

ENCLOSURE E

NON-RADIOLOGICAL WASTE

Documents Included in this Enclosure

- 1. Dominion Energy Kewaunee, Inc. Kewaunee Power Station Hazardous Waste Plan**
- 2. Dominion Environmental Policy Statement**
- 3. Kewaunee Power Station Nonradioactive Wastes Updated Table 3.1-1**
- 4. Kewaunee Power Station – Waste Overview**
- 5. Kewaunee Power Station System Description – Sewage Treatment Plant**

**KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.**

Dominion Energy Kewaunee, Inc

Kewaunee Power Station

Hazardous Waste Plan

1.0 Purpose

This hazardous waste plan provides guidance for ensuring compliance with Wisconsin Hazardous and Non-Hazardous waste regulations.

2.0 Applicability

Applies to all plant processes and conditions.

User can go to any applicable section for guidance. This guidance document does not need to be started from beginning or in order.

3.0 Definitions

Accumulation

A generator that does not store hazardous waste under a Chapter NR 670, Wis. Adm. Code Interim but may accumulate hazardous waste for a short period of time before shipping it off-site or managing it on-site. The waste must be accumulated in either above ground tanks or containers; it may not be accumulated in underground tanks, waste piles or surface impoundments. Generators of 1,000 kg (2,205 lbs) or more of hazardous waste per month may accumulate their waste for up to 90 days before shipping it off-site or managing it on-site.

Generators of 100 kg (220 lbs) to less than 1,000 kg (2,205 lbs) of hazardous waste per month may accumulate 6,000 kg (13,230 lbs) of waste for up to 180 days before shipping it off-site or managing it on-site. If the nearest treatment, storage, disposal or recycling facility to which they can send their waste is more than 200 miles away, they may accumulate their waste for up to 270 days.

Generators of less than 100 kg (220 lbs) of hazardous waste per month may accumulate 1,000 kg (2,205 lbs) of waste with no time limit.

Acute Hazardous Waste

Any hazardous waste with a Waste Code beginning with the letter "P," or any of the following "F" codes; F020, F021, F022, F023, F026, and F027. These wastes are subject to stringent quantity standards for accumulation and generation.

Characteristic Waste

Classified as hazardous because it is ignitable, corrosive, reactive or toxic as determined by the TCLP test. It has a Waste Code in the range "D001" to "D043." Each of these four characteristics are defined in section NR 661 Subchapter C, Wis. Adm. Code.

Corrosive

- 1 An aqueous (water-containing) waste with a pH less than or equal to 2.0
- 2 An aqueous (water-containing) waste with a pH greater than or equal to 12.5
- 3 A liquid waste that corrodes plain carbon steel at a rate greater than .25 inch per year (6.35 mm/yr)

Examples: waste rust removers, waste acid or alkaline cleaning fluids, and waste battery acids.

Disposal

Disposal means the discharge, deposit, injection, dumping, spilling, leaking or placing of any hazardous waste into or on any land or water in a manner which may permit the hazardous waste or any hazardous constituent to be emitted into the air to be discharged into any waters of the State or otherwise to enter the environment. Disposal does not include the generation, transportation, storage or treatment of hazardous waste.

EPA Identification Number

The EPA identification number is a 12-character number assigned by EPA to each generator, transporter, and treatment, storage, or disposal facility. Facilities which are not generators but anticipate possible generation activity must also apply for and receive an EPA ID number.

Generator

A generator is a site or mobile source whose actions or processes produce hazardous waste.

Generator Notification Form

Every site which generates, treats, stores or disposes of hazardous waste must inform EPA and the DNR of its hazardous waste activity by filing EPA form 8700-12, Notification of Hazardous Waste Activity. After receiving the notification form, EPA assigns an identification number to the site.

Hazardous Waste

A solid waste which possesses at least one of four characteristics or appears on special DNR lists. The regulatory definition of hazardous waste is found in section NR 661.03, Wis. Adm. Code.

Ignitable

- 1 A liquid waste with a flash point less than 140°F; the flash point is the temperature at which the vapor above the liquid will ignite when a flame is introduced
- 2 Any waste that is an ignitable compressed gas
- 3 Any waste material that can cause fire through friction, absorption of moisture or spontaneous chemical changes

Examples: paint wastes, certain nonchlorinated degreasers or other solvents, adhesives, thinners, and mineral spirits.

Listed Wastes

Those wastes specifically named in section 661, Subchapter D Wis. Adm. Code.

Large Quantity Generator (LQG)

Defined by the following criteria:

- a. generated in one or more months during the calendar year, 1,000 kg (2,205 lbs) or more of hazardous waste; or more than 1 kg (2.2 lbs) of acute hazardous waste, or more than 100 kg (220 lbs) of acute hazardous waste spill cleanup material;
- b. accumulated at any time during the calendar year more than 1 kg (2.2 lbs) of acute hazardous waste; or 100 kg (220 lbs) of acute hazardous spill cleanup material;
- c. accumulated hazardous waste in above ground tanks or containers during the calendar year for 90 days or less.

Reactive

Waste that meets one of the following criteria:

- 1 Is normally unstable and readily undergoes violent changes without detonating
- 2 Reacts violently with water
- 3 Forms potentially explosive mixtures with water
- 4 Generates toxic gases or fumes when mixed with water
- 5 Is a cyanide or sulfide that can generate toxic gases, vapors or fumes
- 6 Is capable of detonation or explosive reactions under certain conditions
- 7 Is a forbidden, Class A or Class B explosive

Example: cyanide plating wastes, sulfide containing wastes and waste toluene diisocyanate.

Resource Conservation and Recovery Act (RCRA)

The federal statute that regulates the generation, treatment, storage, disposal or recycling of solid and hazardous waste.

Recycling

The beneficial use, reuse, legitimate recovery, or reclamation of a hazardous waste. Recycling also includes the recovery of energy from hazardous waste. As used in this report, recycling implies performing these activities either on site or off site, after the waste has been generated.

Solid Waste

Any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded or salvageable materials including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining and agricultural operations and from community activities. Wastes excluded from this definition are solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under Chapter 147, Wisconsin Statutes, or source, special nuclear or by-products material as defined under section 140.52, Wisconsin Statutes.

Source Reduction

Reduction or elimination of waste at the source, usually within a process. Source reduction measures include process modification, feedstock substitutions, improvements in feedstock purity, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. Source reduction implies any action that reduces the amount of waste exiting a process.

Special Waste

Non-hazardous process waste (not garbage) that may not be allowed at all landfills because of unique characteristics of the waste. The Kewaunee County Landfill may not allow all special waste to be disposed at their facility.

Small Quantity Generator (SQG)

Defined by the following criteria:

- a. in every single month during the calendar year, the site generated less than 1,000 kg (2,205 lbs) of hazardous waste and,
- b. the site accumulated at any time during the calendar year 6,000 kg (13,230 lbs) or less of hazardous waste and,
- c. accumulated hazardous waste in above ground tanks or containers during the calendar year for 180 or 270 days (depending on the distance the waste is transported) or less.

Storage

Containment of hazardous waste for a temporary period in a manner that does not constitute disposal (section 291.01 (18) Wisconsin Statutes). temporary holding of waste pending treatment or disposal. Storage methods include containers, tanks, waste piles and surface impoundments.

Toxic

This characteristic is based on the amount of certain heavy metals, pesticides, semi-volatile and volatile organic compounds of hazardous waste that can be extracted from a laboratory sample of the waste. The laboratory test used to determine this characteristic is called the Toxicity Characteristic Leaching Procedure (TCLP).

Treatment

Any method, technique or process, including neutralization, which follows generation and which is designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize the hazardous waste, or so as to recover energy or material resources from the waste, or so as to render the waste nonhazardous for transport amenable for recovery, amenable for storage or reduced in volume. Treatment includes incineration.

Uniform Hazardous Waste Manifest

The shipping document (EPA forms 8700-22 or 8700-22a) that pertains to hazardous waste and that originates with and is signed by the generator.

Universal Waste

A specific subgroup of materials that would be hazardous waste but due to their pervasive use throughout the state, the WDNR has allowed these materials to be disposed of or recycled following reduced regulatory requirements. These materials include lamps, batteries, mercury containing devices, antifreeze, Cathode Ray Tubes (CRT's), electronics containing circuit boards, and pesticides.

Used Oil

Any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of the use is contaminated by physical or chemical impurities.

Very Small Quantity Generator (VSQG)

Defined by the following criteria:

- a. in every single month during the calendar year, the site generated less than 100 kg (220 lbs) of hazardous waste; and 1 kg (2.2 lbs) or less of acute hazardous waste, and 100 kg (220 lbs) or less of acute hazardous waste spill cleanup material; and

- b. the site accumulated at any time during the calendar year 1,000 kg (2,205 lbs) or less of hazardous waste, and 1 kg (2.2 lbs) or less of acute hazardous waste; and 100 kg (220 lbs) or less of acute hazardous spill cleanup material.

Waste Minimization

The reduction, to the extent feasible, of hazardous waste that is generated and subsequently treated, stored, or disposed of. It includes any source reduction or recycling activity undertaken by a generator that results in:

- a. the reduction of total volume or quantity of hazardous waste;
- b. the reduction of toxicity of hazardous waste; or
- c. both, as long as the reduction is consistent with the goal of minimizing present and future threats to human health and the environment.

Wisconsin Administrative Code (Wis. Adm. Code)

The specified section of the Wisconsin regulation controlling the aspect of waste compliance in question.

Wisconsin Department of Natural Resources (WDNR)

The state agency responsible for regulating environmental compliance in Wisconsin.

Wisconsin Pollution Discharge Elimination System (WPDES)

The Wisconsin wastewater permitting system used to authorize Wisconsin companies to discharge wastewater within the criteria set by Wisconsin regulations.

4.0 Responsibility

- 4.1 Hazardous Waste Emergency Coordinator – Ensure Chemistry Department Supervisors/Chemists/Chemistry Technicians are properly trained to provide the regulatory required actions in the event of a hazardous waste spill or fire involving hazardous waste.
- 4.2 Chemistry General Supervisor – Provide resources to meet the environmental tasks required of it in the areas of WPDES permit and Hazardous Waste.

- 4.3 Environmental Compliance Coordinator – Provide guidance to help the site comply with all applicable environmental regulations. It is expected that the ECC is aware of each area of the plant that has a responsibility in complying with WDNR environmental regulations. Be aware of all waste producing processes on-site.
- 4.4 Supply Chain Stock Clerks - Log all expired chemicals taken out of stock at the Hazard Determination Table in the Warehouse chemical storage room for proper disposition by the ECC. Transfers universal waste to the storage location in Warehouse 1. Provide support during the waste shipment process.
- 4.5 Plant Helpers - Transport all drums of used oil to their proper storage location.
- 4.6 All Personnel - Log all used chemicals in at the Hazard Determination Table in the chemical storage room for proper disposition by the ECC.
- 4.7 Chemistry Technicians - Log all used chemicals in at the Hazard Determination Table in the chemical storage room for proper disposition by the ECC. When learning of a chemical spill or issue, should notify the ECC to assure compliance.

5.0 Requirements

5.1 Generator Status - Variable Requirements

The level of Hazardous Waste regulatory requirements is based on the amounts of hazardous waste produced per month. The smaller the waste amounts, the less requirements are applicable. Large Quantity Generators (see definition section) must comply with all applicable requirements found in WDNR NR 662, “Hazardous Waste Generator Standards”. The next level lower in status is Small Quantity Generator which has reduced regulatory requirements. The lowest level is Very Small Quantity Generator which has minimal requirements.

The amounts of hazardous waste produced should be reduced to minimize the effect on the environment, financial costs, and regulatory scrutiny that larger quantities of hazardous waste brings.

Throughout this plan variable requirements are listed due to address the three Generator Statuses.

The WDNR regulations require immediate compliance with all applicable requirements, whatever status a facility may be.

5.2 Waste Producing Processes

The Environmental Compliance Coordinator should be notified if hazardous waste is inadvertently created. Chemical issues should be directed to the Chemistry Department.

5.3 Hazardous Waste Determinations

All hazardous waste process streams must be evaluated to determine if they meet the definition of a hazardous waste by following the requirements found in WDNR regulation NR 661, "Hazardous Waste Identification and Listing". See Attachment 1 for a flowchart of the "Hazardous Waste Identification Process".

5.4 Hazardous Waste Process Description

Any process that produces waste has the potential to produce a hazardous waste. In each case, a detailed understanding of the process is required to determine what chemicals or materials (if any) are used in the process. It is not until this is done that the proper disposition of the waste can occur.

At KPS, the majority of hazardous waste is produced because of the expiration of virgin chemicals stored in the warehouse. Second to that, it is the accidental contamination or expiration of process chemicals used in the plant.

5.5 Hazardous Waste Storage Areas

KPS can have two types of areas where hazardous wastes are handled after being generated. These are designated "collection areas" or "satellite accumulation containers". The collection areas serve as storage areas prior to pick-up and transportation to an off-site treatment or disposal facility. Collection areas may be located near places where wastes are being generated or elsewhere on-site. Satellite accumulation containers must be located at or near the place of waste generation. Waste may be placed into a drum at a satellite accumulation area without any time limit restrictions. Any storage time limits are based on generator status and begin when the container is full, either 90 days for LQG's or 180 days for SQG's.

The primary hazardous waste collection area is the chemical storage room located in the Warehouse. It is here that most materials are logged into the waste hazard determination process. (See Attachment 2). The material will be evaluated to determine if they meet the criteria for a hazardous waste as define in NR 661 as described in Attachment 1. The results of this evaluation are documented on a Hazard Determination Sheet (See Attachment 3). Each waste drum will

document their contents with a Hazard Determination Sheet. This sheet will list the specific hazard, the information used to determine the hazard, and the type of disposal utilized. This information will be filed away for compliance purposes if needed.

Hazardous wastes, which are also radioactive, are classified as "Mixed Waste" and are located in the Auxiliary Building. These wastes are extremely expensive to dispose of and their creation should be greatly avoided.

Additional locations can be authorized by the Environmental Compliance Coordinator as needed.

5.6 Containers For Hazardous Waste Storage

- 5.6.1 Containers must be in good condition
- 5.6.2 Containers must be handled in a way, which would not cause them to leak.
- 5.6.3 Containers must be kept closed except when transferring waste
- 5.6.4 Containers must be compatible with the waste
- 5.6.5 Containers must be labeled as hazardous waste and the contents identified

5.7 Area Postings

Hazardous waste storage areas should be posted as such. Cabinets posted as hazardous waste storage areas should not contain any other materials that might be assumed to hazardous waste. Small Quantity Generators have additional posting requirements such as drawings posted near the storage areas showing nearby phones, fire extinguishers, and emergency phone numbers.

5.8 Emergency Phone Numbers

Emergency phone numbers can be found in GNP-01.27.09.

5.9 Local Fire Department Plan Availability

VSQG status does not require a hazardous waste contingency plan to be on file with the local Fire Department. SQG status does require a hazardous waste contingency plan on file with the local Fire Department. KPS has a hazardous waste contingency plan on file with the local Fire Department which includes hazardous waste and conditionally exempt mixed waste on site. The hazardous waste contingency plan should be updated as needed.

5.10 Hazardous Waste Training

Training is provided to site Maintenance Departments, Radiation Protection Department, Warehouse, and Chemistry. The training program consists of a Computer Based Training (CBT) package which describes the regulatory requirements as well as the specific details for hazardous waste disposal at the site.

5.11 Responding to an Emergency

KPS trains several groups in Hazardous Waste Operations (HAZWOPER) training. These groups are responsible for dealing with a release of a hazardous chemical on-site. These groups include Chemistry Technologists, Auxiliary Operators, and Controlled side Auxiliary Maintenance Operators (CAMO's).

5.12 Producing Hazardous Waste

The majority of hazardous waste produced on-site is derived from expiration or contamination of virgin chemicals. Chemicals that are purchased for use on systems important to the radiological safety of the general public have strict expiration dates. Once the expiration date has past for this type of chemical, it must not be used for its intended purpose and disposed of. If appropriate, it will become a hazardous waste.

If other processes are started that produce waste, a hazard determination is performed, the people involved would be trained, and the waste properly disposed of.

5.13 Recording Keeping

5.13.1 Hazardous Waste Determinations

Hazardous waste determinations are performed on all waste producing processes to document if the waste meets the definition of a hazardous waste. The information used in this process can come from generator knowledge of the process including chemicals/materials used, labels, Material Safety Data Sheets (MSDS's), or laboratory test results. This detail is stored by the Environmental Compliance Coordinator (ECC) and updated as needed based on changes to the process producing the waste.

5.13.2 Manifests

Hazardous waste manifests are created for each shipment of hazardous waste leaving the site. They are signed by a DOT trained representative of Dominion Energy Kewaunee, are tracked to assure the shipment is received by the destination, and the manifest is returned to the generator within 60 days.

5.13.3 Inspection Logs

It is the expectation of the WDNR that each hazardous waste location be inspected weekly to assure the containers are not leaking, are still in good condition, and have not been moved.

