are scheduled to be investigated by the U.S. EPA for potential nomination to the NPL.	0.5
RCRIS-TSD ²	Reported sites that treat, store and/or dispose of hazardous waste and subject to the federal RCRA regulations.	0.5

**TABLE 4-4
Databases Searched and Radii**

Database Acronym	Description	Search Distance (miles)
RCRIS-LQG/SQG ²	Reported large-quantity generators and small quantity generators of hazardous waste.	0.25
ERNS ²	Sites reporting spills to the U.S. EPA and/or the U.S. Coast Guard under various federal regulations	target property
FINDS	Facility Index System indicates the presence of a site on another federal database.	target property
PADS	PCB Activity Database System identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required and have notified the EPA of such activities.	target property
RAATS	RCRA Administrative Tracking System contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA.	target property
TRIS	Toxic Chemical Release Inventory System identified facilities who have reported releases of listed toxic chemicals to the air, water, and land in reportable quantities under SARA Title III Section 313.	target property
TSCA	Toxic Substances Control Act identified manufacturers and importers of chemical substances by plant site in 1986. No updates of the list have been made by EPA.	target property
HMIRS	Hazardous Materials Information Reporting System contains hazardous material spill incidents reported to the Federal DOT.	target property
NPL Liens	List of liens placed against real property in order for the EPA to recover remedial action expenditures or when the property owner receives notification of potential liability.	target property
CORRACTS	Corrective Action Report identifies hazardous waste handlers with RCRA corrective action activity.	1.0
ROD	Records of Decision mandating a permanent remedy for a Superfund Site	1.0
MLTS	Material Licensing Tracking System, maintained by the Nuclear Regulatory Commission, contains a list of sites that possess or use radioactive materials and are subject to NRC licensing.	target property
Delisted NPL	Sites removed from the NPL	target property
Coal Gas	Former manufactured coal gas sites	1.0
Illinois Databases		

**TABLE 4-4
Databases Searched and Radii**

Database Acronym	Description	Search Distance ¹ (miles)
SWHS ²	State hazardous waste sites	1.0
UST ²	Sites which have reported underground storage tanks.	0.5
LUST ²	Sites which have reported leaking underground storage tanks.	0.5
SWF/LF ²	List of permitted solid waste disposal facilities	0.5
¹ The radial search distances used equal or exceed those recommended by ASTM for assessing the environmental condition of commercial real estate. ² Databases which are required to be searched by ASTM.		

4.9.1 Subject Property

The subject property was listed on the ERNS and FINDS databases. The federal FINDS database only indicates the facility's presence on other databases. The ERNS database indicates that the facility had a release of oil or hazardous substances on the subject property. The incident(s) in the ERNS database likely relates to the previously mentioned spills (See Section 4.5).

4.9.2 Surrounding Land Uses

According to the EDR database report, only one site was identified within the specified search radii, the Caterpillar, Inc. facility. The Caterpillar, Inc. site appears on the following databases; PADS, FINDS, RCRIS-LQG, TRIS, RCRIS-TSD, CORRACTS, AND CERC-NFRAP. Several other sites were listed as "orphans" on the EDR report due to poor or inadequate address information. The Joliet # 9 station was listed in this category. One other site on the orphan list, Schuller International Company, a LUST site, could be near the Joliet # 29 station. The address for the site was only given as Rt. 6, Channahon Road. No other information was available on the Schuller site.

The inferred groundwater flow direction in the subject property vicinity is toward the Des Plaines River, which is immediately south of the subject property. Based on distance, inferred hydraulic gradient, and/or regulatory status, the Caterpillar, Inc. facility probably has not impacted the subject property.

5.0 SUMMARY OF FINDINGS

ENSR performed a Phase I Environmental Assessment in conformance with the scope and limitations of the ASTM practice E-1527-97 at Commonwealth Edison's Joliet # 29 Station located at 1800 Channahon Road in Joliet, Illinois. Any exception to or deletions from this practice are described in this report. This practice has revealed evidence of the following recognized environmental conditions associated with the subject property:

