

Commonwealth Edison Company

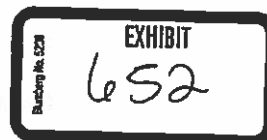
Chicago, Illinois

**Phase I Environmental
Site Assessment of
Commonwealth Edison
Will County Generating Station
529 E. Romeo Road
Romeoville, Illinois**

ENSR Consulting - Engineering - Remediation

October 1998

Document Number 1801-023-700



MWG13-15_29502

Commonwealth Edison Company

Chicago, Illinois

Phase I Environmental
Site Assessment of
Commonwealth Edison
Will County Generating Station
529 E. Romeo Road
Romeoville, Illinois

ENSR Consulting – Engineering – Remediation

October 1998

Document Number 1801-023-700

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 2-6

 2.4 Site History 2-7

 2.5 Adjacent Site History 2-7

 2.6 Description of Operations 2-8

 2.7 Utilities 2-8

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 Materials Storage and Use 3-1

 3.4.1 Material Storage and Use 3-1

 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 Underground Storage Tanks 4-1

 4.2.1 Inventory of Underground Tanks 4-1

 4.2.2 Inventory of Aboveground Storage Tanks 4-1

 4.3 Polychlorinated Biphenyl's (PCBs) 4-3

 4.4 Asbestos-Containing Materials 4-3

 4.5 Areas of Staining 4-4

 4.6 Former Underground Storage Tanks 4-5

 4.7 Spill History 4-6

 4.8 Environmental Database Report 4-6

 4.8.1 Subject Property 4-8

 4.8.2 Surrounding Land Uses 4-8

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 (ComEd) to perform a Phase I environmental site assessment of the Will County Generating Station facility located at 529 E. Romeo Road in Romeoville, 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 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, ComEd. ENSR's

Client may release the information to other third parties, whom 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 a summary of our findings 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.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

ComEd's Will County station facility, located at 529 E. Romeo Road in Romeoville, Illinois, operates as a coal-fired, electric power generating facility. The subject property is located on the south side of Romeo Road along the eastern banks of the Des Plaines River.

The subject property is bordered to the north by Romeo Road, beyond which is wooded land; to the east is the Chicago Sanitary & Ship Canal; to the south is Material Services Corporation; and to the west is the Des Plaines River. The ComEd switchyard is located to the west side of the main generating building and was not included as a part of this environmental assessment. Figure 2-1 is a site location map.

2.2 Description of Property and Facility Layout

The subject property encompasses approximately 215 acres of land and is occupied by the main generating building and several ancillary buildings and structures. Figure 2-2 is a site plan for the facility.

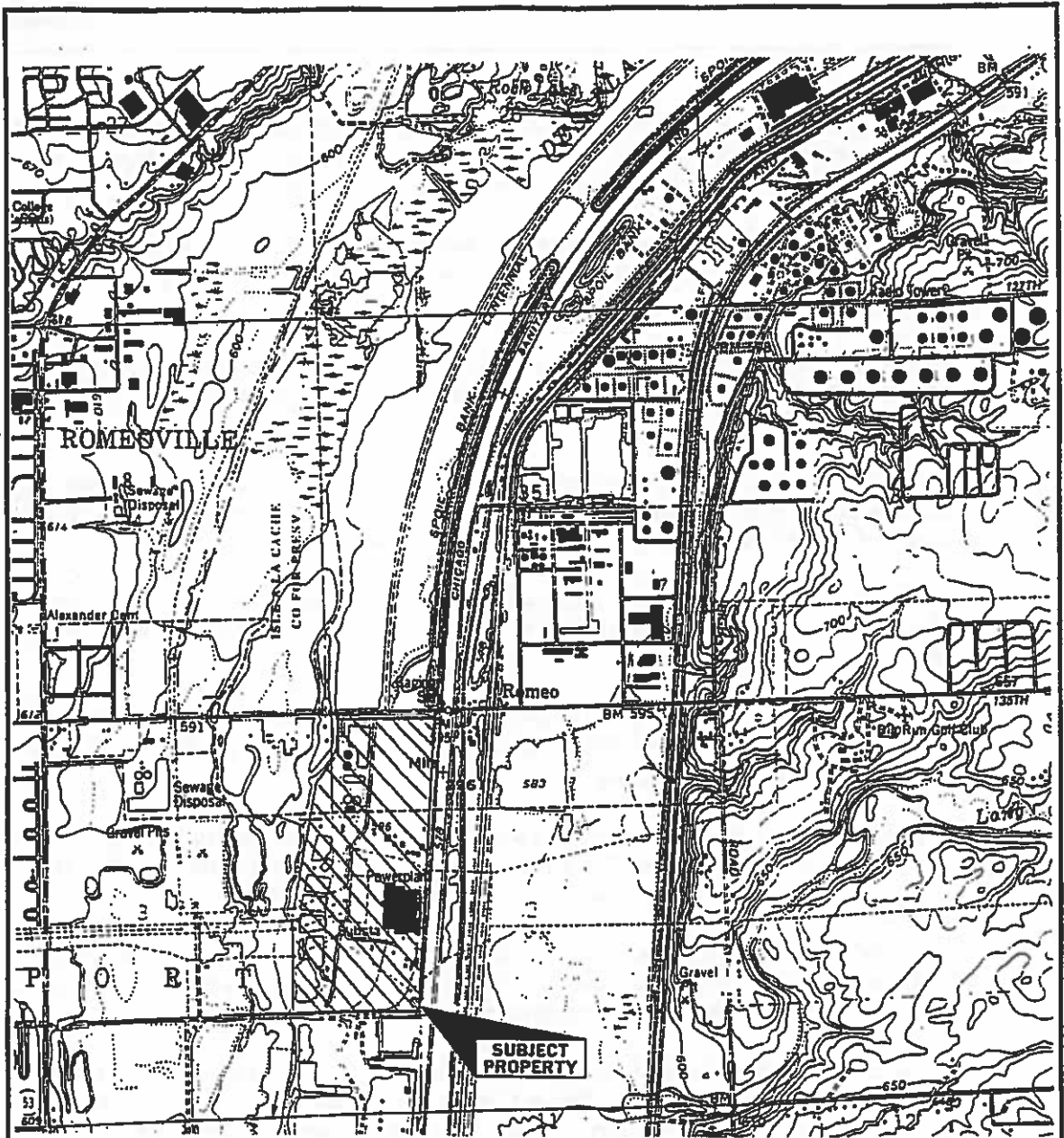
The main generating building, located on the eastern portion of the subject property, contains the boiler room and turbine room. The boiler room contains four boiler units. Unit 1 has a generating capacity of 160 megawatt (MW) and was placed into service on July 27, 1955. Unit 2 has the generating capacity of 167 MW and was placed into service on March 14, 1955. Unit 3 has the generating capacity of 278 MW and was placed into service on June 28, 1957. Unit 4 has a generating capacity of 542 MW and was placed into service on June 25, 1963.