5.13.4 Training Records

HAZWOPER and site hazardous waste CBT training records are controlled and maintained by the Training Department. Small group hazardous waste training records is controlled by the ECC.

The ECC can train subgroups on-site that are involved in a process that produces a hazardous waste (e.g. outage training). These types of records are considered non-QA records and are stored by the ECC.

5.14 Hazardous Waste Vendor

Corporate Environmental Dominion maintains a list of approved hazardous waste vendors. Any new vendors used for hazardous waste disposal must be reviewed by Corporate Environmental before being used.

5.15 Non-Hazardous Waste

Solid waste which does not meet the definition of a hazardous waste can be sent to a non-hazardous waste landfill as long as the material meets the waste acceptance criteria of that facility. The material could be placed in the facility garbage dumpster if acceptable to the vendor or brought directly to the landfill.

5.16 Universal Waste

Waste listed under the definition of universal waste are exempt from the hazardous waste regulation as long as the generator complies with the requirements under NR 673, "Universal Waste Management Standards".

5.17 Used Oil

Used oil is excluded from the Hazardous waste regulation by NR 661.06(1)(b)(4)(b) but is regulated as used oil by NR 679. NR 661.06(1)(b)(4)(b) specifically lists burning for energy recovery as an acceptable method of recycling.

5.17.1 Rebuttable Presumption

NR 679.10(2)(2) indicates that any used oil containing greater than 1,000 ppm total halogens is presumed to be a hazardous waste. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste by testing the used oil periodically to demonstrate that it does not contain hazardous waste.

5.18 Wisconsin Authority To Regulate Hazardous Waste

Wisconsin is authorized by the EPA to regulate generators in Wisconsin. No Federal EPA regulations are overriding unless explicitly noted in a Wisconsin regulation. Examples include Federal Spill Prevention Control and Countermeasure (SPCC) Plan and the use of the Federal Uniform Hazardous Waste Manifest for hazardous waste shipments.

5.19 General Site Compliance

- 5.19.1 Hazard Determination – All processes which produce waste must be documented in the waste hazard determination process. (excluding garbage and sanitary waste)
- 5.19.2 Weekly Location Inspections – The ECC (or alternate) is tasked with a weekly inspection of all of the hazardous waste storage locations. This weekly inspection is not required by regulation but would show and inspector that the waste is being proper controlled and maintained. A skipped week is not considered a noncompliance.
- 5.19.3 Monthly Hazardous Waste Generation – The ECC is tasked with documenting all hazardous waste produced to assure that the site understands all hazardous waste requirements based on generator status.
- 5.19.4 Monthly Accumulation Pounds - The ECC is tasked with documenting all hazardous waste accumulated on-site to assure that the site understands all hazardous waste requirements based on generator status.
- 5.19.5 Training Documentation - The training Department is responsible for conducting annual HAZWOPPER training and the storage of the training records. It is the responsibility of the ECC to train any subgroup found to be producing hazardous waste.
- 5.19.6 Annual Hazardous Waste Reporting - The ECC is tasked with submitting all required documentation to the state before its due date. The specific required submittal is based on the generators status and is always due March 1st.
- 5.19.7 The ECC will communicate with the site as needed to assure that all wastes produced are properly disposed.
- 5.19.8 Compliance Issue Documentation and Rectification – The ECC is responsible for documentation of all compliance issues and reporting those issues to corporate Dominion, State, or Federal authorities as required.

5.20 Waste Disposal Process

5.20.1 Hazardous Waste

5.20.1.1 Vendor Pickup – A drum containing hazardous waste that complies with all DOT requirements can be picked-up by a vendor. The hazardous waste manifest will need to be signed-off by a DOT trained Dominion representative.

5.20.1.2 Vendor Lab Pack Service – Hazardous wastes which are not properly packaged for DOT shipment can be picked-up by a vendor (for an extra cost) who will package the waste and fill out the hazardous waste manifest. The paperwork will still need to be signed-off by a DOT trained Dominion representative.

5.20.1.3 Recycle In the Used Oil Stream – Wisconsin regulation NR 662.220(9) allows for Very Small Quantity Generators to dispose of hazardous waste as used oil produced at the site. After the hazardous waste is mixed with the used oil, the mixture will be considered used oil and regulated under the Wisconsin Used Oil regulations, NR 679. The Hazardous waste will still be counted in the monthly generation amounts. This disposal method does not require a hazardous waste manifest. See NR 662 for compliance details. This compliance option is only valid during months when KPS meets the Very Small Quantity Generator definition and is not an option when considered a small quantity generator or a large quantity generator.

5.20.2 Non-Hazardous Waste – When a waste is determined to be non-hazardous based on the hazard determination process, it still must be properly disposed of. The Kewaunee County Landfill is the primary recipient of a large quantity of the non-hazardous waste produced at KPS. The Kewaunee County Landfill uses a local vendor to review all waste streams to assure that they meet the landfills acceptance criteria. This is usually done by sending a waste profile to the vendor for review. Once approved, that waste stream can be sent to the landfill at any time unless a prior notification requirement is added to the approval.

In some instances, a verbal approval can be given due to unusual circumstances or very small quantities. In these

instances, the waste can be placed into the on-site compactor, which is taken to the Kewaunee County Landfill for disposal.

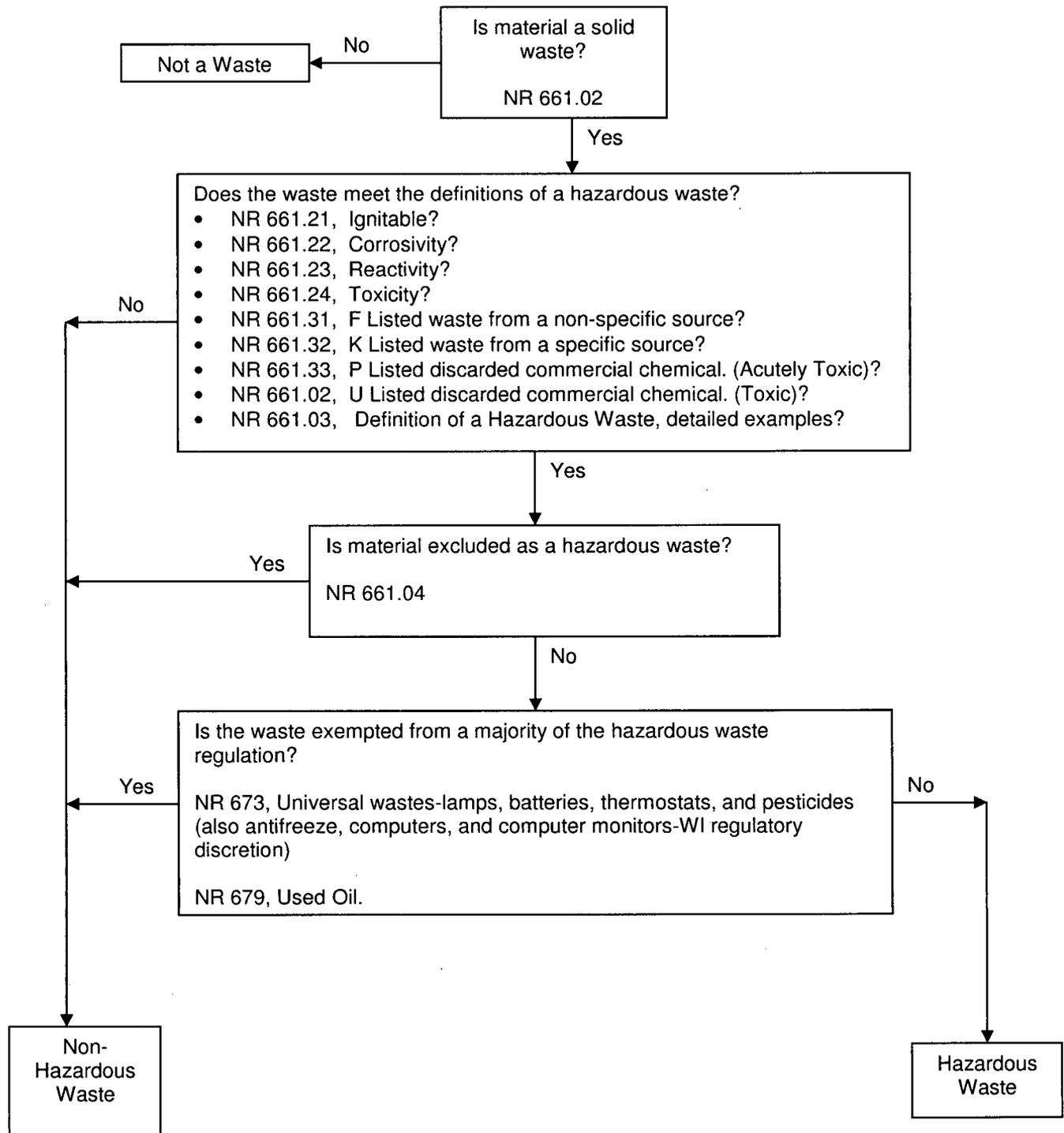
Note: There are also 8-yard garbage containers on-site which are not sent to the Kewaunee County Landfill. Waste destined for the Kewaunee County Landfill must not be placed into these containers.

- 5.20.3 Special Waste – For this document, the definition of a special waste is basically a non-hazardous waste that is not allowed at the Kewaunee County Landfill. If this were to occur, there are several other landfills in the area that may be able to dispose of the waste. Some of the local vendors are large nation wide companies who can tap resources from across their corporation to find a location who can accept the waste.
- 5.20.4 Universal Waste – KPS utilizes a vendor who comes to the site and removes the universal waste on a periodic based, at least annually (unless an extension is approved by the ECC).
- 5.20.5 Used Oil – Used oil is picked-up by a vendor who recycles the oil by using it in a fuels program. This vendor can take many different types of combustible liquids beyond the State definition of used oil.
- 5.20.6 Recyclables – Newspaper, cardboard, metal, plastic, or aluminum which has not been adulterated by any contamination which would cause it to be un-recyclable (such as food waste).
- 5.20.7 Garbage – Garbage is material which no longer has value and does not meet the definition of a hazardous waste, industrial waste, universal waste, used oil, or on the list of items which are required to be recycled
- 5.14.8 Spill Clean Up – Chemical spill clean up should use procedure EV-KW-ENV-001, “Collection and Disposition of Chemicals at the Kewaunee Power Station”, for guidance.

6.0 References

- 6.1 WDNR Regulation NR 660, "Hazardous Waste Management: General".
- 6.2 WDNR Regulation NR 661, "Hazardous Waste Identification and Listing".
- 6.3 WDNR Regulation NR 662, "Hazardous Waste Generator Standards".
- 6.4 WDNR Regulation NR 673, "Universal Waste Management Standards".
- 6.5 WDNR Regulation NR 679, "Used Oil Management Standards".

Attachment 1 Hazardous Waste Identification Process Flowchart



Kewaunee Power Station

Waste Determination Sheet

Material _____ Amount _____ Date _____

N/A	Yes	No		Determination Data Source				
				GK	MSDS	T	L	Other
			Solid Waste per NR 661.03?					
			Excluded by NR 661.04? (sewage, samples)					

N/A	Yes	No	Toxicity Characteristic	GK	MSDS	T	L	Other
			D001 Flammable					
			D002 Corrosive					
			D003 Reactive					
			Metals (D004 thru D011)					
			Pesticides (D012 thru D017)					
			Solvents (D018 thru D043)					

N/A	Yes	No	Listed Wastes	GK	MSDS	T	L	Other
			F Listed (from non-specific sources)					
			K Listed (from specific sources)					
			P Listed (acutely toxic discarded chemicals)					
			U Listed (discarded chemicals)					
			Low Level Waste (LLW)					

Method of Disposal

Garbage
Landfill
Sanitary Sewer
Neutralization Tank
Non-hazardous Waste - Vendor Disposal
Hazardous Waste - Vendor Disposal
On-Site Storage

Disposal Date _____

Notes _____

Generator Knowledge	GK
Material Safety Data Sheet	MSDS
Test Results	T
Label	L
Note other source of information on sheet	Other

Waste Log

Document all additions placed
in this container.

Document with date and initials.



Environmental Policy Statement

The company is fully committed to meeting its customers' energy needs in a manner consistent with a clean environment. We believe it is both good business practice and our duty to protect the natural resources of the communities we serve. In keeping with this belief, it is our policy to conduct our business in an environmentally responsible manner that protects the public, our employees, and the earth that we all share.

In addition to complying with all applicable environmental laws and regulations, we commit to:

Make environmental concerns an integral part of our planning and decision making process and commit sufficient resources to implement effective environmental programs.

Practice sound environmental stewardship of all company-owned facilities and properties and all natural resources under our management.

Educate employees to be accountable for environmental stewardship and encourage them to seek innovative ways to improve the environmental aspects of our operations.

Minimize, mitigate or restore any adverse environmental impacts caused by our operations.

Maintain open channels of communication with our customers, employees, government agencies, public officials, the media and the public to meet their information needs in regard to energy and environmental issues.

Participate with government agencies and others in framing responsible laws, regulations and standards affecting the community, the workplace and the environment.

Continually improve our environmental programs.

Promote the efficient use of energy and natural resources through cost-effective conservation and energy management programs.

Ensure the proper handling and disposal of all wastes, and minimize their creation while pursuing opportunities to prevent pollution and recycle and reuse waste materials.

Support research and development of programs and technologies aimed at minimizing the environmental impacts of our operations.

Evaluate our environmental performance through periodic reviews and audits to ensure that our conduct is consistent with these principles.

December 2000



Kewaunee Power Station
 Non-Radioactive Wastes
 Updated
 Table 3.1-1

	2004	2005	2006	2007	2008
Universal Waste (tons)	ND ⁽⁶⁾	ND ⁽⁶⁾	4.0	2.5	1.5
Hazardous Waste (lbs)	126 ⁽⁴⁾⁽⁵⁾	0 ⁽⁴⁾⁽⁵⁾	2477	734	1112
Total Trash (tons)	280.5	194.6	131.7	140.0	256.0
Recycled Metal (tons)	not avail.	not avail.	10.9	22.6	38.0
Recycled Materials (tons)	ND ⁽⁶⁾	ND ⁽⁶⁾	61.6	107.3	120.5
Used Oil (gals)	5,320	0 ⁽³⁾	17,835 ⁽¹⁾	2,200	27,165 ⁽²⁾

Used Oil

- 1 The increased used oil production for this year was due to the change out of the 14,000 gallons of turbine oil.
- 2 The increased used oil production for this year was due to the installation of four new main transformers.
- 3 The majority of used oil is produced during refueling outages. There was no refueling outage in 2005. No used oil was shipped in 2005.
- 4 Prior to Dominion ownership, all expired chemicals were sent to WPS main warehouse in Green Bay, WI for evaluation, redistribution, or disposal. The one waste stream (monoethylamine) used a satellite accumulation area and did not count any weight towards generation until shipment.
- 5 Generation pounds obtained from annual WDNR hazardous waste reporting form.
- 6 No Data (ND). Prior to Dominion ownership, all universal waste/recycling was sent to WPS main warehouse in Green Bay, WI for economic disposal/recycling. Waste was consolidated with all other WPS division waste and disposed/recycled without KPS specific documentation getting back to the plant.

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)		Date 03/17/03	Page 1 of 15
Author	David F. Shields	Ops Review	Paula K. Anderson
Tech Review	Paula K. Anderson	Approved	Manager of Engineering

INDEX

SECTION	TITLE SUBSECTION	PAGE
1.0	Summary.....	2
1.1	Overview.....	2
1.2	System Operation 'vs' Plant Mode.....	3
1.3	Normal Operation.....	4
1.4	Shutdown.....	4
1.5	Emergency.....	4
2.0	Functions.....	4
3.0	Design Description.....	5
3.1	SDP System Design Bases.....	5
3.2	Startup-Operations & Maintenance Manual.....	5
3.3	SDP System Flowpaths.....	5
3.4	SDP Operation.....	6
3.5	Sanitary Lift Station.....	7
3.6	Comminutor & Equalization Tank.....	8
3.7	Sewage Treatment Transfer Pumps.....	9
3.8	Air Blowers.....	10
3.9	SPD Aeration Tank.....	11
3.10	Final Settling Tank, Sludge Collector Drive, & Scum Skimmer.....	11
3.11	Sludge Storage Tank/Aerobic Digester.....	13
3.12	Alarms.....	13
4.0	Precautions and Limitations.....	14
5.0	References.....	15
5.1	Technical Specifications.....	15
6.0	Procedures.....	15
7.0	Appendices.....	15
7.1	Attached Figures.....	15

KPS-038
DESCT
em

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 2 of 15

1.0 Summary

1.1 Overview (See Figures KNP-SDP01, SDP02, SDP03)

The Sewage Treatment (SDP) System functions based upon the extended aeration of sewage material. This method of treatment consists basically of three operations, screening, aeration, and settling. When the sewage first enters the SDP plant from the lift station, the waste enters a comminutor and a converted equalization tank. The comminutor is a mechanical grinder or cutter that is designed to shred large solids.