- Underground Storage Tanks: One 1,500-gallon UST was identified as associated with a fueling island east of the main building. The tank is approximately 12 years old and is equipped with fill protection and automatic leak detection. No information was provided on any leak testing.
- Areas of Stained Surface Soil: Several areas of surface staining were observed on interior concrete and on exterior gravel and soil covered areas. Many of the aboveground storage tanks, transformers, and chemical storage areas were not equipped with secondary containment structures and oil stains were observed adjacent to these areas. Stains were typically 15 to 30 square feet.
- PCB-Containing Electrical Equipment: Facility records and information from facility personnel indicates that PCB contaminated fluids have historically been used in the electrical equipment on site. Although these fluids were replaced, residual PCBs potentially remain within the equipment and may still be in any fluids that are removed from the equipment. Stained pads and soils were evident around some of the transformers.
- On-Site Wastewater Treatment: Building and assessment records indicate the generating station has occupied the subject property since 1965. There is an abandoned wastewater treatment facility adjacent to the ash handling ponds. This facility treated gas-side wash waters that are now treated in the ash ponds. Most of the storm water runoff from the property including coal pile runoff is treated in west runoff basin that discharges to the local ash field ponds.
- Asbestos-Containing Material (ACM): Asbestos-containing material is known to exist on site in pipe and pipe fitting insulation and potentially some ACM remains in the boiler. The main building roof insulation may also be ACM. ENSR estimates that there is approximately 15,000 lineal feet of pipe and pipe fitting insulation, 20,000 square feet of boiler and equipment insulation, and 84,000 square feet of roof insulation that is ACM.

-
- Ash Landfills: At the east end of the subject property is an inactive ash disposal landfill. The landfill was used for the disposal of waste ash from the Joliet # 9 Station located to the south across the river. The area has been inactive for approximately 30 years and is covered with topsoil and vegetation. A smaller inactive ash landfill is located on the southwest corner of the station property.
 - Adjacent Property: A 345 kV switchyard lies north of the subject property. Oil-filled liquid-cooled electrical equipment is present in the switchyard. Also, an area of dead vegetation was evident in the southwest corner of the switchyard. It is unknown if activities in the switchyard may have had an impact on the subject property.

6.0 REFERENCES

6.1 Persons Interviewed or Contacted

Ms. Elsie Briette, Environmental Compliance Specialist, Commonwealth Edison, 1800 Channahon Road, Joliet, Illinois, 815-741-9000 x2289.

Mr. Dan Maul, Construction Specialist, Commonwealth Edison, 1800 Channahon Road, Joliet, Illinois, 815-741-9000 x2413.

Mr. Jeff Wakefield, Safety Specialist, Commonwealth Edison, 1800 Channahon Road, Joliet, Illinois, 815-741-9000 x2286.

6.2 Documents and Reports Reviewed

City of Joliet Building Department Records, Joliet, Illinois.

City of Joliet Assessment Department Records, Joliet, Illinois.

Aerial Photographs of subject property and surrounding properties dated 1990 reviewed and acquired from Chicago Historical Society, Chicago, Illinois.

Harza Engineering Company, Wetland Investigations Joliet # 29 Power Station Report, prepared for Commonwealth Edison Company, dated September 1993.

EDR Radius Map with Geotrack®, Commonwealth Edison, 1899 Channahon Road, Joliet, Illinois, dated August 18, 1998.

U.S.G.S. 7.5-minute Topographical Quadrangle Map, Plainfield, Joliet, Elwood, and Channahon Illinois quadrangles dated 1954 to 1962, Photorevised 1973.

Commonwealth Edison 1995 Hazardous Waste Annual Report.

Commonwealth Edison Letter to IEPA dated September 29, 1992 regarding Individual Storm Water Permit Application.

Commonwealth Edison NPDES Permit No. IL0064254 dated November 15, 1995.

Commonwealth Edison NPDES Permit No. IL0064254 Storm Water Pollution Prevention Plan dated January 30, 1994.

Commonwealth Edison IEPA Water Pollution Control Permit 1997-SC-4800 issued November 20, 1997.

Commonwealth Edison 1997 SARA Title III Tier II Inventory Form.

Commonwealth Edison Annual RCRA Hazardous Waste & Non-Hazardous Special Waste Reports for 1995 dated February 29, 1996.

Commonwealth Edison Joliet # 29 SPCC Plan.


7.0 SIGNATURES AND QUALITY CONTROL REVIEW

BY: 
James S. Paulson

TITLE: Project Engineer

DATE: 10/2/98

QUALITY CONTROL REVIEW BY:

BY: 
Fol Aaron B. Gesin

TITLE: Program Manager

DATE: 10/2/98