Combined cribhouses for Units 1 & 2, and individual cribhouses for Unit 3 and Unit 4 are all located directly east of the main generating building on the banks of the Chicago Sanitary & Ship Canal. The buildings contain traveling screens which screen intake cooling water from the canal prior to being pumped into the plant.

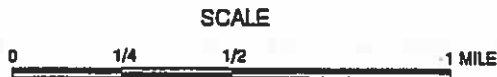
A maintenance shed is located directly south of the Unit 4 stack. A drain pipe was observed discharging into a 55-gallon drum on the north side of the garage. According to Mr. Dan Dammer, Compliance Specialist, the oil discharge is from a leaking Unit 4 ID fan.

A former maintenance garage is located south of the fly ash silo area. The garage was inaccessible at the time of ENSR's site inspection. A 275-gallon aboveground storage tank (AST) was observed through a window of the garage. The contents of the tank were unknown.

The fly ash silo area is located south of the main generating building. The area contains a control building and ten fly ash silos which store fly ash prior to off site disposal.



SOURCE: USGS 7 1/2 Minute Topographic Quadrangle, Peain, Illinois, dated 1993



ENSR
ENSR Consulting and Engineering

FIGURE 1
SITE LOCATION MAP
ComEd - Will County Station
529 E. Romeo Road
Romeoville, Illinois

DRAWN: TEB	DATE: September 22, 1998	PROJECT NO.: 1801-023-700	REV: 1
FILE NO.:	CHECKED: TEB		

A storage building containing two water AST is located directly west of the fly ash silos. The aboveground storage tanks (ASTs) were formerly part of the wastewater treatment system but are no longer used. The building is used store station parts and materials.

Nine, 55-gallon drums were observed stored on a drum rack in a grassy area located south of the hydrobins and are full of sand. According to Mr. Dammer, the drums were used for fire prevention training exercises.

A small office trailer was observed in the far southeast corner of the subject property near the cooling water discharge. Three out-of-service transformers were observed stored on the east side of the trailer.

Large piles of bottom ash and slag were observed stored on vacant land in the southeast corner of the subject property. According to Mr. Dammer, the piles were placed there temporarily and were awaiting off-site disposal by Mineral Solutions, Inc., (MSI).

South Area Runoff Basins No's. 2, 3 and 4 are located directly north of the bottom ash and slag piles. The basins collect stormwater runoff and channel it to the on-site wastewater treatment plant.

Two 25,000-gallon ignition fuel oil ASTs and one 100,000-gallon ignition fuel oil AST are housed within a secondary containment structure located directly north of South Area Basin No. 3. The oil is used for boiler ignition procedures.