Sewage is water with all possible material thrown into it. Some of the contaminating material stays in suspension; some material goes into solution; some of it floats; and some of the material sinks to the bottom of the equalization tank. The majority of the sewage processed is water – approximately 99.95%. The remaining sludge portion, 0.05% can cause damage and disagreeable odors if not properly treated.

The treatment of sewage is accomplished by bacterial action. There are many types and forms of bacterial, but they all fall into two general classifications:

- ♦ **Anaerobic** - Those microorganisms that live without air are called anaerobic. These bacteria obtain the oxygen necessary from the material on which the microbes live. This process breaks down the material by rotting and, in the process, releases various gases. Some of the gases released, such as methane and hydrogen sulfide, are very odorous. These types of bacteria are found in septic tanks and anaerobic digesters.
- ♦ **Aerobic** - Those microorganisms that live in the presence of air are called aerobic. These bacteria obtain the necessary oxygen from the surrounding air, not from the material on which they live. These bacteria consume this material and release gases such as carbon dioxide, hydrogen, nitrogen and small amounts of other material. The principal products of this action are water, carbon dioxide, and nitrogen, none of which are odorous.

The Kewaunee Nuclear Power Plant (KNPP) Sewage Treatment Plant (SDP) uses aerobic bacteria. These bacteria have the ability to increase in number at an enormous rate under conditions of adequate air and ample organic material availability. The number of bacteria decreases rapidly by cannibalizing if the organic supply is greatly reduced and there is sufficient aeration time. Normal fluctuations of flow and strength are taken care of by this inherent sludge volume control.

“Activated Sludge” is the generic term for the various processes for treating sewage utilizing aeration and aerobic microorganisms settled out and returned to the process from the final settling tank. The micro-organisms perform the actual purification and these living organisms have a definite life cycle. The bacteria grow in volume in proportion to the amount of food in the form of organic material in a compatible environment. Each pound of biodegradable (BOD) material that is removed/purified results in an average of 0.6 pound of BOD sludge organisms. In addition to the microorganism buildup, certain suspended solids of an inorganic nature settle out in the Settling Tank, thus increasing the amount of total solids. In order to keep the process in operational balance with the optimum volume of solids in the SDP System, it is necessary to waste, or remove, a portion of the return sludge.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 3 of 15

All sludge that settles out in the Settling Tank must be removed. The amount of this sludge removed in proportion to the raw sewage flow depends upon the efficiency of settling in the Settling Tank. Good settling efficiency permits the removal of all settled sludge by withdrawing an amount equal to 20-25% (optional), whereas 10% is more representative of KNPP, due to actual loading of the design raw sewage flow to the SDP. At times, when the settling characteristics of the sludge are poor, a greater volume must be withdrawn in order to remove all the sludge from the Settling Tank. A means must be provided to vary the rate of sludge return in order to get maximum Settling Tank operating efficiency.

A proportion of sludge must be removed to keep it in balance. This normally amounts to 5-10% of the return sludge flow. The volume of sludge wasted depends upon the concentration of solids in the return sludge. The concentration of solids depends upon the efficiency of the Settling Tank.

Aerobic Digestion - The waste sludge removed from the system must be disposed of in some manner, preferably by "aerobic digestion". This process produces a relatively clear supernatant/ residue, compatible with the treatment process that can be returned directly to the Aeration Tank without harmful effects. The digest sludge dries readily without odor, and can be used as a landfill, or humus, etc. At present, a local septic contractor is called in as necessary, usually once a month, to remove the sludge for disposal at an offsite waste treatment facility.

Major supporting equipment associated with the SDP include the following:

- ♦ Communitor, chops or shreds solid waste into small pieces.
- ♦ Equalization tank, where the raw sewage is introduced into the SDP (Also acts to moderate flow variance).
- ♦ SDP transfer pumps, used to transfer aerated sewage to the aeration tank.
- ♦ Aeration Tank Sludge Storage Tank, and Chlorinator Tank.
- ♦ Settling Tank, with drive unit, sludge hopper, and scrapers.
- ♦ Three air blowers to provide air for proper bacteria growth and to operate air lift pumps.
- ♦ [REDACTED]
- ♦ Settling Tank Scum Skimmer and Lift Pump.
- ♦ Settling Tank sludge collection drive.

1.2 System Operation versus Plant Modes

Plant Mode	System Support
Startup	The SDP System is required to support plant operations during all plant modes. The SDP System must always be operable to treat the sewage discharge from the plant.
Normal Power	
Shutdown	
Refueling	
Casualty	The SDP System is not required to support Casualty Events.
Infrequent Operations	Not applicable
Maintenance	Maintenance can be performed on portions of the SDP System while operating upon concurrence from the KNPP Shift Manager, Work Control Center and Chemistry Management.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 4 of 15

1.3 Normal Operation

During normal routine operations, the sludge return should be adjusted for maximum efficiency. All the settling sludge in the Settling Tank must be removed. The airlift for the sludge return needs to be adjusted to obtain approximately 25% of the average daily sewage flow. Excess sludge is wasted to the Sludge Storage Tank based on system demands. The Sludge Storage Tank needs to be pumped down approximately once a month for disposal offsite. The amount of fluid being discharge out the effluent to the creek is equal to the amount of sewage flow into the plant or approximately, 11,000 gallons per day.

1.4 Shutdown

Portions of the SDP may be shutdown for routine maintenance and cleaning. The SDP Operator must determine what effect a shutdown of various pieces of equipment will have on the bacteria growth and efficiency of SDP operation. Routine equipment cleaning extends the useful service life of the components and ensures operation at the maximum efficiency.

Most of the components in the Sanitary Lift Station are duplicated. Either lift station unit can be shutdown for maintenance or inspection without affecting the operation of the lift station. The capacity of the lift station is effectively cut in half with one of the duplex units out of service.

1.5 Emergency

The SDP System is not specifically required to operate under plant emergency conditions. The only vital failures associated with the SDP System would be failures of the transfer pumps to transfer sewage from the Equalization Tank to the Aeration Tank or the loss of the Lift Station to transfer sewage from the sewage line to the Equalization Tank. A loss of electrical power from Highway #42 disables all heating equipment in the SDP Building. All the SDP Building equipment is powered from KNPP via MCC 1-46D, which has emergency backup power from TSC Diesel Generator.

2.0 Functions

The Sewage Treatment Plant (SDP) receives solids and liquids from the KNPP sewer system and soil pipes from all the plant rest rooms. The Sanitaire SDP breaks down the solid waste products by means of aerobic microorganisms that multiply rapidly in the proper environment.

The duplex sanitary lift station use ejector pumps to pump the mixed contaminated liquids to the SDP Building. The raw sewer water enters through a comminutor that chops and cuts large sewage into small pieces able to be digested by the aerobic process.

The SDP process uses a mixed waste flow with the solid waste being accumulated in a sludge storage tank and the treated liquid effluent being discharged to the creek near the SDP. The creek flows into Lake Michigan.

The SDP has a design capability of 20,000 gpd. Normal routine sewage processing is approximately 11,000 gpd. During an outage maintenance period, the SDP processes approximately 20,000 gpd.

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 5 of 15	

3.0 Design Description

3.1 SDP System Design Bases

The present Sewage Treatment Plant was installed by contractor in April-July 1986 in accordance with DCR 1705. The SDP System installed is a Sanitaire Mark III System capable of handling 20,000 gallons of raw sewage a day. This quantity is based on the volume of the Aeration Tank. "Sanitaire" is the trademark of the Water Pollution Control Corporation.

The Aeration Tank (or Liquor Tank) efficiency is increased by having a high average solids concentration in the mixed liquor. The Settling Tank efficiency is increased by having a low solids concentration. The following table illustrates the capacity and concentrations:

Raw Sewage	Design Flow	20,000 gallons per day (gpd)
	Suspended Solids	200 mg/l
Return Sludge	Rate	25%
	Suspended Solids	2,000 ppm
Theoretical Detention Aeration Tank	Total Volume	24 hr 20,736 gallons, 2772 ft ³

3.2 Startup-Operations & Maintenance Manual

Each piece of mechanical equipment should be inspected and checked manually by hand before power is turned on. If any blower or pump is hard to turn by hand, check for possible interference or check instructions in the Technical Manual, K-54156-1. Proper oil levels for equipment should be checked prior to applying power.

The comminutor should rotate clockwise as viewed from the motor end when power is applied.

The blower should produce turbulence with the tank filled within seconds of the time the blower is started. If no air appears or the blower is noisy and/or heats up quickly, the blower may be running backwards or the discharge valve is closed. The blower check valve may be stuck closed or a temporary plug may not have been removed from the suction nozzle of the blower.

Air lines and union connections should be checked to ensure there are no air leaks. The air supply to the Scum Trough should be adjusted so that water is removed faster than it enters the trough flush holes. When the Settling Tank is first filled, the weir plated should be adjusted so that the water submergence is the same for all notches.

3.3 SDP System Flowpaths (See Figures KNP-SDP01 & SDP02)

Various waste systems from the plant, outbuildings, some floor drains, and roof drains, discharge through soil pipes to the sewer system. (See Figure KNP-SDP01.) The major sewer lines join at Manway #5 and gravity flow to the Sanitary Lift Station. All sewer flow is through the Sanitary Lift Station and into the SDP.

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date	03/17/03	Page 6 of 15

Flow from the Sanitary Lift Station can enter the Equalization Tank through the Comminutor or be aligned through the bypass line to the Aeration Tank. Normally the sewage enters the Comminutor and is deposited in the Equalization Tank. Two air diffusers in this tank provide a supply of air to begin the treatment of the sewage. Two 3" transfer pumps are capable of taking a suction on the Equalization Tank and discharging to the Aeration Tank (or liquor tank). The Aeration Tank has four diffusers that bubble air up through the liquor mixture contained within the aeration tank.

The fluid mixture flows from the Aeration Tank into the Settling Tank. A surface scum skimmer removes scum from the top of the fluid in the Settling Tank. A drive unit slowly stirs the Settling Tank contents and the sludge tends to fall to the bottom of the tank. Water is returned via a weir to the Final Tank. ~~At one time Chlorine (gaseous) was introduced into the fluid prior to discharge. Chlorine is no longer used in this application.~~ The liquid effluent is discharged from the Final Tank section via a 8" line to the creek alongside the site access road.

NOTE: The Sewage Treatment Pond/Lagoon, located just west of the SDP Building, is no longer used.

The sludge tends to accumulate in the bottom of the settling tank. The drive motor drives a torque tube which rotates the tank bottom scrapers. The sludge is pushed into the Sludge Hopper. The sludge is removed from the Sludge Hopper by an air lift pump to the return sludge channel in the Aeration Tank. Some sludge/solids is occasionally removed to the Sludge Storage Tank. The majority of the sludge is reintroduced into the Aeration Tank to mix with the incoming raw sewage.

Air is supplied to the Equalization Tank diffusers from Blower #3. Either Blower #1 or #2 supplies air for the Aeration Tank diffusers and to the air lift pumps. The air blowers have control selector switches on the SDP Bldg Motor Control Center (MCC). The blowers are all powered from the MCC and operated by the local MCC selector switches.

3.4 SDP Operation

3.4.1 Activated Sludge Process

This basic process uses the treatment of sewage by aerobic bacterial action induced by the mixing of air in the Aeration Tank containing sewage and sludge returned for the Settling Tank. The most significant resulting action of aeration sewage and biological sludge is a buildup in the bacterial population. Provisions must be made to remove some of the sludge from the system, ~~approximately~~ 5-10%, in order to keep a proper balance of sewage, sludge, and air to achieve efficient operation. Excess sludge is removed from the system via a slide gate and is discharged to the Sludge Storage Tank. The contents are reduced and thickened by aerobic digestion/aeration before the sludge is removed.

3.4.2 Extended Aeration Process

This process uses the treatment of the sewage and the aerobic digestion of the excess solids buildup resulting from this treatment, all in the same Aeration Tank and at the same time. This process requires much longer aeration time than the other processes, normally 24 hours based on the raw sewage flow.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 7 of 15

The high volume of solids in the system relative to the pounds of treated sludge makes for a very stable operation, even with widely fluctuating loads. The raw sewage and the return sludge enter the Aeration Tank in such a way as to cause complete mixing throughout the tank volume.

3.5 Sanitary Lift Station (See Figures KNP-SDP01 & SDP05)

All soil waste drains flow through the sewer pipes to the Sanitary Lift Station located just outside of the SDP Building. The lift station receives the mixed fluid and waste products and provides the means of "lifting" the sewage from the 590' elevation to the 614' elevation and into the SDP Comminutor. The Sanitary Lift Station consists of two 50 gal Shone duplex ejector units, two air compressor package units, associated inlet and outlet piping, and valves for the two ejector pumps.

Sewage enters the lift station, flows into a junction and through two 4" inlet gate valves. Flow is down through the Shone inlet check valves and into the two receiver/ejectors. In operation, as one receiver/ejector pot is filled by the incoming sewage, the level rises until it contacts the sensor probe in the receiver. This completes the low voltage, low current circuit which is amplified by the Yeotronic Control to operate a relay. One relay contact set operates a compressor startup circuit. Another relay contact set operates another low voltage circuit to energize the transistorized timing circuit. The timing circuit maintains the circuit established by the sensor probe and the liquid for a preset adjustable time interval. Normally the desired time is approximately 35 seconds.

The Yeomans 545 rotary compressor starts and discharges 14-psig air into the Lift Station receiver/ejector. Pressure builds up in the pot, the inlet check valve is held closed, and the contents of the receiver/ejector is discharged out through the discharge check valve and discharge gate valve. After 35 seconds, the compressor stops and the air vented off through a three-way vent valve. After the pressure is vented, the ejector post fills from the fluid/waste in the sewer line. The two sanitary lift station ejector pumps have a combined capacity of 100 gal.

Sanitary Lift Station Data		
Lift Station		
Manufacturer	Yeomans Bros. Co.	
Model	Shone Duplex Ejector	
Technical Manual	K-123-6, -7	
Capacity/Lift Head in feet	50 gal each / 26'	
Installing Contractor	Aer-0-Flo Corp.	
Air Compressors (Two)		
Manufacturer	Yeomans Bros. Co.	
Model	545 Rotary	
Capacity/Discharge Press.	27 cfm/ 14 psig	
Electrical Characteristics	460 VAC, 3 phase, 60 Hz	
Motor Size/Speed	3.0 hp / 1750 rpm	
Compressor Motor Identifiers	Motor #1	Motor #2
Motor Number	1-1121	1-1122
Power Source	SDP MCC	SDP MCC

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date	03/17/03	Page 8 of 15

3.6 Comminutor & Equalization Tank (See Figure KNP-SDP01 & SDP02)

Raw sewage passes through the Sanitary Lift Station and into the Comminutor. The Comminutor machine automatically cuts coarse sewage solids into small set-table solids in the Equalization Tank. The comminutor machine utilizes the proven principle of automatic comminution beneath the surface of the sewage with a rescreening after cutting. The aerobic bacteria can readily digest the smaller solid particles.

Raw sewage flows into the Comminutor slots. Any sewage solids too large to pass through the slots are caught up by the projecting cutting teeth on the rotating shaft and carried to the fixed cutter comb where the intermeshing of the projecting teeth with the slotted comb cut, shear, and shred the solids until they are small enough to be carried through the slots by the liquid flow.

Hard and heavy coarse material such as stones, glass, and metal form a very small part of the medium reaching the comminutor machine. These materials can cause damage to the Comminutor. To minimize the possibility of damage, the machine is designed to eject these materials that then settle to the bottom of the housing. The housing should be inspected and cleaned at appropriate intervals to remove this hard grit.

Comminutor Machine Data	
Manufacturer	Chicago Pump, a Div of CLOW Corp.
Technical Manual	K-54156-1
Model	7C
Casing Material	Cast Iron
Rotation	Clockwise
Motor Manufacturer	Marathon Electric
Motor Type	Induction
Motor Speed/Horsepower	1750 rpm / 1/3 hp
Electrical Characteristics	460 VAC, 3 phase, 60 Hz
Power Source	SDP Bldg. MCC
Pump Equipment Number	143-060
Motor Number	1-1117

The Comminutor operates whenever the Sanitary Lift Station is discharging to the SDP Building. The Comminutor has a control selector switch on the MCC with three maintained positions (**HAND/OFF/AUTO**). Red (**ON**) and green (**OFF**) indicating lights on the MCC controller indicate the Comminutor status. When either lift station ejector pump is operating, the Comminutor is started up.

The Equalization Tank has dimensions of 12' x 10' 6" x 5' and has a total capacity of 4,690 gallons or 627 ft³. This tank is the reused original KNPP SDP Aeration Tank. The tank is equipped with **two** air diffuser headers located near the bottom of the tank. Air is supplied to the diffusers normally from blower ST-C (#3). Air bubbles up through the raw sewage to start the aeration process.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 9 of 15

3.7 Sewage Treatment Transfer Pumps (See Figures KNP-SDP02, SDP03 & SDP04)

Two sewage treatment transfer pumps are provided to pump the mixed liquor over to the aeration tank.