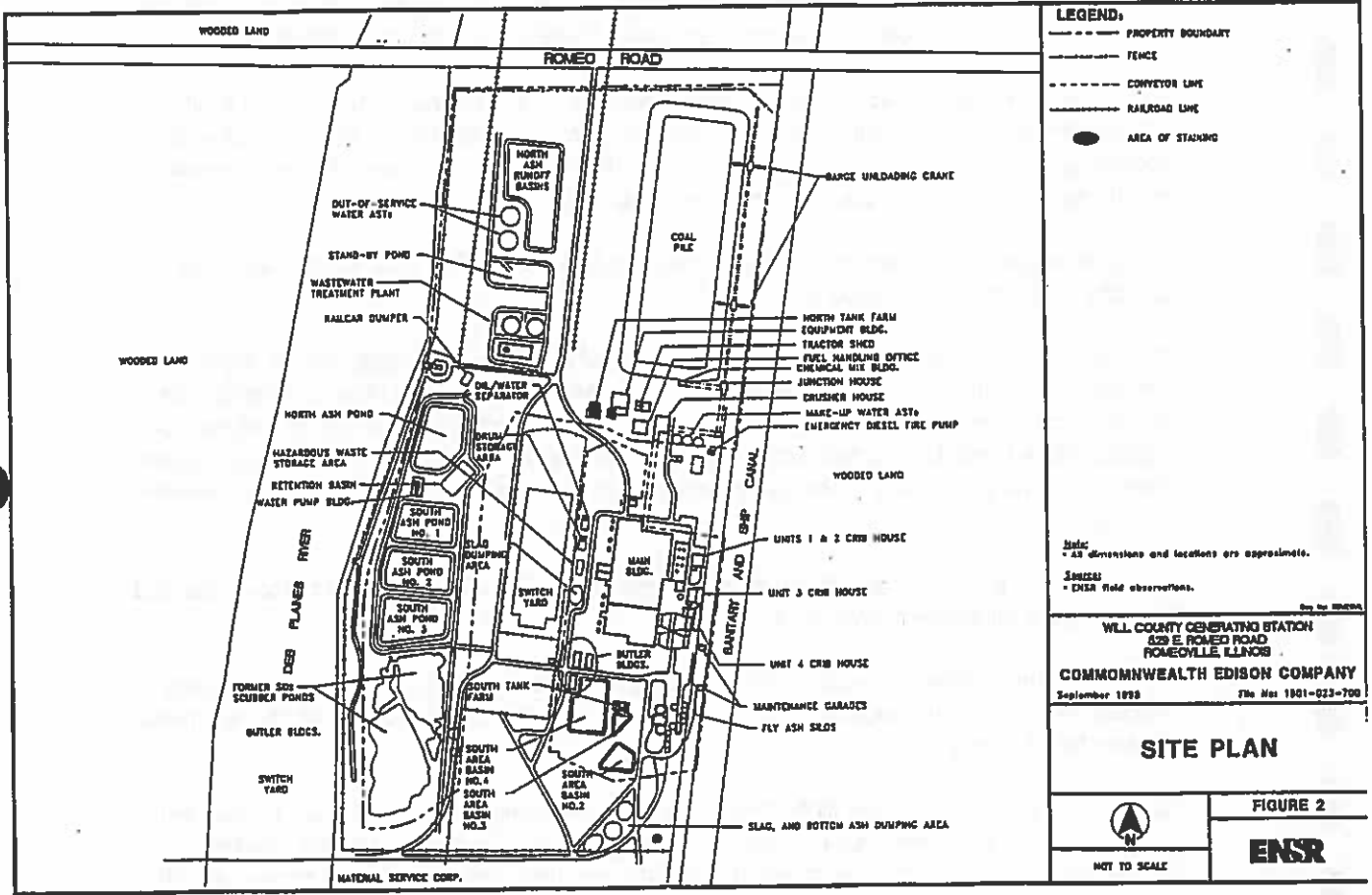
A gravel contractor's parking lot is located between the south area retention basins and the former SO₂ scrubber house. The former SO₂ scrubber system was dismantled in the mid 1970s and the building was raised. The foundations of the former buildings remain in-place.

Two lined ponds, formerly used in conjunction with the scrubber system, are located in the southwest corner of the subject property. The ponds and the area directly west of the ponds support vegetation that is indicative of wetland areas.

Three concrete ash ponds are located directly north of the former scrubber ponds. South Ash Pond No. 1 has a capacity of 3.88 million gallons, and South Ash Ponds 2 & 3 have capacities of 3.55 million gallons each. The ponds receive sluice water overflows from Units 1 and 2 retention basins and from Units 3 and 4 hydroveyors (bottom ash transport system).

A sluice water pumping building and retention basin are located directly north of South Ash Pond No. 1. The building houses pumps which recycle settled sluice water back into the system. The retention basin holds sluice water prior to it being pumped back into the system.

The North Ash Pond, with a capacity of 3.88 million gallons, is located directly north of the sluice water pumping building. According to Mr. Dammer, the concrete pond is used to store sluice water on a standby basis.



LEGEND:

- PROPERTY BOUNDARY
- FENCE
- CONVEYOR LINE
- RAILROAD LINE
- AREA OF STAKING

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

WELL COUNTY GENERATING STATION
 829 E. ROMEO ROAD
 ROMEOVILLE, ILLINOIS
COMMONWEALTH EDISON COMPANY
 September 1978 The Well 1901-023-700

SITE PLAN

FIGURE 2

ENSR

NOT TO SCALE

MWG13-15_29512

A railcar dumper building is located directly north of the North Ash Pond. The building contains a railcar dumper that mechanically flips railcars 180° to unload their coal into a subsurface hopper.

A sewage treatment plant is located northwest of the car dumper building. The plant treats sanitary sewage generated from the plant. The effluent from the plant is discharged into the Chicago Sanitary & Ship Canal.

A wastewater treatment plant is located directly east of the sewage treatment plant. The plant contains a chemical storage building and two clarifier ASTs. All process wastewater generated from the plant is treated prior to being discharged into the Chicago Sanitary & Ship Canal.

A lined, stand-by pond, two 1.5 million gallon water ASTs, and the North Area Runoff Basin are all located directly north of the wastewater treatment plant. The stand-by pond is used as a back-up storage area for runoff from the coal pile. The North Area Runoff Basin receives stormwater runoff from the north end of the plant and from the coal pile.

The coal pile is located east of the North Area Runoff Basin. The coal storage area has the capacity to store up to 1,000,000 tons of coal.

The barge unloading area is located along the banks of the Chicago Sanitary & Ship Canal in the northeast corner of the subject property. Up to 24 barges can be docked in the unloading area at any one time. The barge unloading crane has the capacity to unload 1,200 tons of coal per hour. Additionally, a barge loading telescopic chute is located at the mid-point of the conveyor system along the banks of the canal. The crane loads barges with coal for Com Ed's Fisk and Crawford stations.

A tractor shed is located directly south of the coal pile. The shed is used to store parts and lubricating oils for tractor maintenance.

The equipment building is located directly west of the tractor shed. The building is used to maintain coal handling and yard equipment. An oil storage room is located off the southwest corner of the building.

Two 12,500-gallon ignition fuel oil ASTs and one 15,000-gallon diesel fuel AST are housed within a secondary containment structure located southwest of the equipment storage building. The ignition fuel oil is used for boiler ignition procedures and the diesel fuel is used for coal handling equipment. A fuel pump building is located adjacent to the north of the ASTs. A concrete runoff ditch is located directly east of the AST area. The ditch channels runoff to the North Area Runoff Basin.

The fuel handling office building is located east of the ASTs. The building contains offices for fuel handling personnel, lunch room, and locker rooms for station operations.

The crusher building is located east of the fuel handling office building. Equipment within the crusher house mechanically crushes coal and conveys it to the boiler house.

A chemical mix building is located northeast of the crusher house. The building contains one 7,500-gallon binder AST, one 7,500-gallon dust suppressant AST, and one 3,000-gallon surfactant AST. The chemicals are stored in the tanks and then transferred to a water wagon and sprayed on the coal pile as a dust suppressant.

One potable water and two demineralized make-up water storage tanks are located directly east of the crusher house. Water is pumped from 2 of 3 deep wells located on station property to the potable water storage tank. The third deep well and associated pump is on stand-by. Water from the potable water storage tank is used for station domestic water needs and as a raw water source for the make-up demineralizers.

An emergency diesel generator is housed in a building located directly east of the make-up water ASTs. The building contains an 800-gallon diesel fuel AST for the fire pump.

A subsurface oil/water separator is located west of the main plant building. The separator collects oil and water from the transformer yards and from the Unit 3 turbine oil pit. Oil is skimmed off the surface and stored in a 10,500-gallon concrete sump. Water is channeled to the South Area Runoff Basin No. 4. The basin is lined.

A drum storage area is located south of the oil/water separator area. Five, 55-gallon drums of transformer oil, eleven, 55-gallon drums of waste oil, and approximately two-hundred empty 55-gallon drums (formerly containing oil) were observed stored on the asphalt surface in this area.

A fenced-in hazardous waste storage area is located south of the drum storage area. Approximately eight empty, 55-gallon drums formerly containing hydrazine and nine 55-gallon drums of used transformer oil were observed stored on the asphalt pad in this area.

An approximate 20 foot by 30 foot area of slag and debris dumping was observed south of the hazardous waste storage area.

Three butler buildings are located south of the slag piles. The buildings are used to house various parts and contractor's equipment.

2.3 Topography, Hydrology, and Geology

According to the USGS Romeoville, Illinois Quadrangle 7.5 Minute Series Topographic map, the topographic elevation of the main building is approximately 580 feet above mean sea level.

According to the USDA SCS Soil Survey for Will County, Illinois, the soils on the subject property consist of mostly built-up areas with nearly level, poorly drained soils that have a silty and clayey subsoil; formed in glacial till. The estimated depth to shallow groundwater is between three and five feet below grade surface. The regional groundwater is expected to flow toward the Des

Plaines River, which is located adjacent to the west of the subject property. Bedrock at the site is anticipated to be ranging in depth from 5 to 10 feet below grade.

2.4 Site History

Historical information for the subject site is based on interviews with site personnel, a review of aerial photographs, tax assessors records, city directories, and a topographic quadrangle map. Sanborn Fire Insurance maps were not available for the subject property area. Building department records were unavailable for review during ENSR's site investigation.

According to Mr. Dammer, the facility began operation in 1955 with two boilers. A third boiler was added in 1957 and a fourth boiler was added in 1963.

Aerial photographs dated 1997, 1993 and 1964 showed the subject property occupied by a coal-fired electrical generating plant. No evidence of landfilling was observed in the photographs.

Assessment records were available for 1996 and 1997 only. No significant historical property information was contained within the records.

City directories dated 1997, 1993, 1985, 1980, 1975 and 1973 listed ComEd as occupying the subject property. City directories dated prior to 1973 were not available for review for the subject property.

A USGS Topographic map dated 1962, photorevised 1973 and 1980 showed the subject property as it currently exists.

2.5 Adjacent Site History

Historical information for the subject site vicinity is based on a review of aerial photographs, a topographic quadrangle map, and city directories.

The subject property is bordered to the north by Romeo Road, beyond which is wooded land; to the east is the Chicago Sanitary & Ship Canal; to the south is Material Services Corporation; and to the west is the Des Plaines River. Figure 2-1 is a site location map.

Aerial photographs dated 1997 and 1993 show the adjacent properties as they currently exist. An aerial photograph dated 1963 shows the subject property bordered to the north by wooded land, to the east by the Chicago Sanitary & Ship Canal; to the west by the Des Plaines River; and to the south by an industrial facility.

A USGS Topographic map dated 1962, photorevised 1973 and 1980, showed the adjacent properties as they currently exist.

2.6 Description of Operations

The subject facility is a coal-fired electrical power generating station. Additional operations include wastewater treatment and tractor and other plant maintenance operations. Electrical power is transmitted from the plant to the surrounding metropolitan area through a series of overhead transmission power lines.

Coal is delivered to the station by 115-car unit trains and unloaded using a rotary car dumper located west of the coal yard. The coal is transported to the coal pile by a series of conveyors and stockpiled for the station and for Com Ed's Crawford and Fisk stations.

Condenser cooling water is drawn from and returned to the Chicago Sanitary & Ship Canal at a rate of approximately 666 million gallons per day (MGD). Raw boiler make-up water is obtained from on-site wells. Demineralized water is stored in ASTs. Water treatment chemicals, including ammonia, hydrazine, and phosphate are injected into the boiler make-up water lines to soften the water and 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.