Sewage Treatment Transfer Pump Data		
Manufacturer	Penn Valley Pump Inc.	
Model	PVP 3" Double Disc	
Technical Manual	K-54156-1	
Disc Material	High grade Nitrile	
Pump Casing	Cast Iron	
Pump Data (143-058, 143-059)		
	Pump 1	Pump 2
Pump Speed	70.1/34.2 rpm	70.1 rpm
Pump Flow Capacity	16.5/6.0 gpm	15.0 gpm
Pump Type	3" double disc, positive displacement pumps that are driven at low speed through a gear reduction.	
Pump Motor Data		
	Pump Motor 1	Pump Motor 2
Pump Motor Model	R6DT100LS8/4	R60DT90S4
Motor Type	Eurodrive parallel shaft helical gearmotor SEW flange mount TEFC	
Input Speed	1730/830 rpm	1730 rpm
Output Speed	70.1/34.2 rpm	70.1 rpm
Motor Size	1.5/0.75 hp	1.5 hp
Motor Identifier	1-1118	1-1119
Power Source	SDP Bldg. MCC	SDP Bldg. MCC
Gear Ratio	24.24:1.0	24.24:1.0
Output Torque/Max Torq	1350/2120 lb/inch	1350/2120 lb/inch
Electrical Characteristics	460 VAC, 3 phase, 60 Hz	
Special Characteristics	Severe Duty, Class F insulation	

Sewage Treatment Transfer Pumps 1 and 2 are controlled by a 24 VAC float switch system in the Equalization Tank. The float switches are provided by the L.W. Allen Inc. with a start lead, a start lag, and a common stop float switch. As the Equalization Tank level increases, the common stop float switch closes, providing no action at this time. As the level continues to rise to elevation 605'-9", the start lead float switch closes, energizing Relay R-1. R-1 starts either Pump 1 or Pump 2, depending upon the position of the Transfer Pump Selector switch on the Process Control Panel (PCP).

- If Sewage Treatment Transfer Pump #1 is selected, either the high speed or low speed windings are energized depending on the Pump Speed Selector switch on the PCP.
- If Equalization Tank level continues to increase to elevation 610' 6", the start lag float switch closes, energizing Relay R-2 and latching the relay through the common stop float. R-2 energizes the remaining transfer pump.
- As Equalization Tank level decreases, the common stop float switch opens at elevation 604' 9", de-energizing Relays R-1 and R-2. This results in deenergizing both transfer pumps.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 10 of 15

An additional float switch has been installed to interlock/shutdown the Sanitary Lift Station Ejector Pumps. This float switch cuts off control power to the lift station compressors if Equalization Tank level increases to elevation 611'. The purpose of this interlock is to prevent sewage overflow onto the SDP Building floor.

Sewage Treatment Transfer Pump #1 has a four position maintained control switch (**MANUAL HIGH SPEED/MANUAL LOW SPEED/OFF/AUTO**) on the Process Control Panel. The switch allows the SDP Operator to run Pump 1 continuously in high speed or low speed. The SDP Operator can also turn the pump to **OFF**.

- When the switch is in the **AUTO** position, the pump is controlled by the tank float switches, the Pump Selector switch, and the Transfer Pump Speed Selector switch on the PCP.

Sewage Transfer Pump 2 has a standard three position control switch (**HAND/OFF/AUTO**) on the MCC controller.

Elapsed time meters (ETM) are provided for both sewage transfer pumps on the PCP. Elapsed time meters are also provided for Lift Station Ejector Pumps 1 and 2 and all three blowers. (See Figure KNP-SDP04.)

3.8 Air Blowers (See Figures KNP-SDP02, SDP03 & SDP04)

Three Roots Universal RAI Blowers are provided in the SDP for aeration and operating the air lift pumps.

- Blower #1 is identified as ST-A.
- Blower #2 is identified as ST-B,
- Blower #3 is identified as ST-C.

Normally Blower #3 is operating to supply air to the diffusers in the Equalization Tank. Either Blower #1 or #2 is normally operating to supply the air to the Aeration Tank diffusers and the airlift pumps. The Blowers 1 and 2 are alternated daily.

The Roots rotary lobe blowers are positive displacement type units, whose capacity is determined by size, operating speed, and pressure conditions. Each blower takes a suction on outside air through an intake filter and a silencer. Controls for the blowers are located on the SDP MCC. Each blower has a three position (**HAND/OFF/AUTO**) maintained selector switch.

Air Blowers Data			
Blower Manufacturer	Roots, a division of Dresser Industries		
Technical Manual	K-54156-1		
Blower Model	Universal RAI, rotary lobe, pos. displacement		
Blower Frame Size	33 U-RAI		
Blower Motor Manufacturer	U.S. Electrical Motor		
Blower Motors	#1	#2	#3
Motor Size	5 hp	5 hp	3 hp
Motor Identifier	1-1114	1-1115	1-1116
Blower Identifier	132-480	132-481	132-482
Motor Power Source	SPD MCC	SPD MCC	SPD MCC

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)		Date 03/17/03	Page 11 of 15

Each blower motor has a three position maintained control switch (**HAND/OFF/AUTO**) on the associated controller. Red (**OPERATING**) and green (**OFF**) indicating lights indicate the status of the particular blower. The control switches are on the associated controller on the SDP MCC.

Filter elements are installed on the air inlet piping immediately outside of the west side of the SDP Bldg. The filter should be cleaned when the filter pressure drop is approximately 10" water column (WC) greater than initial clean indication. The filter is 96 to 98% efficient at 10 microns, per SAE Fine Dust Test.

Blower Filter Data		
Manufacturer	Solberg Manufacturing	
Models/Air Capacity	Blower 1	F-31P-250 / 250 cfm
	Blower 2	F-31P-250 / 250 cfm
	Blower 3	F-19P-150 / 150 cfm
Type Filter Initial	Polyester Cartridge	

The blower automatically trips on an over-temperature condition. An amber alarm light is provided on the Process Control Panel (PCP) to indicate that the blower has tripped and requires a manual reset once the condition clears. (See Figure KNP-SDP04.)

3.9 Aeration Tank (See Figures KNP-SDP2 and SDP3)

The Aeration Tank is constructed of concrete. The north end of the tank is where the return sludge trough dumps. The top edge of the Aeration Tank protrudes 6" above the SDP Bldg floor, which is at the 613'-6" elevation.

Sewage Treatment Aeration Tank	
Manufacturer	Sanitaire, Trademark of Water Pollution Control Corporation
Model	Mark III
Technical Manual	K-54156-1
Sewage Treatment Capacity	20,000 gpd
Tank Volume	20,736 gallons (2772 ft ³)
Tank Dimensions	22' x 12' x 10' 6"
Material of Construction	Tank is concrete
3" Air Header Main	12 gauge SST
Number of Diffusers / Material	8 / 304 SST, D-24

3.10 Final Settling Tank, Sludge Collector Drive, & Scum Skimmer

The Final Settling Tank receives the mixed liquor flow from the Aeration Tank. The tank has an overall inside diameter of 12' and a depth of almost 10' 6". The tank is made of formed concrete with a bottom elevation of 602.59'. The floor level in the SDP Bldg. is 613' 6". Therefore, most of the settling tank is below floor level. Tank volume is 1130 ft³ or 8,453 gallons.

The efficiency of the entire SDP depends on the functioning of the tank. Maximum efficiency depends on the reduction of velocity currents to a minimum, a uniform withdrawal of the effluent over the weirs, and the withdrawal of all settled sludge from the collecting hopper.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 12 of 15

Mixed liquor from the Aeration Tank enters a large stilling well located within and concentric to the settling tank. The stilling well is a 3.0' diameter x 6.0' deep tank, located in the center of the Settling Tank. Mixed liquor flow exits the Aeration Tank at the 606' elevation and the top of the pipe extends up to the 612' elevation in the stilling well. The liquor surface level is at approximately 612' 5" elevation. The mixed liquor enters the settling compartment with an extremely low velocity, in a downward direction. The set-table solids continue in a downward direction and are concentrated in the hopper. Clarified liquid rises in the annular space surrounding the stilling well, and passes out of the tank over the weirs that have semicircular overflow ports. These semicircular overflow ports make it possible to easily adjust the weir plates to achieve uniform withdrawal with very little variation in the water surface of the Settling Tank caused by wide fluctuation of flow through the plant.

Solids and sludge tend to fall to the bottom of the Settling Tank. The sludge collector drive tube slowly rotates the sludge scraper in the bottom of the Settling Tank. The sludge in the bottom of the Settling Tank is scooped into the Sludge Hopper. Sludge that falls to the bottom of the Settling Tank is pushed by the sludge scrapers into the 12" diameter Sludge Hopper. A 3" sludge air lift pump returns the activated sludge to the Aeration Tank via the Return Sludge Trough. The settled sludge is returned continuously. Any changes in the rate of return should be made gradually. The SDP operates at the highest efficiency when the sludge is such that all of the settled material can be drawn off at a rate of approximately 25% of the average daily raw sewage flow.

Treated effluent water flows from the Settling Tank via a weir trough to the Final Tank. The Final Tank has dimensions of 12' by 3' 6" by 6' deep. The liquid mixture from the Settling Tank enters the Final Tank on the west side and must take a torturous path to the 8" effluent pipe on the tank east wall prior to discharging to the creek alongside the site access road.

A Scum Skimmer removes surface scum and sends it back to the first 1/3 tank section in the Aeration Tank. A floating Surface Skimmer rotates around the surface of the Settling Tank. The Skimmer is pulled around the Settling Tank by the Sludge Collector drive tube. The Skimmer deposits the scum in a full width scum trough. A Scum Ejector Air Lift is operated for approximately 3 minutes out of every 99 minutes to pump the scum back to the Sludge Trough and to the Aeration Tank. The Skimmer Air Lift Ejector is operated by blower air and a timer control.

A 0.5 hp weather-proof motor with double reduction gear drive operates the Sludge Collector drive. The gears drive a flexible coupling and a slow speed worm gear reducer. The collector drive rotates the torque tube that drives the Sludge Scraper in the bottom of the Settling Tank.

Sludge Collector Drive Components	
Motor Manufacturer	Perfection American Co.
Type	Double Reduction Gear
Technical Manual	K-54156-1
Electrical Characteristics	460 VAC, 3 phase, 60 Hz
Slow Speed Worm Gear Reducer	Denver Equipment Div.
Overload Indicator & Limit Switches	Denver Equipment Div.
Motor Identifier	1-1120

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date	03/17/03	Page 13 of 15

3.11 Sludge Storage Tank/Aerobic Digester (See Figures KNP-SDP02 & SDP03)

The normal process of sewage treatment by aeration builds up an excess sludge and solids that must be periodically removed from the system to maintain proper operating balance. The concrete Sludge Storage Tank provides a place for the sludge to be further broken down and removed from the process.

The Digester is 12' x 5' 6" and is 10' 6" deep. The concrete Sludge Storage Tank is equipped with an airlift, fitted with an adjustable swing pipe arrange for drawdown to 1'-6". A needle valve on the air supply line to the airlift provides control for the rate of supernatant return.

The Digester receives the waste sludge from the Return Sludge Channel. Sludge is normally returned to the head of the Aeration Tank. Sludge should be wasted to the Sludge Storage Tank for approximately 1/2 hour each day or as system demands dictate. Sludge wasting to the Sludge Storage Tank is accomplished by removing the slide gate in front of the Sludge Storage Tank opening and placing it in the opening to the Aeration Tank.

Supernatant is removed from the Digester via the Supernatant Air Lift. This is accomplished by shutting off the air to the Digester and letting the tank contents settle. As a rule of thumb, if the settling takes longer than 1 hour, it is time to remove sludge/solid waste from the Digester.

3.12 Alarms (See Figure KNP-SDP04)

The alarms associated with the SDP are located on the PCP.

- There are three amber lights for air blower overtemperature trips.
- There is an amber light for the final Clarifier overload condition. The last amber light is for the chlorine detector.

NOTE: Chlorine is no longer stored in the SDP Chlorine Room.

- A red alarm light (**Chlorine Fan Running**) indicates that the chlorine detector senses gas or the **ON/OFF** fan switch outside of the Chlorine Room door is in the **ON** position.
- An amber light below the elapsed time meters (ETM) indicates that the equalization tank float switch has interlocked the Sanitary Lift Station. This interlock occurs when equalization tank level has increased to elevation 611' and stops the lift stations from operating for about 3 or 5 minutes.

NMC KNPP System Description	Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 14 of 15

4.0 Precautions and Limitations

System Operators - The KNPP Sewage Treatment Plant (SDP) is to be operated by a member of the Plant Radiochemistry Group. Management is responsible for providing an Operator and for giving them the authority to operate the plant in a safe and efficient manner. Management is also responsible to provide adequate financial support to keep the SDP operating and maintained in a satisfactory manner.

Operation - In order to obtain top performance and efficiency from the SDP, the Operator(s):

- Must be knowledgeable concerning the characteristics of the sewage entering the SDP.
- Should use good laboratory procedures and maintain good control records of all phases of SDP operation and maintenance.
- Should keep the Radiochemistry Group supervisor(s) and plant management informed as to the need for extensive maintenance, overloaded conditions on a continuing basis, and any need for additional equipment or expansion.
- Is responsible for maintaining the facility grounds in a well-kept condition. This pertains to the SDP Building and equipment inside the building.
- Should be aware of, and comply with, State and Federal laws which govern the operation of the SDP.

WPDES Permit - The KNPP SDP must meet certain effluent limitations. The Wisconsin Pollutant Discharge Elimination System (WPDES) Permit establishes the control of pollutant discharges. The WPDES permit is designed to regulate the manner, nature, volume, and frequency for discharging from the SDP. The permit establishes specific limits or standards for discharges according to Federal and State agencies. The limits and sampling requirements are stated in the WPDES Permit and approved KNPP procedures.

Interlocks - The Sanitary Lift Station Ejector Pumps are interlocked:

- To actuate the influent and effluent composite sampler when the ejector pumps are operating.
- To prevent operation if a high level, 611' elevation, exists in the Equalization Tank. This high level indicates that the transfer pumps are not able to keep up with the incoming sewage rate.

Chlorine Pump [NO LONGER USED] - The Chlorine Pump must be running or the water solenoid valve must be energized in order to allow chlorine injection into the effluent water.

Equalization Tank Float Switch Elevations	
High level Interlock-lockout sanitary ejector pumps	611'
Start Lag Transfer Pump	610'-6"
Start Lead Transfer Pump	605'-9"
Stop Both Transfer Pumps	604'-9"
Bottom of Equalization Tank	602'-3"

NMC KNPP System Description		Sys No. 85	Rev. 1
Title Sewage Treatment Plant (SDP)	Date 03/17/03	Page 15 of 15	

5.0 References

1.0 Summary	Operation & Maintenance Manual – Sewage Treatment Plant (9/86) SDP Flow Diagram WSK-161 Sewage Treatment Technical Manual K-54156-1
2.0 Functions	Operation & Maintenance Manual – Sewage Treatment Plant (9/86) SDP Flow Diagram (WSK-161) Sewage Treatment Technical Manual K-54156-1
3.0 Design Description	Operation & Maintenance Manual – Sewage Treatment Plant (9/86) SDP Flow Diagram WSK-161 Foreign Drawings K-54103-1 through 54103-27 M-229, M-658 through M-663 Technical Manuals: K-54156-1, K-123-6 & -7, K-117-4 For complete listing of DCRs associated with System 85, see: Start\Apps\Modifications\Modifications Database\Search\Sys.26
4.0 Precaution & Limitations	Operation & Maintenance Manual-Sewage Treatment Plant (9/86)
5.0 References	Operation & Maintenance Manual – Sewage Treatment Plant (9/86) Sewage Treatment Technical Manual K-54156-1
6.0 Procedures	Refer to controlled copy of KNPP procedures.
7.0 Appendices	See attached Figures

5.1 Technical Specifications (TS)

There are no KNPP TS applicable to System 85.

6.0 Procedures

~~NOTE: Refer to controlled copy of KNPP procedures.~~

7.0 Appendices

7.1 Attached Figures

Figures	Title	KNPP DWGs
KNP-SDP01	KNPP Sewer System	M659/M662
KNP-SDP02	Sewage Treatment Plant	WSK-161/DCR-1705
KNP-SDP03	Sewage Treatment Building	K54103-8
KNP-SDP04	Process Control Panel	XK-54156-1
KNP-SDP05	Shone Duplex Ejector Lift Station	XK-123-1

~~NOTE: The "Figures" (drawings) previously associated with the System Descriptions are **not** being revised and updated at this time. Instead (obsolete) copies of these Figures have been watermarked **HISTORICAL** and temporarily attached. These Figures will be revised and replaced when resources become available.~~

ENCLOSURE F

ARCHAEOLOGICAL AND CULTURAL RESOURCES

Documents Included in this Enclosure

1. **Dominion Procedure SA-AA-106, Drilling, Digging and Cutting**
2. **Articles regarding Chief Kah-Que-Dos**
3. **Letter to S. Banker, Wisconsin SHPO, from P. Faggert, "License Renewal Application for Kewaunee Power Station Request for Information on Historical/Archaeological Resources" dated 10/31/07**
4. **Request for SHPO Comment and Consultation on a Federal Undertaking**
5. **Cheese Factories in the Town of Carlton, September 2004 compiled by Donna Urban**
6. **Background for Historical Markers – Kewaunee County Historical Society**
7. **Sandy Bay Lutheran Church (St. John Evangelical Lutheran Church) and School articles**
8. **Kewaunee School Forest brochure and Shoreline Newslines, "Forest Dedicated..."**
9. **Maps (placed aside during audit)**
10. **Photos (placed aside during audit)**

**KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.**



Dominion®

Nuclear Fleet

Administrative Procedure

Title: Drilling, Digging, and Cutting

Procedure Number
SA-AA-106

Revision Number
2

Effective Date and
Approvals On File

Revision Summary

Corrected 3.4 wording to change "...contract..." to "...concrete...".

Revised Drilling, Digging, and Cutting Scan Flowchart (Attachment 4) to update flowchart. "Develop written plan" occurs near the end of the process, not near the start of the process.

Functional Area Manager: Manager Nuclear Protection Services

TABLE OF CONTENTS

Section	Page
1.0 PURPOSE	3
2.0 SCOPE	3
3.0 INSTRUCTIONS	3
3.1 Drilling, Digging, and Cutting (DDC) General Requirements	3
3.2 Digging Safety	7
3.4 Job Site Restoration	12
3.5 Protection of Historic and Archaeological Resources	12
5.0 ADMINISTRATIVE INFORMATION.....	13
5.1 Commitments	13
5.2 Responsibilities.....	13
5.3 Definitions.....	14
5.4 References	15
ATTACHMENTS	
1 Excavation and Trench Pre-Job Checklist - 728637(Aug 2008).....	16
2 Daily Excavation and Trench Log - 728638(Aug 2008).....	18
3 Drilling, Digging, and Cutting Permit - 727701(Aug 2008).....	20
4 Drilling, Digging, and Cutting Scan Flowchart.....	21

1.0 PURPOSE

1.1 This procedure discusses the following:

- The minimum safety requirements for excavations at the Dominion nuclear plants and provides information and direction to prevent injury during work in or around any man made cut, cavity, trench, or depression in the earth's surface formed by earth removal.
- The minimum safety requirements for drilling or cutting activities into walls or floors.
- The requirements to minimize or eliminate the potential environmental impacts associated with construction activities and compliance with applicable environmental regulations.
- The protection of historic and archaeological resources in accordance with the National Historic Preservation Act during construction and excavation activities. (Examples of historic or archaeological resources could include Native American artifacts (e.g., arrowheads, pottery, pottery shards, etc.), old building foundations, evidence of an old cemetery, or burial ground, etc.).

2.0 SCOPE

This procedure applies to all personnel performing digging, drilling, and cutting work at Dominion nuclear plants.

3.0 INSTRUCTIONS

NOTE: Exceptions to any of the following requirements must be approved by supervision and Nuclear Site Safety before exception is utilized. Nuclear Site Safety has final authority over any safety concern resulting from work practices or conditions that are different than assumptions made for this procedure.

3.1 Drilling, Digging, and Cutting (DDC) General Requirements

- 3.1.1 Prior to any drilling, digging, or cutting, **COMPLETE** Attachment 3, Drilling, Digging, and Cutting Permit, as follows:

WARNING: Drilling on Class 1 block walls, containment building exterior walls, turbine and vibratory equipment foundations, or fuel pool walls is not permitted without prior Engineering approval.

Requestor

- a. **COMPLETE** blocks 1 through 6.
- b. **CONTACT** Environmental Compliance Coordinator and, if required, **OBTAIN** permits or authorizations for digging or discharging dewatering waste water from the job site.
- c. **COMPLETE** block 7 and **FORWARD** attachment to the reviewing department.

INFORMATION USE

Site Services/
Engineering

d. **REVIEW** Attachment 3 and **PERFORM** the following, as appropriate:

1. **REVIEW** drawings (if available).
2. **WALKDOWN** location.
3. **CONSULT** with station personnel familiar with the work location.
4. **CONTACT** appropriate individuals to locate or move any utilities installed by organizations other than Dominion.

NOTE: Attachment 4, Drilling, Digging, and Scanning Flowchart, is used while filling out the DDC Permit (Attachment 3) to ensure the appropriate controls are chosen.

5. **COMPLETE** blocks 8 through 12.
6. **IF** scanning is required, **THEN PERFORM** the following:
 - **COMPLETE** blocks 13 and 14, indicating if the scan is for locating electrical/mechanical or rebar/steel.
 - **CONTACT** Site Services Electrical Supervisor or Electrical Maintenance Supervisor to request a qualified individual perform the scanning.
 - **ENSURE** person scanning records results of the scanning in block 15 and signs and dates block 16.
7. **COMPLETE** blocks 17 through 22, as appropriate.

NOTE: Prudent judgement is required when not certain if all underground facilities are located. Considerations include potential hazards to safety and life, property and facility damage, and protection of historic and archaeological resources.

8. **IF** positive location of embedded or buried electrical circuits cannot be obtained, **THEN ENSURE** rubber boots and Class II rubber gloves (blocks 18 and 19) are checked "yes."
9. **IF** applicable, **THEN NOTIFY** one of the following:
 - Connecticut - 1-800-922-4455 (www.cbyd.com) (2 working days in advance)
 - Virginia - 1-800-552-7001 (www.missutilityofvirginia.com) (3 working days in advance)
 - Wisconsin - 1-800-242-8511 (www.diggershotline.com) (3 working days in advance)

10. **PERFORM ONE** of the following:

- **APPROVE** Attachment 3 by assigning a permit number, issue date, and expiration date, and signing block 23, and **RETURN** to the requestor.
- **DISAPPROVE** by writing "VOID" in block 23 and **RETURN** to the requester with an explanation of the denial.

Requestor

e. **SIGN** and **DATE** block 24 indicating that any Engineering Instructions/ Special Precautions are understood.

Supervisor

f. **SIGN** and **DATE** block 25 indicating that any Engineering Instructions/ Special Precautions are understood.

3.1.2 Prior to any digging **PERFORM** the following:

a. **PERFORM** the following to process the DDC Permit (Attachment 3) and to schedule the scanning/survey of the affected excavation area:

Requestor

1. **SUBMIT** DDC Permit to Nuclear Site Services Construction/ Engineering for review and processing.

*NSS
Construction/
Engineering*

2. **REVIEW** and **DETERMINE** the requirements for scanning, scope and identification.

3. **CONTACT** the appropriate scanning resource, and **SCHEDULE** the scan date(s).

Requestor

4. **NOTIFY** the requestor of the scheduled scan date(s).

*NSS
Construction/
Engineering*

5. **SCHEDULE** the appropriate implementation department resources for participation in scanning walk down.

*Scanning
Personnel*

6. **ENSURE** proposed excavation area is scanned and/or potholed to determine the accurate depths of underground objects and commodities.

7. **PROVIDE** a detailed drawing/report to NSS Construction/ Engineering, which includes the location, type, size, and depth of underground objects and commodities.

*NSS
Construction/
Engineering*

8. **DETERMINE** if scanning information needs to be incorporated into station drawings.

9. **DETERMINE** if a topographical survey is required to be completed for the excavation area and **INCORPORATE** into station drawings.

10. **CONDUCT** an excavation area debrief at the conclusion of the scanning activities for personnel and supervision involved in the excavation, NSS Construction/Engineering, and scanning personnel.

- b. **INDICATE** approximate location of underground facilities by surface markings or stakes. (Approximate locations shall include a strip or area of land extending at least 1.5 feet beyond all sides of the underground facilities.)
- c. **COMPLETE** Attachment 1, Excavation and Trench Pre-Job Checklist, and **OBTAIN** approval.
- d. **REFER** to SA-AA-119, Safety Signs and Barriers, and **PLACE** appropriate safety signs and barriers.
 - 1. **ENSURE** surface encumbrances that create hazards to personnel are removed, supported, or barricaded to prevent injury.
 - 2. **CONSTRUCT** barricades to warn others of the opening with special attention to after-work hour conditions and traffic (i.e., cones, flags, warning tape, or barriers).
- e. **ENSURE** the following:
 - Digging site preparation requirements are performed.
 - Required erosion and sedimentation control materials (i.e., hay bales, silt fence) are in place or available at the job site for both excavation and stockpile locations.
 - The completed Attachment 1, Excavation and Trench Pre-Job Checklist, is maintained with the work package and available at the work location.
 - Completed Attachment 3, Digging, Drilling, and Cutting Permit is available at the work location.

3.1.3 Prior to digging each work day, **ENSURE** a competent person performs the following:

NOTE: Additional inspections shall be performed after natural or man-made events (i.e., heavy rains, blasting) that may increase the potential for hazards.

*Competent
Person*

- a. **IF** employee exposure can be reasonably anticipated, **THEN INSPECT** excavations and adjacent areas for the following:
 - Possible cave-ins
 - Failures of protective systems and equipment
 - Hazardous atmospheres
 - Other hazardous conditions
- b. **IF** entry will be made, **THEN PREPARE** Attachment 2, Daily Excavation and Trench Log.

- c. Prior to personnel entering an excavation of either of the following, **TEST** for oxygen deficiency, explosive gases, and hazardous atmosphere:
 - Excavation greater than four feet in depth (treated as confined space)

WARNING: Digging near vehicular traffic and sewer or gas lines can easily accumulate fumes resulting in a hazardous atmospheric condition.

- Oxygen deficiency or other hazardous atmospheric condition exists or is reasonably expected to exist.
- d. **IF** a hazardous atmosphere condition exists, **THEN CONTACT** Nuclear Site Safety prior to proceeding.
- e. **IF** asphalt or soil will be removed from the protected area or other RCA area, **THEN OBTAIN** Health Physics approval.

Supervisor 3.1.4 **MAINTAIN** the completed Attachment 2 with the work package at the work location.

Entrants 3.1.5 Prior to entering and performing any work within a trench or excavation, **ENSURE** a competent person has inspected the trench or excavation for potential for injury from a cave-in or other hazard and signed Attachment 2.

3.2 Digging Safety

NOTE: There are many techniques and combinations of techniques that should be employed to significantly reduce the risk of impacting or damaging underground facilities. The methods in step 3.2.1 represent several recommended methods that have been utilized successfully, but should not be assumed as fail-safe or the only technique.

- Supervisor* 3.2.1 **CONSIDER** the following to significantly reduce the risk of impacting or damaging underground utilities:
- Performance of a walkdown of the proposed area and reconciling all visual clues that indicate underground facilities may be in the area. These include junction boxes and utility poles with conduits exiting from below grade and pad-mounted transformers and street light poles that receive power from an underground feed.
 - Performance of ground-penetrating radar (GPR) with antennas that have differing ranges and sensitivities. This will help to resolve varying subsurface conditions and materials.
 - Prior to caisson core boring operations, excavate down to 5 feet below grade and re-perform GPR. Most underground utilities are buried in accordance with the applicable codes between 1 and 5 feet. This fact and re-performance of the GPR provides increased confidence that the core boring operations will be event free.

- 3.2.2 **ENSURE** caution when digging, drilling, and cutting to prevent inadvertent contact with embedded or buried electrical or mechanical services.
- 3.2.3 **REFER** to DNAP-1909, Electrical Safety, and **GROUND** all digging machinery and dewatering devices (min 2/0-ground lead).
- 3.2.4 **IF** in vicinity of public vehicular traffic, **THEN ENSURE** workers wear high visibility vests.

CAUTION: Contaminated soils will have to be isolated, managed, and disposed of in accordance with regulatory requirements.

- 3.2.5 **IF** at any time soil appears to be contaminated with petroleum **OR** chemicals are encountered, **THEN PERFORM** the following:
 - a. **STOP** work.
 - b. **PLACE** work in a safe condition.
 - c. **NOTIFY** Nuclear Site Safety and Environmental Compliance Coordinator.
- 3.2.6 **WHEN** required to be in trench excavations four feet deep or more, **THEN ENSURE** a means of exit (i.e., ladders, steps, ramps or other safe means of egress) is provided within 25 feet of lateral travel of personnel location.

NOTE: Unless otherwise approved by Design Engineering, cut slopes for excavations are not steeper than 1½:1 horizontal to vertical and slopes for permanent fills are not steeper than 1½:1 horizontal to vertical.

- 3.2.7 **IF** excavation is deeper than four feet, **THEN ENSURE** the excavation is sloped, benched, or shored in accordance with OSHA requirements and acceptable engineering practices are employed to ensure safe working conditions.
- 3.2.8 **IF** ladders are used, **THEN SECURE** in place and **EXTEND** top of ladder at least three feet above grade.
- 3.2.9 **IF** entering, working in, or exiting excavations, **THEN ENSURE** cave-in protection is used.

NOTE: Use of multiple locating methods is recommended in order to obtain an accurate survey of underground components. Scanning may be waived if it is determined by Construction Supervisor that work qualifies as hand digging and digging personnel are wearing appropriate level of PPE, including electrical safety gloves.

- 3.2.10 **ENSURE** a survey of the excavation site has been performed utilizing underground structure locating devices operated by qualified personnel.

- 3.2.11 **PERFORM** the following precautions to protect personnel and equipment from exposure to falls, falling loads, and mobile equipment:
- a. **MAINTAIN** materials or equipment at least two feet from the edge of excavations, or **USE** retaining devices, or both. (Spoil (excavated soil) may need to be covered to prevent run-off of the material into storm drains, catch basins, etc.)
 - b. **USE** warning systems (i.e., mobile equipment, barricades, hand or mechanical signals, or stop logs) to alert operators of excavation edge.
 - c. **INSTALL** scaling to remove loose rock or soil, or protective barricades and other equivalent protection to protect personnel from falling rock, soil, tools, and other materials.
 - d. Unless lower levels are adequately protected from falling, rolling, or sliding material and equipment, **ENSURE** work is not performed on faces of sloped or benched excavations at levels above other personnel.

WARNING: Personnel are required to stand away from vehicles being loaded or unloaded to avoid being struck by spillage or falling materials. Operators may remain in vehicle cabs provided cabs provide adequate protection from falling loads during loading or unloading.

- e. **ENSURE** a safe distance from and under loads handled by lifting or digging equipment.
 - f. **REFER** to appropriate fall protection procedure, and if required, **USE** additional fall protection.
- 3.2.12 **ENSURE** structural ramps used for access and egress meet the following requirements:
- Personnel ramps are designed by a competent person.
 - Vehicle ramps are designed by a competent person qualified in structural design.
 - Structural members of uniform thickness are joined together to prevent displacement and supported in such a manner to prevent tipping.
 - Ramps have non-skid surfacing or cleats.
- 3.2.13 **WHEN** working in proximity to underground facilities, **THEN ENSURE** reasonable care and good work practices are performed, including, but not limited to, the following:
- Pre-construction meetings
 - Training of personnel
 - Digging methods and practices properly used, such as back-filling and shoring

- 3.2.14 In areas where it is possible that all buried electrical cables have not been located, **ENSURE** the following precautions are taken:
- Power tools such as concrete breakers, drills, and backhoes are effectively grounded with a minimum 2/0-ground lead.
 - Rubber boots and Class II rubber gloves are worn when assigned to penetrate any surface where a hazard may exist.
 - Work area is protected with suitable barriers or danger signs before penetrating any surface.
- 3.2.15 **IF** contact is made with any underground facility, **THEN PERFORM** the following:
- a. **STOP** all work until a determination is made as to any additional hazards and the controls required to mitigate those hazards are in place.
 - b. **INITIATE** a condition report or plant issue report.
 - c. Until directed by facility owner, **ENSURE** no attempt is made to tamper with or correct the damaged facility.

NOTE: Mechanical equipment is limited to removing concrete or bituminous surfaces only.

- 3.2.16 **ENSURE** digging is performed by hand when dangerous fluids or gas are likely to be exposed.
- 3.2.17 **NOTIFY** Protection Services to determine if additional security lighting is required.
- 3.2.18 **WHEN** shield systems are being moved, **THEN ENSURE** personnel are removed from excavation.
- 3.2.19 **ENSURE** digging and trenching equipment is not used for transportation of personnel.
- 3.2.20 Unless adequate protection is provided, **ENSURE** personnel do not work in excavations where water has accumulated or is accumulating.

NOTE: Discharges from dewatering activities may require state or local permits. Appropriate measures are used to protect natural surface waters from soil sediments carried from the job site by rainwater and groundwater flows.

- 3.2.21 **IF** water removal equipment is used to control or prevent water from accumulating, **THEN ENSURE** equipment and operations of the equipment is monitored by a Competent Person to ensure proper use.