The burning of coal produces waste fly ash, bottom ash, and slag. Fly ash is collected in hoppers on the east side of the subject property and sold as construction material by MSI. Bottom ash and slag are collected in a slurry and piped to lined ash settling basins located on the west side of the subject property.

Wastewater from facility operations is treated on-site prior to being discharged into Chicago Sanitary & Ship Canal under the conditions of a NPDES permit. The NPDES permit covers discharges from the property including stormwater runoff, cooling water, and any other process wastewater.

2.7 Utilities

Currently, the station obtains potable water from the three deep wells located on the subject property. Sanitary wastewater is treated at an on-site sewage treatment plant prior to being discharged into the Chicago Sanitary & Ship Canal. Electrical power is provided by the station itself.

3.0 ENVIRONMENTAL DOCUMENT REVIEW

3.1 Introduction

This environmental document review is based upon a review of information provided by ComEd coupled with observations made by Tim Bulthaupt and Jeffrey Menter of ENSR during the site visit, which took place on August 24 and 25, 1998. The information provided by ComEd included documents relative to the various regulatory areas described below. Also, certain computerized U.S. Environmental Protection Agency (USEPA) enforcement databases were screened.

3.2 Air Quality

Although no formal emissions inventory was prepared as part of this Phase I environmental site 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 is operating under IEPA I.D. No. 197810AAK which was issued on October 25, 1996 and expired on July 28, 1998. According to Ms. Lorinda Lamb of ComEd, the facility has filed an application under the Title V permit program and is currently awaiting its approval.

3.3 Water Resources

The facility is permitted to discharge process wastewater under NPDES Permit No. IL0002208 which was issued July 11, 1995 and expires on April 30, 2000. The permit allows for the discharge of condenser cooling water, house service water, demineralizer regenerant wastes, boiler blowdown and boiler drain, turbine drain water, intake screen backwash, recycle wastewater treatment system blowdown, and sewage treatment plant effluent. All process wastewater is treated on site prior to being discharged into the Chicago Sanitary & Ship Canal.

Stormwater runoff from process areas of the station is treated in the existing wastewater treatment facility. Per the stations NPDES permit, this constitutes Best Available Technology (BAT) for treatment and discharge of storm water runoff, therefore, Will County station is not required to maintain a Storm Water Pollution Prevention Plan (SWPPP).

3.4 Oil and Hazardous Materials Storage and Use

3.4.1 Material Storage and Use

Several types of fuels, oils, and hazardous materials are stored and used on site and include: diesel fuel, gasoline, lubricating oil, sulfuric acid, polyacrylic acid, sodium hypochlorite, sodium hydroxide, liquid nitrogen, hydrogen gas, aqueous hydrazine, ethylene glycol, coal pile binder, coal, slag, and scrap metal. 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 is currently a small quantity generator. The station generates several waste streams from its operation and maintenance activities, some of which are hazardous wastes. Hazardous wastes are generated on an intermittent or one time basis. The facility IEPA hazardous waste generator number is ILD970905001. Several parts washing basins were observed throughout the subject property. The basins use a non-hazardous high flash point solvent (>140°F) as the degreaser. Waste solvent is disposed by Great Northern Processing of Huntington, Indiana.

Non-hazardous wastes typically generated on site include general refuse, used oil, and oil-contaminated debris such as absorbents and filters. Waste oils and other non-hazardous wastes are disposed/reused off site by one of ComEd's approved vendors. Great Northern Processing, Inc., of Huntington, Indiana disposes waste oil from process machinery on a monthly basis. Asbestos-containing materials are disposed by American Disposal of Morris, Illinois on an as-needed basis. Oil-contaminated debris is disposed by Clean Harbors of Chicago, Illinois on an as-needed basis. General refuse is disposed by Banner/Western Disposal of Joliet, Illinois on a weekly basis. Other non-hazardous wastes are disposed at Forest Lawn Landfill in Three Oaks, Michigan and Sun Ohio in Canton, Ohio.

4.0 ON-SITE CONTAMINATION POTENTIAL

4.1 Introduction

Based on ENSR's inspection and review of various documents/files, there is a potential for on-site contamination at the Will County Generating Station in Romeoville, Illinois. Known and suspect problem areas are discussed below.

4.2 Above and Underground Storage Tanks

4.2.1 Inventory of Underground Tanks

One 1,500-gallon gasoline UST is located on the east side of the subject property, near the south end of the barge loading area. According to Mr. Dammer, the tank was installed in 1987 and is cathodically protected. He indicated the tank was scheduled to be upgraded with spill/overflow protection by December 1998. According to Mr. Paul Murphy, these upgrades have been completed. Additional information regarding this tank was unavailable for review at the time of ENSR's site investigation.

One 10,500-gallon concrete waste oil UST is located on the west side of the subject property. The tank was installed in 1979 and is associated with the oil/water separator. It is unknown whether the tank is current with leak detection requirements. Additional information regarding this tank was unavailable for review at the time of ENSR's site investigation.

4.2.2 Inventory of Aboveground Storage Tanks

The following table provides a list of aboveground storage tanks identified at the Will County Station.