- 3.2.22 **ENSURE** diversion ditches, dikes, or other suitable means are constructed to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation.
- 3.2.23 **ENSURE** an inspection by a Competent Person is performed on all excavations with respect to runoffs from heavy rains.
- 3.2.24 **INSTALL** protective systems per OSHA 29 CFR 1926.652 and **ENSURE** the following:
- Selection of protective system materials and equipment is dependent on soil analysis, expected loads, and trench parameters.
 - Materials and equipment not in good condition is tagged out and removed from service.
 - Protective systems are installed without exposing personnel to hazards of cave-ins, collapses, or from being struck by materials or equipment.
 - Members of the support system and adjacent structures are securely supported.
 - Shield systems are installed to prevent lateral movement.
 - Material is excavated to a level no greater than two feet from the bottom of a support system **AND ONLY** if the system is designed to support the calculated loads.
 - Support system removal is begun at and progresses from the bottom of the excavation.
 - Back-filling progresses together with the removal of support systems (see appropriate documents for specific backfill requirements, i.e., tornado missile protection or seismic support requirements).

3.3 Drilling and Cutting Safety

WARNING: The grounding wires ensure a low impedance ground path for high current and are necessary for reliable functioning of the drill stop. Failure to install grounding wires can lead to injury or structural damage if energized conduit is encountered, rebar is undetected before being cut by core boring bit, or if core boring bit cuts through embedded conduit.

- 3.3.1 **INSTALL** grounding wires from drill stop to core boring machine and from drill stop to ground.

NOTE: Drill stop is not required if Engineering has approved cutting through rebar. However, an increase in PPE level must be evaluated, such as Class II rubber gloves, flash protection, etc.

3.3.2 **INSTALL** drill stop as follows between drill and power supply and **TEST** drill stop by grounding bit:

- a. Using #1Q wire, **CONNECT** drill stop tool ground post to tool casing.
- b. **CONNECT** drill stop building ground post to good metal ground close to work.

3.3.3 **IF NOT** using a drill stop, **THEN EVALUATE** an increase in PPE level.

3.4 Job Site Restoration

WHEN work is complete, **THEN STABILIZE** all areas disturbed by construction activities to prevent erosion and transport of soils of environment. (This may be accomplished by surfacing with crushed stone, asphalt, or concrete or may involve landscaping and planting of permanent vegetative cover such as grass and shrubs.)

3.5 Protection of Historic and Archaeological Resources

NOTE: Examples of historic and archaeological resources would be: Native American artifacts, old building foundations, evidence of an old cemetery, etc.

3.5.1 **IF** evidence of historic or archaeological resources is discovered during job preparation or excavation, **THEN PERFORM** the following:

All Personnel

- a. **STOP** work.
- b. **PLACE** the job in a safe condition.
- c. **NOTIFY** the job supervisor.

Supervisor

- d. **NOTIFY** Director, Nuclear Safety and Licensing.

*Director,
Nuclear Safety
and Licensing*

3.5.2 **EVALUATE** the artifacts that have been discovered and **DETERMINE** appropriate course of action.

4.0 RECORDS

None

5.0 ADMINISTRATIVE INFORMATION

5.1 Commitments

None

5.2 Responsibilities

5.2.1 Requestor

Completes and forwards a permit to reviewing department in accordance with this procedure

5.2.2 Reviewing Department

- Reviews Attachment 3 in accordance with this procedure and approves or disapproves as appropriate
- Contacts state digging authority as appropriate

5.2.3 Responsible Supervisor

- Ensures drilling, digging, and cutting is performed in accordance with the requirements of the permit and this procedure
- Ensures applicable paperwork is complete, available at the work location, and forwarded to Nuclear Site Safety, as appropriate
- Ensures a competent person performs inspections and tests in accordance with this procedure
- Notifies Director, Nuclear Safety and Licensing if evidence of or actual historic or archaeological resources are discovered

5.2.4 Excavation or Trench Entrants

- Ensures a competent person has performed inspections prior to performing any work
- Performs digging, drilling, and cutting in accordance with this procedure
- Stabilizes all areas disturbed by construction activities
- Notifies job supervisor if evidence of historic or archaeological resources are discovered

5.2.5 Director Nuclear Safety and Licensing

Evaluates the historic or archaeological resources that have been discovered and determines appropriate course of action

5.3 Definitions

5.3.1 Benching (Benching System)

A method of protecting personnel from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

5.3.2 Competent Person

Per OSHA, a person who, because of training and experience, is capable of identifying (in surroundings or work conditions) existing and predictable hazards which are hazardous or dangerous to personnel, and who has authorization to take prompt corrective measures to eliminate or control hazards. A Competent Person is one who has been qualified by training and approved by management based on training and experience.

5.3.3 Demolition

The wrecking, razing, rending, moving or removing of any structure.

5.3.4 Excavation

Any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.

5.3.5 Excavator

A person, partnership, corporation or association, including a public utility or a person engaged as a contractor by a public utility or public agency, directly performing or engaged in the act of excavation, demolition or discharge of explosives.

5.3.6 Protective System

A method of protecting personnel from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

5.3.7 Ramp

Inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural materials such as steel or wood.

5.3.8 Shield/Shield System

A structure able to withstand forces imposed by a cave-in and thereby protect personnel within the structure. Shields can be permanent structures or portable and moved along as work progresses. Shields used in trenches are usually referred to as trench or trench shields.

5.3.9 Shoring (Shoring System)

A structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

5.3.10 Support System

A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

5.3.11 Trench

A narrow (in relation to its length) excavation made below the surface of the ground. In general the depth is greater than the width, but the width measured at the bottom does not exceed 15 feet.

5.3.12 Underground Facilities

Any wire, cable, pipe, vault, storage tank, transformer, or other similar property or equipment owned by public utilities for furnishing electric, gas, telephone, telegraph, communications and pipeline (whether for hire or not), sewage (including storm sewers, sanitary sewers and drainage systems, or parts thereof), water, community television antenna, steam, traffic signal, fire signal or similar service, regardless of whether such property or equipment is located on land owned by a person or public agency or whether it is located within an easement or right of way, but excluding such property or equipment owned by the owner of a private residence for utility service solely for such residence.

5.4 References**5.4.1 OSHA Requirement 29 CFR 1926 Subpart P - Excavations (1926.650 - 1926.652)**

- 1926.650 - Scope, Application, And Definitions Applicable to this Subpart
- 1926.651 - Specific Excavation Requirements
- 1926.652 - Requirements For Protective System

5.4.2 DNAP-1909, Electrical Safety**5.4.3 SA-AA-119, Safety Signs and Barriers**



Excavation and Trench Pre-Job Checklist

SA-AA-106-Attachment 1

Page 1 of 2

Work Order Number	Revision	Date
Work Activity Description		
Anticipated Dimensions of Excavation (Feet) Depth: Length: Width:	Notification Request Number	
Excavation Notice (Date Received)	Excavation Notice (Date Expires)	
Excavation Purpose <input type="checkbox"/> Drainage <input type="checkbox"/> Sewer <input type="checkbox"/> Gas <input type="checkbox"/> Water <input type="checkbox"/> Electrical <input type="checkbox"/> Foundation <input type="checkbox"/> Other (Describe):		
Visual Soil Test Results	Manual Soil Test Results	
Type of Soil	Strength of Soil	
Surface Encumbrances (Describe)		
Potential Historical/Archaeological Resources (Describe)		
Protective Systems <input type="checkbox"/> Trench Shield (Box) <input type="checkbox"/> Wood Shoring <input type="checkbox"/> Sloping <input type="checkbox"/> Benching <input type="checkbox"/> Other (Describe):		
Water Conditions <input type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Submerged <input type="checkbox"/> Surface Water		

NOTE: If any items are checked "No," contact Nuclear Site Safety.

	Yes	No	N/A
Protective Systems			
Material and equipment inspected and in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Members of Support System and adjacent structures securely supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shield System installed to prevent lateral movement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Means of Access and Egress			
Lateral travel distance does not exceed 25 feet (if excavation 4 feet or deeper)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ladders, when used, extend 3 feet above the edge of the trench and are secured	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel ramps designed by a Competent Person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment ramps designed by a Competent Person qualified in structural design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ramp surface non-skid or cleats installed to prevent slippage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ramp structure members:			
Constructed of materials of uniform thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Securely cleated together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supported to prevent tipping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Excavation and Trench Pre-Job Checklist

NOTE: If any items are checked "No," contact Nuclear Site Safety.

General Excavation Site Requirements	Yes	No	N/A
Excavation machinery electrically grounded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety signs and barriers installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Approximate location of Underground Facilities marked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavation work area identified by (check appropriate): <input type="checkbox"/> Area marked <input type="checkbox"/> Detailed plan maps <input type="checkbox"/> Pre-construction meeting with affected utilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Surface encumbrances supported, removed, or barricaded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel protected from falling material (describe):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soils, materials, and equipment set back a minimum of 2 feet from excavation edge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warning system established and utilized when mobile equipment is operating near the edge of an excavation (describe):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walkways and bridges, if used, equipped with guardrails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High visibility vests worn by personnel exposed to public vehicular traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel advised of the following work safety expectations: Working or walking under suspended loads prohibited Required to stand away from vehicles being loaded or unloaded Work prohibited on faces of sloped or benched excavations above other personnel Prohibited from remaining in trenches during Shield System movement	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Personnel protected from cave-ins while entering, working in, or exiting excavation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security notified for possible additional lighting requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wet Conditions			
Precautions taken to protect personnel from accumulation of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surface water controlled or diverted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water removal equipment monitored by a Competent Person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: If any items are checked "Yes," contact Nuclear Site Safety.

Hazardous Atmosphere			
Atmosphere testing done. Required when (check below, as applicable): <input type="checkbox"/> Excavation exceeds 4 feet deep <input type="checkbox"/> Oxygen deficiency or hazardous atmosphere exists or reasonably expected (e.g., nearby vehicular traffic, sewer lines, or gas lines)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

Competent Person (Print name)	Signature	Date
-------------------------------	-----------	------



Daily Excavation and Trench Log

SA-AA-106-Attachment 2 Page 1 of 2

Excavations, adjacent areas, and protective systems are required to be inspected by a competent person daily, prior to the start of work.

Work Activity Description		Revision	Date
Excavation Notice Expiration Date		Date of Last Inspection	
Excavation Size (Feet) Depth		Length	Width
Visual Soil Test Results			
Manual Soil Test Results			
Type of Soil			
Strength of Soil			
Surface Encumbrances (Describe)			
Historical/Archaeological Resources Encountered			
Protective Systems <input type="checkbox"/> Trench Shield (Box) <input type="checkbox"/> Wood Shoring <input type="checkbox"/> Sloping <input type="checkbox"/> Benching <input type="checkbox"/> Other (Describe):			
Water Conditions <input type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Submerged <input type="checkbox"/> Surface Water			
Weather Conditions			
Comments/Notes			

NOTE: If any items are checked "No," contact Nuclear Site Safety.

	Yes	No	N/A
Protective Systems			
Material and equipment inspected and in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Members of Support System and adjacent structures securely supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shield System installed to prevent lateral movement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wet Conditions			
Precautions taken to protect personnel from accumulation of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surface water controlled or diverted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water removal equipment monitored by a Competent Person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental contacted prior to pumping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspection made after each rainstorm by a competent person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Daily Excavation and Trench Log

SA-AA-106-Attachment 2

Page 2 of 2

NOTE: If any items are checked "No," contact Nuclear Site Safety.

General Excavation Site Requirements	Yes	No	N/A
Excavation machinery electrically grounded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety signs and barriers installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Approximate location of Underground Facilities marked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavation work area identified by (check appropriate):			
<input type="checkbox"/> Area marked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Detailed plan maps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Pre-construction meeting with affected utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surface encumbrances supported, removed, or barricaded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel protected from falling material (describe):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soils, materials, and equipment set back a minimum of 2 feet from excavation edge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warning system established and utilized when mobile equipment is operating near the edge of an excavation (describe):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walkways and bridges, if used, equipped with guardrails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High visibility vests worn by personnel exposed to public vehicular traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel protected from cave-ins while entering, working in, or exiting excavation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exposed or adjacent utilities protected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security notified for possible additional lighting requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Means of Access and Egress			
Lateral travel distance does not exceed 25 feet (if excavation 4 feet or deeper)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ladders, when used, extend 3 feet above the edge of the trench and are secured	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personnel ramps designed by a Competent Person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment ramps designed by a Competent Person qualified in structural design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ramp surface non-skid or cleats installed to prevent slippage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ramp structure members:			
Constructed of materials of uniform thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Securely cleated together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supported to prevent tipping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: If any items are checked "Yes," contact Nuclear Site Safety.

Hazardous Atmosphere			
Atmosphere testing done. Required when (check below, as applicable):			
<input type="checkbox"/> Excavation exceeds 4 feet deep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Oxygen deficiency or hazardous atmosphere exists or reasonably expected (e.g., nearby vehicular traffic, sewer lines, or gas lines)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Competent Person (Print name)	Signature	Date
-------------------------------	-----------	------



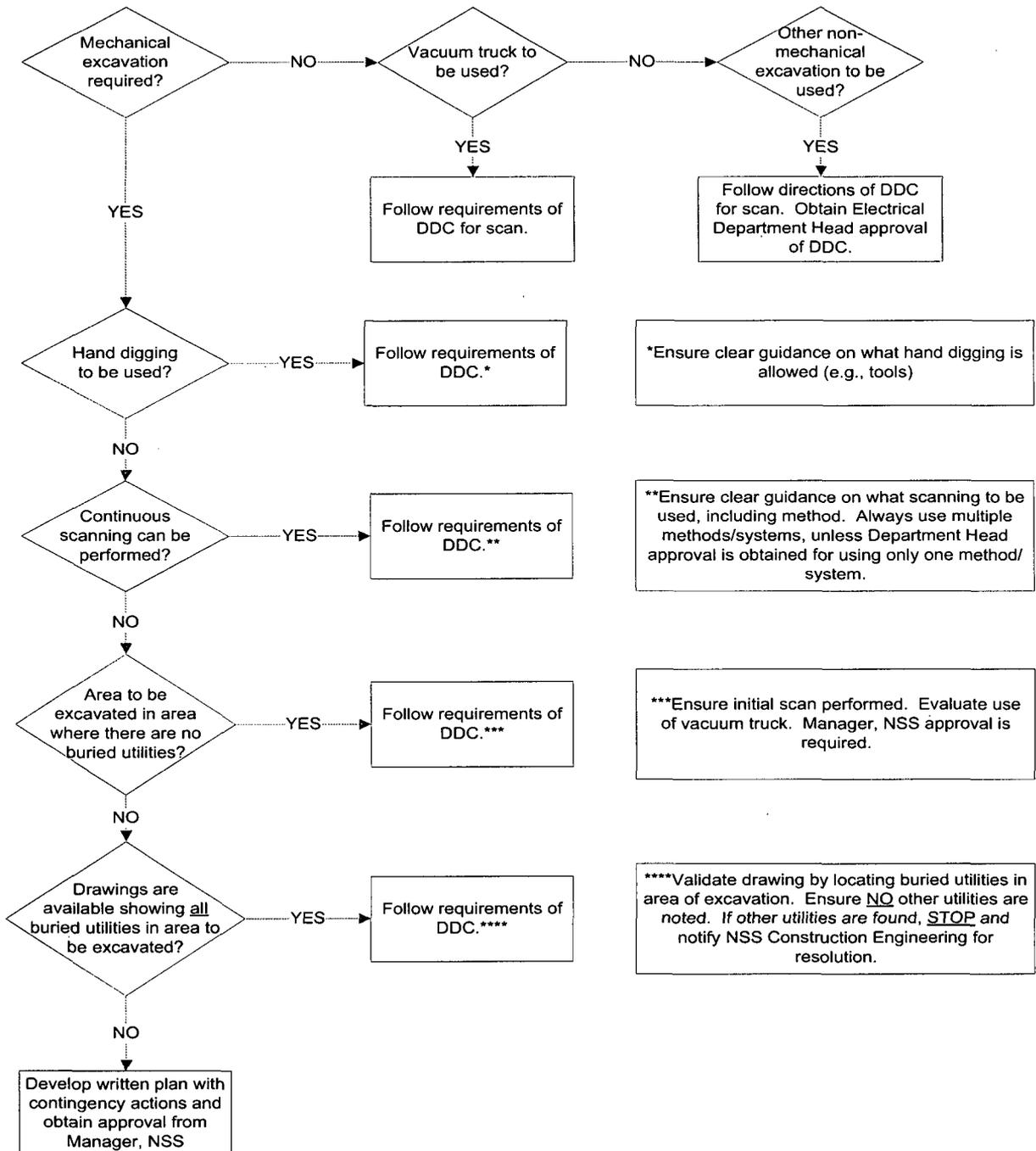
Drilling, Digging, Cutting Permit

1. Requestor Name (Please Print)		2. Date Requested	3. Date Required
4. Design Change Package/Work Order Number			
5. Purpose of Request (Provide a complete description of work and reason for need.)			
6. Location of Proposed Work (Provide a complete and accurate description including unique identification number if applicable, drawing number, dimensions, elevation, etc.; provide sketch.)			
7. Environmental Compliance Coordinator Contacted			
Name:		Date:	Special environmental precautions? <input type="checkbox"/> Yes <input type="checkbox"/> No
8. Missile protection/seismic concern?		<input type="checkbox"/> Yes <input type="checkbox"/> No	10. Verify structural thickness? <input type="checkbox"/> Yes <input type="checkbox"/> No
9. Buried/embedded electrical conduits or duct banks in vicinity?		<input type="checkbox"/> Yes <input type="checkbox"/> No	11. Verify opposite side of wall/ceiling? <input type="checkbox"/> Yes <input type="checkbox"/> No
12. Buried/embedded piping, fire lines, or rebar/steel in vicinity? <input type="checkbox"/> Yes <input type="checkbox"/> No			
13. Scanning Required?			14. Suggested Scanning Depth
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Electrical/Mechanical <input type="checkbox"/> Rebar/Steel			
15. Scanning Results:			16. Scanning Complete (Signature)
			Date
Engineering Instructions/Special Precautions			
17. Use of electrical drill stop required?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
18. Use of Class #2 rubber gloves required?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
19. Use of rubber boots required?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
20. Use of grounding equipment for drills required?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
21. Other Engineering Instructions/Special Precautions			
CBYD (CT) 1-800-922-4455, MISS UTILITY (VA) 1-800-552-7001, OR DIGGERS HOTLINE (WI) 1-800-242-8511 MUST BE NOTIFIED PRIOR TO ANY DIGGING ON SITE			
22. Reviewing Department Signature if Notification is Required (N/A if not required)			
Request Ticket Number:			
Note: 1. Notify Health Physics prior to removing waste material from the Protected Area. 2. Any contact with cable, conduit, water line, fire line, sewer line, oil line, steam line, drain line, etc., shall be reported immediately to the cognizant supervisor and Nuclear Site Safety.			
23. Approved by (Signature-Nuclear Site Services Engineering or Projects)			Date:
24. I have read and understand the Special Precautions (Requestor Signature)			Date:
Permit Number	Issue Date	Expiration Date:	
25. I have read and understand the Special Precautions (Supervisor Signature)			Date:

ATTACHMENT 4

(Page 1 of 1)

Drilling, Digging, and Cutting Scan Flowchart



From

Kewaunee Enterprise

May 26, 1922

F902K4

HI

2

NATIVE INDIAN HERE TO VISIT BIRTHPLACE

Simon Kahquados, Grandson of Chief Keetoos, Arrives Wednesday

Will Be Guest of Kewaunee County Historical Society

Simon Kahquados, a full-blooded Pottawatomie Indian, the grand-son of Chief Keetoos, who with his tribe inhabited the Town of Carlton some seventy years ago, arrived here Wednesday evening to be the guest of the Kewaunee County Historical Society and Atty. Geo. W. Wing, its president.

Kahquados was born in the Town of Carlton 71 years ago, in what was then known as Black Earth, "the Indian planting grounds." He left here as a boy many years ago and now resides at Wabeno, Oconto County. He speaks English quite fluently and

there is nothing of the old-time Indian about him except his color and features. Kahquados was taken to Carlton yesterday by several members of the Historical Society to visit the place of his birth and if possible to locate the grave of Red Thunder, one of the noted chiefs of the Pottawatomie tribe. Kahquados has visited Washington, D. C. a number of times to plead the cause of the Redmen, and has addressed the committee on Indian Affairs on those visits. He was one of the speakers at Chicago last summer when a celebration took place there in honor of the American Indian and delivered an address.

This has been his first visit here since he left. His arrival caused quite a stir on the depot platform, and a kind of informal reception was tendered him by newspaper men and trainmen, depot employees and newspaper carriers.

It has been suggested that Kahquados and Mayor Karsten pose for a picture, and that the Indian might be invited to speak at some function to be arranged in his honor as one of the county's first citizens.

June 10, 1922

Monument Will Mark Historical Pottawottamie Indian Village

Historical Society Now Making Arrangements For Fitting Ceremony

The Kewaunee County Historical Society is taking active steps toward making perpetual the memory of the ancient Pottawottamie village of Mah-kah-da-we-kah-mick (Black Earth) and the grave of the famous old war chief of that tribe, War Thunder, whose grave was located last week on the Fencil farm in Carlton by Kah-que-dos, chief of the Wisconsin Pottawottamies and a grandson of Ke-toose, at one time chief of the tribe in Kewaunee.

The historical society has decided upon a bronze tablet giving the name and history of the Indian village and story of War Thunder to be erected upon the site of the grave of the chief in Carlton. A diagram of the proposed tablet is now in the hands of a firm in Minneapolis who will submit figures for the consideration of the society.

It is the plan of the society to erect this monument to the tribe sometime

in the early fall and to have Kah-que-dos and a number of his band, many of whom were born at Black Earth, present to take part in the ceremony.

The Indian village of Black Earth existed in the town of Carlton on the Mishicot river for a period of two hundred years and it was only in the late sixties that the Indians, through failure to meet their taxes, were driven from the village. Many residents of the county remember the village and there are a number of Indians who were born there still living in the state.

The erecting of the monument will be made a matter of great interest in Kewaunee county and the public will be invited to take part in the ceremonies.

203
300
3
Kewaunee Enterprise

Aug. 2, 1929

Address of Venerable Indian Chief Thrills Large Audience

Tells of Early Indian History of Kewaunee County in Splendid Talk

Chief Simon Kah-que-dos, leader of the Pottowatomie Indian tribe which, at one time roamed and dwelled within the confines of Kewaunee County but who are now located on their reservation at Blackwell, in Forest County, returned last Sunday to the scenes of his youthful days with a party of his people and provided some unusual and very unique entertainment at the Z. C. B. J. Picnic which was held at the Footbridge Park in West Kewaunee. The aged chief, now in his 79 year, spoke what might be termed as his farewell address to the people of Kewaunee County, many of whom were privileged to meet him personally on the occasion of visits here in past years. Members of his party, who accompanied him here, executed a number of tribal dances for the entertainment of the many visitors at the picnic.

Attired in a colorful regalia which signified his leadership among his own people, the venerable Indian chief presented a striking appearance when he was introduced in a few well-chosen words by County Clerk Jos. G. Lazansky. Before arising to acknowledge the introduction he stroked his long gray hair, bent his head in solemn meditation and then came forward slowly to greet his audience. It was several moments before he began his address, and when he did it was to relate in a slow, carefully chosen manner the history of his people.

A majestic figure, the aged Indian ruler at once commanded the attention of his audience, and displaying with every movement and gesture a grace and bearing that caught the fancy of his listeners he held them spell-bound during his entire talk.

He told of his own life and of the trials and the tribulations that members of his tribe had experienced. He was born on the 30th day of May, 1852 at Black Earth, an Indian settlement in what is now the town of Carlton, and he spent his boyhood roaming through the wilds of Kewaunee and adjacent counties, then unorganized



CHIEF SIMON KAH-QUE-DOS

His father was a son of the great Katoose, chief of the entire Pottowatomie tribe which occupied the peninsula extending from Washington (Pottowatomie) Island, southward through Door County, Kewaunee County, Manitowoc County and a part of Sheboygan County.

He related in vivid manner the changes that came with the advent of the white man. When pioneer settlers came and acquired homesteads that gradually usurped the domain of the Red Man, he became more and more confined to lesser limits in his wanderings and finally the Pottowatomies were given a reservation in Carlton, at Black Earth, which was their principal village on which to locate. There, on the eighty acre tract of land which is now owned by Joseph Bauer and Edward Fencel they established their homes.

The Indians had obtained the land for a payment of \$100 from Andrew Vieau, a Frenchman, who had married a Pottowatomie maiden. Vieau had acquired the tract as a homestead from the government. But even there the Indians were not to remain long undisturbed.

When some of the members of the tribes began to make themselves a

F8096
PO

3
DUPLICATE EXPOSURE

nuisance to the settlers through petty thievery and other misdemeanors a movement was launched to compel the Pottowatomies to move from the county. One 40-acre tract of their reservation was already in the process of being sold for taxes and this was lost to them in 1848. The Indians, however, continued to hold possession of the entire tract and in 1862 the remaining forty acres was purchased by others for delinquent taxes. A few years later Sheriff Wojta Stransky, complying with the demands of the new owners, appeared at the village with a number of deputies, confronted the astonished leaders of the tribe and ordered the Indians to move. It was perhaps difficult to understand the way of the white man but the orders were obeyed, and gathering all of their worldly possessions which they could carry the sorrowful group wandered northward to Whitefish Bay, in Door County, where they remained only a few years before moving to the reservation at Blackwell, which has since been their home.

Chief Kah-que-dos was a young brave, fourteen years of age, when the visit of Sheriff Stransky was made to the Indian village and he recalls distinctly the sorrow of his people upon receiving the order to leave their hunting grounds, the land of their forefathers—land in possession of the Pottowatomies hundreds of years before the white men came. He declared the Indians received the lands with the understanding that there they could reside, plant their crops of corn, and hunt and fish along the banks of the Mishicot River, unharassed by any burden of taxation. He is firm in his belief, substantiated by tribal records, he said, that according to agreements made in those early days the property is still in lawful possession of his tribe. A few years ago a move was started to provide his tribe with a tract of land in this county so that they could return to live in the surroundings of their ancestors but the old Chief declared, "We never come back to Kewaunee County. Oh, no; we remember, and we won't ever come back. They chased us away, told us to move, and we never come back again."

"We don't want the land any more," he said in his slow, careful way and with pathos in his voice. "It's ours, but we don't want it. Many of our old people who owned it, too, are gone, and but few are left that are full-blooded Pottowatomies. The white man marries our girls. The tribe is fast dying away. But I not mad. I friend to everybody. Perhaps

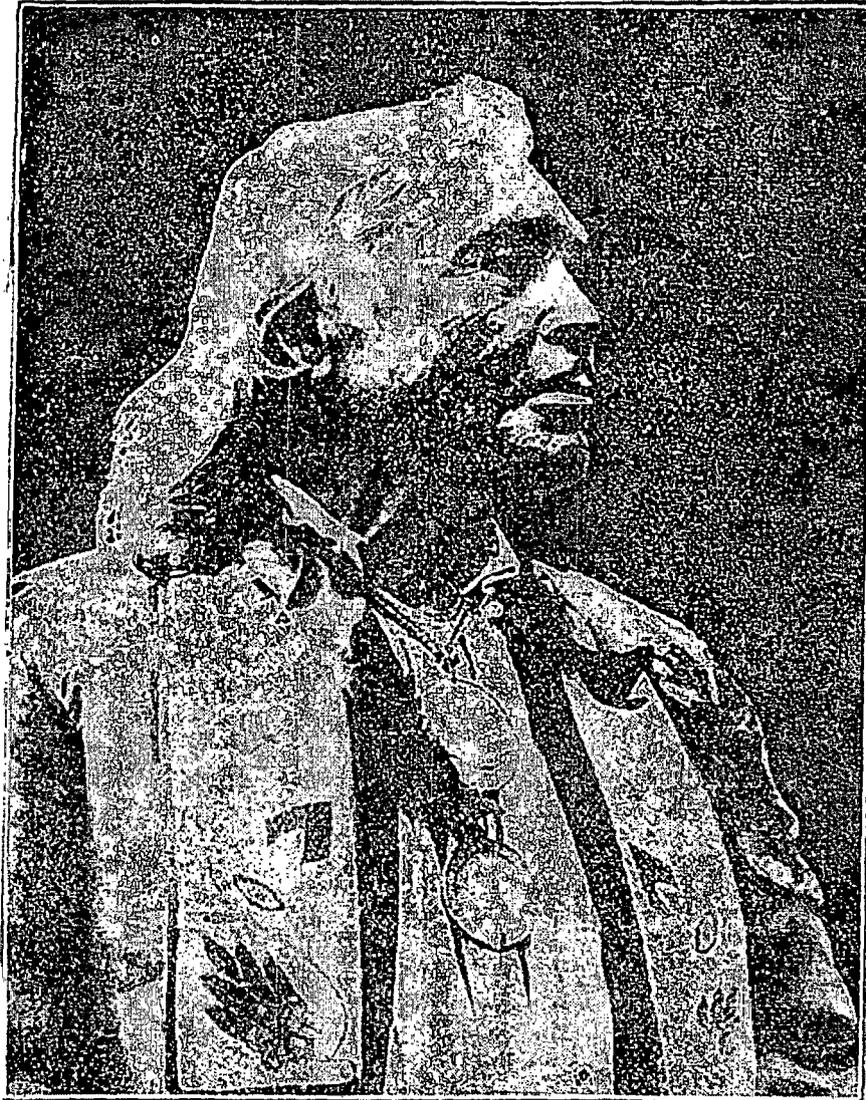
last time I ever see you, maybe won't come back here any more. We Indians at Blackwell are poor but we're happy, my friends."

Chief Kah-que-dos, historian of his tribe, possesses a retentive memory and he is perhaps the only living person who has knowledge of much of the early history of Kewaunee County. Legends handed down from generation to generation, he said, reveal that the Pottowatomies had a village at Kewaunee for six hundred years before the white man came. One of those legends, repeated often with little variation, is that concerning a memorable Indian battle which was fought on the bluff overlooking the lake and the river valley from the north. Tradition has it that the Pottowatomies had their principal village just below the bluff and when the invading Sauk Indians came over from Green Bay to attempt to chase them from their hunting grounds a bloody battle ensued in which the Pottowatomies successfully repelled the invasion.

Records at the Court House here written on pages yellowed with age bear out the story of the Indian settlement at Black Earth. The records reveal that two parcels of land, each containing 40 acres, were transferred by Andrew Vieau and his Indian wife to Chief Kau-Kee-Koos (father of Chief Kah-que-dos). Ne-Be-Nau-Co, Nau-Quette, Nau-Bun-Num-Ke-Gake, Shau-Wun-Sqaw-Pu-Ne-Shun, Way-Nind-Dun, Pa-Pau-Co-Wich, Shau-Waus-Co-Peenees, Tw-Pau-Co-Neel and Oma-Ta. These Indians, to whom the land was deeded, were the elders of the tribe. Entered also is the canonical record of the land being sold for delinquent taxes.

Chief Kah-que-dos and his party appeared at several of the popular resorts on the peninsula during the several days preceding their visit here. They were brought to their old haunts by Henry J. Baumeister, proprietor of the Kewaunee Bottling Works, the manufacturers of Marquette Club Ginger Ale, who accompanied them on the tour and their exhibition of tribal dances were given under his auspices. The aged Chief visited Kewaunee County on a number of occasions in past years and he has many friends here.

1902
EKA
2



(By courtesy Wisconsin State Historical Association)

Chief Simon O. Kahyadas

Born May 18, 1851

Died November 27, 1930

Sheboygan Daily Press
May 23, 1931

Dying Request Of Indian Chief To Be Fulfilled Memorial Day

Plans For Funeral Services Announced Today — In- dians In Regalia Will Carry Chief To Grave

The dying request of Chief Simon Kahquados, last of the Potawatomi Indian chiefs, will be carried out on Memorial day when his remains will be buried in Peninsula State park near the grave of his great-great-grandfather, the Great Chief Simon Onanigason (Onanquisse, "shimmering light.")

Plans for a public ceremonial in which Potawatomi Indians from miles in all directions, members of the Door County and State Historical societies, State Conservation commission and the public in general will participate, were announced today by C. E. Broughton of Sheboygan, appointed master of ceremonies by the Door County Historical society.

The event is being sponsored by the Door County Historical society, with the State Historical society and the State Conservation commission co-operating.

Died Nov. 27

Remains of Chief Kahquados, who died on a bed of rags at the home of William Towahl at Blackwell, Wis., Nov. 27, 1930, have been in Wabeno since his death. They will be removed on May 29 to Fish Creek at the entrance to the park, and the next morning will be taken to the burial site, north of the "totem" pole erected by the Door County Historical society in 1927. This is adjacent to the public golf course, and overlooks the waters of Green Bay. A ten-ton boulder appropriately inscribed, will mark the final resting place of the chieftain.

Burial rites will be conducted just east and south of the observation tower in the north end of the state park, beginning at 2 o'clock.

Opening the services, the Sturgeon Bay high school band will play "America." H. R. Holand, president of the Door County Historical society, will introduce Mr. Broughton, who will give a short address and act as master of ceremonies.

Indians To Carry Casket

Following the introduction, the Sturgeon Bay Lions' club quartet will sing an anthem as six Potawa-

tomi Indians in picturesque tribal regalia, carry the casket bearing the remains of Chief Kahquados from the hearse to the grave. A prayer will be given by the Rev. H. O. Strauch, Indian missionary, and the Sturgeon Bay high school band will play a selection.

A monument erected over the grave of Chief Kahquados will be unveiled by James Wampum, secondary chief of the Potawatomi tribe, with representatives of the Door County Historical society, the State Historical society, and the Wisconsin Conservation commission taking part. In behalf of these organizations, William Mauthc, chairman of the conservation commission, will place a wreath upon the grave.