**TABLE 4-1
Aboveground Storage Tanks
Will County Station**

TANK CONTENTS	TANK LOCATION	ESTIMATED CAPACITY (gallons)
Sulfuric Acid	Grade floor, north end of main building	10,000
Sodium Hydroxide	Grade floor, north end of main building, directly above sulfuric acid tank	10,000
Sodium Hypochlorite	West side of main building	5,500
Sodium Bromide	West side of main building	5,500
Sodium Bisulfate	South side of main building	10,000
Nitrogen	West side of main building	119,000 lbs

TANK CONTENTS	TANK LOCATION	ESTIMATED CAPACITY (gallons)
Ion exchange resin	First floor, north side of main building	5.5 cubic feet
Blnder Tank	Chemical mix building	7,500
Suppressant Tank	Chemical mix building	7,500
Surfactant	Chemical mix building	3,000
Carbon Dioxide	First floor of main building	2 @ 7.5 tons each
Aluminum Sulfate	Chemical control building	10,000
Diesel fuel	South side of main building	2 @ 275 gallons each
Diesel fuel	Fire pump house	800
Diesel fuel	Diesel driven clam shell	2 @ 250
Diesel Fuel	North oil tank farm	15,000
Fuel oil	North oil tank farm	2 @ 12,500 each
Fuel oil	South oil tank farm	2 @ 25,000 each
Fuel oil	South oil tank farm	100,000
Unit 1 turbine oil tank	Turbine room ground floor	5,410
Unit 2 turbine oil tank	Turbine room ground floor	5,410
Unit 3 turbine oil tank	Turbine room ground floor	6,750
Unit 4 turbine oil tank	Turbine room ground floor	7,450
Unit 1 turbine oil storage tank	Turbine room ground floor	8,411
Unit 2 turbine oil storage tank	Turbine room ground floor	8,411
Units 3-4 turbine oil storage tank	Turbine room ground floor	10,000
Center 3-4	Turbine oil room ground floor	10,000
South 3-4 Turbine oil storage tank	Turbine room ground floor	15,000
4A B.F.P. Turbine oil tank	Turbine room	550
4B B.F.P. Turbine oil tank	Turbine room	550
4C B.F.P. Turbine oil tank	Turbine room	550
Unit #1 H.P. & L.P. hydrogen seal oil tanks	Main building	150
Unit #2 H.P. & L.P. hydrogen seal oil tanks	Main building	150
Unit #3 H.P. & L.P. hydrogen seal oil tanks	Main building	150
Unit #4 H.P. & L.P. hydrogen seal oil tanks	Main building	150
Ethylene glycol	North side of hopper building	275
Unknown	Storage garage, south of fly ash silos	275

Many of the ASTs and chemical storage areas were not equipped with secondary containment structures.

4.3 Polychlorinated Biphenyl's (PCBs)

There are numerous liquid-cooled transformers and capacitors on the site. According to Mr. Dave Rubner, ComEd PCB Specialist, the fluid contained within some of the liquid-cooled electrical equipment has been changed with Non-PCB electrolytic fluids. Since the completion of the fluid exchange process, a majority of the equipment was tested for PCB-content, and shown to contain less than 50 ppm PCB. Even though the PCB fluids were removed, small concentrations of PCBs still remained within the transformers and when the non-PCB fluids were introduced into the transformers, the PCBs slowly leached back into the new fluids. The leaching process resulted in PCB contaminated fluid in two transformers including transformer's #6352177 and #E689704B.

Evidence of staining or leaking was observed on or around transformers 1E, 1W, 2W, 2E, 3W and 3E, located on the west side of the main building, and on or around transformers 11, 12, 21, 22, 31, 32, 71, 72 and 73, located on the east side of the main building.

4.4 Asbestos-Containing Materials

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 types and quantities of suspect materials identified during the meticulous walk-through of each on-site structure at the Will County Station included pipe and pipe fitting insulation, boiler and equipment insulation, tank insulation, pump insulation, vinyl floor tile, suspended ceiling tile and air heater insulation. Although the removal of all ACM is not required at this time, Table 4-2 presents the types and estimated quantities of suspect ACM, as well as estimated removal costs.

**TABLE 4-2
Suspect Asbestos-containing Materials
Will County Station**

TYPE OF MATERIAL	ESTIMATED QUANTITY	REMOVAL COST ESTIMATES
Pipe & Pipe Fitting Insulation	67,800 Linear Feet	\$1,356,000
Boiler & Equipment Insulation	78,000 Square Feet	\$1,900,000
Tank & Pump Insulation	4,000 Square Feet	\$100,000
Vinyl Floor Tile	6,000 Square Feet	\$30,000
Suspended Ceiling Tile	6,300 Square Feet	\$63,000
Air Heater Insulation	110,000 Square Feet	\$2,500,000

The total suspect ACM removal cost is estimated at approximately \$7,200,000. 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 re-insulation fees. The estimated removal cost provided above is subject to change as a result of the potential variability in material quantities and locations, contractor fees, disposal fees, and project scheduling. Based on the aforementioned variables, the estimated removal cost may fluctuate as much as 50%.

4.5 Areas of Staining

The following areas of staining were observed on the subject property during ENSR's site inspection:

- A maintenance shed is located directly south of the Unit 4 stack. A drainpipe was observed discharging into a 55-gallon drum on the north side of the garage. According to Mr. Dammer, the oil discharge is from a leaking Unit 4 DID fan. An approximate one hundred square foot area of oil staining was observed on the gravel surface beneath the drum.
- A small mobile office trailer was observed in the far southeast corner of the subject property near the cooling water discharge. Three out-of-service transformers were observed stored on the east side of the trailer. Minor oil staining was observed on the ground beneath one the transformers.
- Two 25,000-gallon ignition oil ASTs, and one 100,000-gallon ignition fuel oil AST are housed within a secondary containment structure located directly north of South Area Basin No. 3. An approximate ten square foot area of oil staining was observed on the concrete surface beneath the ASTs.
- A sluice water pump building and retention basin are located directly north of South Ash Pond No. 1. The building houses pumps which recycle settled sluice water back into the system. An approximate 3 square foot area of oil staining was observed on the concrete floor beneath the pumps.
- A wastewater treatment plant is located directly east of the sewage treatment plant. One 55-gallon drum of waste oil, eight 55-gallon drums of new oil, two unlabeled 55-gallon drums, and one 55-gallon drum of lube oil were observed stored in this area. An approximate two foot square area of oil staining was observed on the concrete floor beneath the waste oil drum.
- A tractor shed is located east of the equipment storage building. Twelve 55-gallon drums of new oil and six 55-gallon drums of used oil were observed stored in the shed. An approximate 10 square foot area of staining was observed on the concrete floor beneath the drums.
- The equipment building is located directly south of the coal pile. An oil storage room is located off the southwest corner of the building. Seven 55-gallon drums of new oil and one 55-gallon drum of mineral spirits were observed stored on a drum rack. Additionally,

five 55-gallon drums of new oil were observed stored in the room. An approximate ten square foot area of oil staining was observed on the concrete floor beneath the drums.

- Four 55-gallon drums of used oil were observed stored outside the west side of the equipment building on a concrete pad. An approximate ten square foot area of oil staining was observed on the concrete surface beneath the drums.
- Two 12,500-gallon ignition fuel oil ASTs and one 15,000-gallon diesel fuel AST are housed within a secondary containment structure located southwest of the equipment storage building. Large areas of oil staining were observed within and around the secondary containment structure, on the concrete floor within the pump house, and in the concrete runoff ditch.
- An emergency generator fire pump house is located directly east of the make-up water tanks. An approximate five square foot area of staining was observed on the concrete floor beneath the generator.
- A subsurface oil/water separator is located west of the main plant building. The separator collects oil and water from the transformer yards and from the Unit 3 turbine oil pit. An approximate three square foot area of oil staining was observed on the concrete surface in this area.
- A drum storage area is located south of the oil/water separator area. Five, 55-gallon drums of new transformer oil, eleven 55-gallon drums of waste oil and approximately two-hundred empty 55-gallon drums were observed stored on the asphalt surface in this area. An approximately three square foot area of oil staining was observed on the asphalt surface in this area.
- The new oil storage room is located on the west side of the main building. Approximately one hundred 55-gallon drums of oil were observed stored in this area. Large areas of oil staining were observed on the concrete floor in this area.
- Transformers 1E, 1W, 2W, 2E, 3W and 3E are located on the west side of the main building. Minor oil staining was observed on the gravel surface beneath the transformers.
- Transformers 11, 12, 21, 22, 31, 32, 71, 72 and 73 are located on the east side of the main building. Minor oil staining was observed on the gravel surface beneath the transformers.

4.6 Former Underground Storage Tanks

Based on a review of facility documentation and municipal files a 14,000-gallon sodium hypochlorite tank, originally installed in 1953, was abandoned-in-place and filled in 1980. Additional information regarding this tank was unavailable for review at the time of ENSR's site investigation.

4.7 Spill History

Based on a review of the Com Ed's spills file, the following spills have been reported at the subject property. It is ComEd's policy to remediate spills where feasible.

- On November 25, 1997, approximately 150 gallons of diesel fuel spilled when a mobile tank tipped over. Contaminated soil was excavated. Surface water and/or groundwater were not reported to have been impacted.
- On July 29, 1996, approximately 50 gallons of antifreeze is reported to have been spilled into the station intake forebay.
- On April 11, 1995, approximately 3,000 gallons of sodium bisulfite were spilled. Surface water and/or groundwater were not reported to have been impacted.
- On October 31, 1990, approximately 50 gallons of fluid containing 61 ppm PCB-was spilled. Surface water and/or groundwater were not reported to have been impacted.
- On November 19, 1989, approximately 4 gallons of fluid containing 50-500 ppm PCB-was spilled. Surface water and/or groundwater were not reported to have been impacted.
- On November 13, 1986, approximately 100-150 gallons of PCB oil was reported to have been spilled. Surface water and/or groundwater were not reported to have been impacted.

4.8 Environmental Database Report

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

TABLE 4-3
Databases Searched and Radii

Database Acronym	Description	Search Distance (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
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

TABLE 4-3
Databases Searched and Radii

Database/Acronym	Description	Search Distance (miles)
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		
SHWS 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.		

4.8.1 Subject Property

According to the EDR database report, the subject property is listed on the ERNS database. The facility likely appeared on the ERNS database as a result of one of their reported spills. However, since additional information regarding final disposition of the spills was not provided to ENSR, the exact determination of why the facility is listed on the ERNS database could not be made. Additional information regarding the facility was not contained within the EDR report.

4.8.2 Surrounding Land Uses

According to the EDR database report, two sites were identified within the specified search radius and are summarized in Table 4-4.

TABLE 4-4
EDR Database Summary
Will County Station

Site	Database	Distance (miles)	Direction	Location Relative to Inferred Hydraulic Gradient at Site
251 N. Route 53 Bolingbrook, Illinois	UST	1/8-1/4	Northwest	Up gradient
Material Service Yard Corporation yard 61	RCRIS-SQG, FINDS	Adjacent	South	Parallel gradient

Based on their distance and/or hydrogeologic gradient, none of the above-listed sites are likely to have 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 of ComEd's Will County Generating Station, located at 529 E. Romeo Road, Romeoville, Illinois. Any exceptions to, or deletions from this practice are described in this report. This practice has revealed the following evidence of recognized environmental conditions in connection with the property:

- **Staining:** Several areas of staining were observed throughout the subject property (see Section 4.5 for a detailed listing of stained areas). Staining was primarily observed around drums, ASTs, and transformers.
- **Suspect ACM:** Suspect asbestos-containing pipe insulation, tank insulation, boiler insulation, hopper insulation, air heater insulation, ceiling and floor tile were observed throughout the site buildings.
- **PCBs:** Two electrical transformers (#6352177 and #E68904B) are classified as having leach back potential after completion of the retrofill program conducted in the 1980s.
- **Former USTs:** A 14,000-gallon sodium hypochlorite tank, originally installed in 1963, was abandoned in place and filled in 1980. Since additional information regarding the tank and its abandonment was unavailable for review, it is unknown if its former contents may have impacted the subject property.
- **Current USTs:** One 1,500-gallon gasoline UST is located on the east side of the subject property near the south end of the barge loading area. According to Mr. Dammer, the tank was installed in 1987 and is cathodically protected. Since additional information regarding this tank was unavailable for review, it is unknown if the tank is up-to-date with all current UST requirements.

One 10,500-gallon concrete waste oil sump is located on the west side of the subject property. The sump was installed in 1979 and is associated with the oil/water separator. Since additional information regarding integrity of the sump was unavailable for review, it is unknown if it has impacted the subject property.

- **Spill History:** Six reported spills have occurred on the subject property (see section 4.7 for a detailed listing of spills).
- **Temporary Ash and Slag Storage:** Two disposal areas were observed on the subject property. Large piles of bottom ash and slag were observed stored on vacant land in the southeast corner of the subject property. The bottom ash and slag are stored here

temporarily for dewatering and processing. Additionally, an approximate 20 foot by 30 foot area of slag and debris was observed south of the hazardous waste storage area. This area is used as a temporary staging area prior to final disposal. It is unknown whether bottom ash or slag storage and management practices in these areas has had an adverse impact on soil and/or groundwater quality.

- Switchyard: The switchyard was not inspected as a part of this environmental assessment. Additionally, since the switchyard is assumed to have been operational since the plant was constructed in 1955, it is unknown if some equipment has leaked fluid over that time period which may have impacted the subject property.

6.0 REFERENCES

6.1 Persons Interviewed or Contacted

Mr. Dan Dammer, Compliance Specialist, ComEd Will County Generating Station, 529 E. Romeo Road, Romeoville, Illinois. (815) 886-1010.

Ms. Lorinda Lamb, ComEd Company, One First National Plaza, 10 South Dearborn, 35 FNW, Chicago, Illinois. (312) 394-4438.

Mr. Dave Rubner, ComEd PCB Specialist, One First National Plaza, 10 South Dearborn, 35 FNW, Chicago, Illinois. (312) 394-4461.

6.2 Documents and Reports Reviewed

Aerial Photographs of subject property and surrounding properties dated 1997, 1993 and 1963 reviewed at the Will County Historical Society, Joliet, Illinois.

EDR Radius Map with Geocheck, Will County Station, 529 E. Romeo Road, Romeoville, Illinois, dated August 18, 1998.

City directories dated 1997, 1993, 1985, 1980, 1975 and 1973, reviewed at the Joliet Public Library, Joliet, Illinois.

U.S.G.S. 7.5-minute Topographical Quadrangle Map, Romeoville, Illinois, dated 1962, photorevised 1973 and 1980.

Certificate of Survey Map, ComEd Will County Station, dated 1996, provided by ComEd.

SPCC Plan, ComEd Will County Station, dated March 23, 1992, provided by ComEd.

Industrial Waste Generation and Disposal Reports for 1998, ComEd Will County, provided by ComEd.

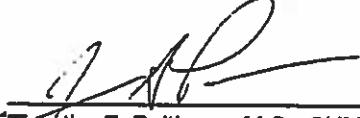
Tier II Inventory Forms for 1997, dated February 27, 1998, ComEd Will County station, provided by ComEd.

NPDES Permit No. IL0002208 ComEd Will County station, provided by ComEd.

Spill Log Review, 1986-1998, ComEd Will County station, provided by ComEd.

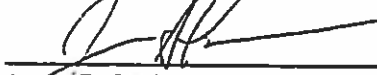
ComEd document review relating to Hazardous Waste, Acid Rain Permits, Wetlands, Air Operating Permits, NPDES Permits, Tier II Reports, and Stormwater, performed at One First National Plaza, 10 South Dearborn, 35 FNW, Chicago, Illinois.

7.0 SIGNATURES AND QUALITY CONTROL REVIEW

BY: 
For Timothy E. Bulthaup, M.S., CHMM
TITLE: Project Specialist

DATE: 10/2/98

QUALITY CONTROL REVIEW

BY: 
For Aaron B. Gesin
TITLE: Program Manager

DATE: 10/2/98

Find the area of the region bounded by the curves

$$y = \sqrt{x} \quad \text{and} \quad y = x^2$$

for $0 \leq x \leq 1$.

$$\text{Area} = \int_0^1 (\sqrt{x} - x^2) dx$$

$$= \left[\frac{2}{3} x^{3/2} - \frac{1}{3} x^3 \right]_0^1$$

$$= \left(\frac{2}{3} (1)^{3/2} - \frac{1}{3} (1)^3 \right) - \left(\frac{2}{3} (0)^{3/2} - \frac{1}{3} (0)^3 \right)$$

$$= \frac{2}{3} - \frac{1}{3}$$

$$= \frac{1}{3}$$

Find the area of the region bounded by the curves $y = \sqrt{x}$ and $y = x^2$ for $0 \leq x \leq 1$.

Ans: $\frac{1}{3}$