Dr. Joseph Schafer, superintendent of the State Historical society, will give an address, followed by a selection by the band, an address by H. R. Holand, presentation of the monument to the conservation commission and acceptance of the monument in behalf of the commission by A. W. Icks, a member. Another number will be played by the band, and the rites will be concluded with a Potawatomi Indian ceremonial in which the Indians present in native costumes will take part.

Request Made In Will

In a will drawn by Chief Kahquados under date of July 30, 1930, he specifically requested that "I be buried at the Wisconsin State park at Ephriam, Door county, Wisconsin, according to my previous arrangements with the Door County Historical society." The text of the will, which was made public by Chairman Broughton, follows:

"Last will and testament:

"I, Simon Kahquados, residing in the town of Blackwell, Forest county, Wisconsin, being seventy-nine years of age, of sound mind and disposing memory, and mindful of the uncertainties of this life, do hereby make, publish and declare this my last will and testament, hereby revoking any former wills or codicils by me made.

"First: It is my wish that my funeral expenses be paid as soon as possible after my death.

"Second: It is my wish and I hereby direct that I be buried at the Wisconsin State Park at Ephriam, Door county, Wisconsin, according to my previous arrangements with the Door County Historical society.

"Third: I give, devise and bequeath the sum of fifty dollars to my good friend, James Towwahl of Blackwell, Wisconsin, who cared for me during my illness.

"Fourth: I give, devise and bequeath to all my grandchildren the sum of fifty dollars each.

"Fifth: I give, devise and bequeath to Nancy Williams of Marinette, Wisconsin, the sum of two hundred dollars.

"Sixth: All the rest, residue and remainder of my estate, I hereby give, devise and bequeath to Reverend H. O. Strauch, who now resides at Carter, Wisconsin, and is engaged in mission work among the Indians.

"Seventh: I hereby nominate, designate and appoint Rev. H. O. Strauch, of Carter, Wisconsin, my sole executor and trustee to carry out and give effect to this, my last will and testament.

"In witness whereof, I have hereunto set my hand and seal this 30th day of July, A. D., 1930.

"SIMON KAHQUADOS."

Albert Rusch and Harold W. Rusch of Wabeno, Wis., were the witnesses who signed the will.

Society Takes Charge

Shortly after the death of Chief Kahquados, the Door County Historical society passed a resolution in which C. E. Broughton of Sheboygan was requested to act as master of ceremonies in a burial ceremony that will attract state-wide interest. The State Conservation commission, meeting at Connor's Lake, voted to grant the request of Chief Kahquados that he be buried in the state park, and appointed Mr. Broughton to represent the commission in making arrangements for carrying out his wishes. Accordingly, Mr. Broughton engaged M. R. Reese, Wabeno undertaker, to embalm the body and to hold it until the time for the funeral. Recent examination discloses that the body is in a perfect state of preservation, although Mr. Broughton said no arrangements have been made to open the casket during the services.

The "totem" pole near which Chief Kahquados will be buried, was erected by the Door County Historical society in 1927, as a monument to the Potawatomi Indians, and it was unveiled during a ceremony August 14 of that year. Among those who participated in the unveiling ceremony was Chief Kahquados, who with thirty-two other Potawatomis were guests of honor.

He and an Indian woman sang "America" in the Indian language, after which the chief made an address and pulled the cord unveiling the monument.

"Totem" Pole Described

The pole was made from a huge log thirty-seven feet long, weighing about 7,000 pounds, and it was taken from one of the stately trees in the state park. It was carved and painted in characteristic Indian colors and thoroughly acrated and protected against cracking or decaying, after which it was anchored in four hundred cubic feet of heavily reinforced concrete.

On the pole are six historical panels representing a hunting scene in primeval days, the coming of the white man, Indians carrying their peltries in canoes to Montreal to meet a new world, the coming of the missionaries and the ancient Potawatomi community cabin, the activities of the Potawatomis in the French and Indian war, the white man driving the Potawatomis from their old possessions to unknown regions toward the setting sun. Alternating with these panels are six others showing illustrations of Potawatomi art designs as copied from their embroidered pouches and ornaments. A bear carved at the top of the pole represents the "totem" of the principal clan among the Potawatomis. Since the erection of the "totem" pole, the State Conservation commission has had a stone wall built around its base.

Born Near Mishicot

Chief Kahquados was born near Mishicot, Manitowoc county, May 18, 1851. His parents were on a visit there at the time, their home having been in Kewaunee county. He was the last of the descendants of a long line of Potawatomi chiefs. His father, who went by the name of his illustrious great-grandfather, Onaningason, died at Whitefish Bay, Door county, in 1856, at the age of 30, and Chief Simon Kahquados was reared by his grandfather, Kahquados.

The Great Chief Onaningason, from whom Chief Kahquados was descended, was the leader of the tribe in the Green Bay region when the French explorer, Robert LaSalle, was traversing the Great

Lakes. He once saved LaSalle and his companions from starvation in the woods, and is also mentioned by Father Louis Hennepin as having offered his services during a storm off Washington Island when he feared the safety of the "Griffon," LaSalle's boat.

Chief Simon Kahquados was one of eight children, having had six brothers and a sister. His wife was an Ottawa maiden, who bore him nine children, one of whom, Mrs. Keshick of Harris, Mich., survives. The old chief was a timber cruiser in the Ford and Bark river areas around Escanaba, for about forty years. He was an interesting character and pleasing talker. One of his fondest pastimes was tracing his ancestry, and he furnished the State Historical society with a great deal of data about his relatives who resided in Door, Manitowoc, Kewaunee and Sheboygan counties.

He spent his childhood in Kewaunee county, where he had the

opportunity of witnessing the invasion of the white settlers into eastern Wisconsin. During later life he made numerous visits to Washington, D. C., in behalf of his people, and participated in a number of historical dedications. Scores of names of places in Door, Manitowoc, Sheboygan and other counties were learned from him.

In 1831, the United States government made a treaty with the Menominee Indians in which the latter ceded to the government all the lands lying between Green Bay, Lake Winnebago, Milwaukee river and Lake Michigan for certain considerations. Nearly all this land had been claimed by the Potawatomis for centuries. Chief Kahquados and his people knew nothing of this transaction until many years afterward. Through the transaction Chief Kahquados and his people lost more than three million acres of land without receiving any compensation for it.

Milwaukee Sentinel
May 29, 1931

DEAD CHIEFTAIN TO LIE IN STATE BEFORE BURIAL

SHEBOYGAN, Wis., May 28—(AP)—Persons attending burial rites for Chief Simon Kahquados, last of a long line of Potawatomi Indian chiefs, will be permitted to view the remains, although his death occurred several months ago. C. E. Broughton, in charge of the services Memorial day in Peninsula state park, announced Thursday. The remains are in a perfect state of preservation, Broughton said.

The body will leave Wabeno at noon Friday, escorted by 25 Potawatomis and will be sent to Sturgeon Bay via Green Bay. The body will lie in state in Sturgeon Bay and at the state park to the time of the ceremonies.

The body of Chief Kahquados was embalmed in November, 1930, and held in storage in anticipation of ceremonies befitting his rank.

Sheboygan daily press
May 29, 1931

9
FCC
3KA
2

Historical Relics Of Chief To Be Given To The State

Valuable historical relics formerly owned by the Indian chieftain, Simon Kahquados, whose body will be buried in Peninsula State park, Door county, Saturday, have been purchased by C. E. Broughton of this city, and are to be presented to the State Historical society immediately after the funeral services.

They were bought from the Rev. H. O. Strauch of Carter, Wis., an Indian missionary who was named the sole executor of Chief Kahquados' will.

A coat that Chief Kahquados wore on his last trip to Washington in the interests of his people, the Potawatomi, was included in the historical possessions. He had made a number of trips to Washington in efforts to regain land which had been taken from the Potawatomi Indians for a pittance. The same coat was worn on visits to Madison, where he went to trace the ancestry of his people and to furnish important data to the State Historical society.

Other articles were: a gun, powder, horn, peace pipe, bow and arrow, Wampum and other beads, silver anklets, a string of coral beads, tribal headgear, feathered helmet, trousers with typical colored trimmings, and religious booklets. Chief Kahquados was a great conservationist, as well as deeply religious. He usually carried some religious book or pamphlet with him and frequently read and studied them. He took deep interest in the steps being taken to preserve wild

life and the natural beauties of the state.

The last request of Chief Kahquados, last lineal descendant of a long line of Potawatomi Indian chieftains, will be carried out in Peninsula State park tomorrow afternoon at 2 o'clock when his body will be buried near the grave of his great grandfather, the Great Chief Onaningason near the totem pole overlooking the waters of Green Bay.

The Door County Historical society has charge of the arrangements. Members of the State Conservation commission, State Historical society and others will also participate in the service, C. E. Broughton of Sheboygan acting as master of ceremonies. Twenty Potawatomi Indians in tribal costume will take part in a typical Indian burial ceremony following the one conducted by the Door county society. Six Indians in tribal regalia will carry the last remains of the chieftain from the hearse to the grave.

Many Sheboygan county people expect to drive to the park to witness the ceremonies. Those who go by automobile will find the best route to the park entrance to be Highway 141 from Sheboygan to Two Rivers, and Highway 17 from Two Rivers directly to Fish Creek, where the burial will take place. This is a fine time of the year to make such a trip considering that it is "Cherry blossom time" in Door county, and the trees are in full bloom. Fish Creek is 20 miles north of Sturgeon Bay.

A VERY INTERESTING EVENT

May 27, 1922

Chief Kah-Que-Dos Visits His Old Home in Kewaunee County, Wis USA

Kewaunee is entertaining a distinguished guest this week. The Pottawottamie chief, Simon Kah-Que-Dos grandson of "King Ketoose", once the chief of all the Pottawattamies from Manitowoc River to Death's Door, and well known to many of the early settlers of the county, arrived in the city Wednesday evening.

Although he had not visited Kewaunee in nearly fifty-five years, Kah-Que-Dos quickly pointed out the stretch of beach in front of the home of L.A. Karel and said, "many a night have I camped there with Ke-toose and his family on our wanderings up and down this shore." And at the foot of Ellis st. he said "Near that store (the old company store) I and other Pottawottamie boys used to shoot at pennies and apples with our bows and arrows, put up by the settlers." Inquiring of Joe Wilmott who ran a camp on the Scarboro, he said, "I remember Mrs. Wilmott's pies and it was she who gave me the first piece of pie I ever ate and I used to coax my mother to take me there and was willing to travel miles through the woods to get another taste." "We also got many hand-outs at the old company boarding house run by a man named Brances."

Kah-Que-Dos, whose real Indian name, or the name first given him was Kah-ke-kah-nah-sega (Red Sunrise) was born in the Pottawattamie village of Ma-kah-da-we-kah-mich-cock (Black Earth), nine miles south of Kewaunee, on May 30, 1851, the son of Garson and the grandson of the chief of the village. He lived with his parents in the village until a lad eleven years old, and was present when the white men came to Black Earth in 1862, armed with guns, and expelled Ke-toose and his band. They burned their te-pees and ruthlessly drove the Indians from a village they had inhabited for hundreds of years. The band wandered around the neighborhood for a number of years, but finally settled at Whitefish Bay, later making their home in Forest County, where some 150 of them are still living at Blackwell.

The Kewaunee County Historical Society took charge of the chief on Thursday afternoon when Judge Cowell, Col. Wing, County Clerk Lazansky and ye newspaper scribe took him down to the site of the once great Indian village where at one time the chief says fully 1000 Pottawatamies lived and where hundreds of his tribe lay buried. The exact object of the visit was to establish the site of the village, but to locate the grave of the celebrated chief War Thunder, who, during the Revolutionary War, led a band of Pottawatamies from this place to help the Americans at Detroit. also in the War of 1812 they were staunch supporters of the Americans and under this chief and his brother Wampum went to Mackinac to defend the place.

Black Earth was located upon the farms of Frank W. Fensel and Jos. Bauer, on the Mishicot River, near Bauer's Mill. The Fensel family have lived there ever since the tribe was expelled and Mr. Fensel, as a boy, well ~~xxxxxxx~~ remembered the location of their te-pees and of the burial ground. Indeed, he had in his possession a number of relics taken from the graves. Kah-que-dos pointed out the exact spot where he was born 71 yrs ago. He also located very closely the place where War Thunder was buried in 1854 and with Messrs. Bauer and Fensel located the village. Kahque-dos stated that the habitations were entirely bark te-pees and that his band raised annually large crops of corn, beans, pumpkins and squash, while the fish in the river and the game to the north of them always kept them well fed.

The village also possessed hundreds of ponies which grazed in the woods and their fleet canoes, sometimes numbering as many as two hundred, were moored at a place he called "Red Grandstone" and which was identified as the creek at Sandy Bay running into the lake.

The chief related that upon the occasion of his receiving his name, his father killed a large buck and a great banquet was prepared at Black Earth, at which time he was given the name of Kah-ke-kah-nah-sega, but his grandfather the old Ke-toose, took him in his arms and said, "Now I will make you a present; you shall have my name; you shall be called Ke-toose."

Messrs. Bauer and Fensel readily gave the society permission to erect tablets or

monuments over the grave of War Thunder and on the site of the village, and the work of placing them will be commenced at once. The chief promises to be present with members of his band upon the occasion of the dedication and the event will prove a most interesting occasion.

On Friday morning, the chief visited the court house and there presented to County Clerk Lazansky as a gift to the county a large photograph of himself and the principal men of his band, all attired in Indian costumes. The pictures are those of the chief; John War Turner, grandson of War Thunder; Billy Joe, great grandson of the chief She-boygan; James Wa Wannum, grandson of the chief Wampum or Mexico, and Odenah. The son-in-law of Kah-que-dos is Willey Mishicott, great-grandson of the head chief of the Chippewas at chief Mishicott.

A temporary board tablet was prepared by the historical society and inscribed as follows:

"The Pottawatamie village of Ma-kah-da-we-kah-nich-cock (Black Earth), located May 25, 1922, by Chief Kah-que-dos."

Signed: SIMON KAH-QUEADOS"

In the presence of - Judge Cowell, Joseph Bauer, Frank W. Fensel, Joseph G. Lazansky, Geo. D. Wing, John W. Voight, Reuben G. Voight, Geo. W. Wing.

DID YOU KNOW?

Charles Brandes, Sr. first arrived in Kewaunee in 1856, fresh from the shipwreck of the ill-fated steamer Atlantic on Lake Erie. He was one of six survivors, rescued after seven hours in the water. An immigrant from Germany in 1847, he was steward of the Atlantic at the time of her shipwreck. Upon coming to Kewaunee he took charge of the Slauson and Company boarding house on 'the point' until he built the Steamboat House in 1858.

Pamela F. Faggert
Vice President and Chief Environmental Officer

Dominion Resources Services, Inc.
5000 Dominion Boulevard, Glen Allen, Virginia 23060
Phone: 804-273-3467



Mr. Sherman Banker
Wisconsin Historical Society
816 State Street
Madison, Wisconsin 53706-1482

Subject: License Renewal Application for Kewaunee Power Station
Request for Information on Historical/Archeological Resources

Dear Mr. Banker:

By letter dated February 14, 2007, Dominion Energy Kewaunee, Inc. (DEK), a subsidiary of Dominion Resources, Inc., informed you that it is preparing an application to the U.S. Nuclear Regulatory Commission (NRC) to renew the operating license for the Kewaunee Power Station (KPS). The current operating license for the station will expire in 2013. The renewal term would be for an additional 20 years beyond the original license expiration date.

By letter from you dated February 26, 2007, Dominion was informed of a new process for addressing issues associated with Section 106 of the National Historic Preservation Act. Attached please find "Request for SHPO Comment and Consultation on a Federal Undertaking," along with a Phase I Archaeological Survey performed on the project site.

As stated in the February 14 letter discussed above, the NRC will request an informal consultation with your office at a later date. By contacting you early in the application process, we hope to identify any issues that need to be addressed or any information your office may need to expedite the NRC consultation.

Your response regarding any effects license renewal may have on historical or archeological resources would be greatly appreciated. To ensure that your written comments are included in our application filing with the NRC, we would appreciate your response to us by December, 2007. If there are any concerns that need to be addressed regarding historic or archeological resources, please let us know as soon as possible.

Please contact Mr. Richard Gallagher at telephone number (860) 447-1791, ext. 3876 if you have any questions or require any additional information.

Very truly yours,

DOMINION ENERGY KEWAUNEE, INC.

Handwritten signature of Pamela F. Faggert in black ink, written over a horizontal line.

Pamela F. Faggert

Handwritten date "10/31/07" in black ink, written over a horizontal line.

Date

Enclosure 1: Request for SHPO Comment and Consultation on a Federal Undertaking

**Enclosure 2: A Phase I Archaeological Survey at the Kewaunee Power Station in
Kewaunee County, Wisconsin, performed by AVD Archaeological
Services, Inc.**

REQUEST FOR SHPO COMMENT AND CONSULTATION ON A FEDERAL UNDERTAKING

Submit one copy with each undertaking for which our comment is requested. Please print or type. Return to: Wisconsin Historical Society, Division of Historic Preservation, Office of Preservation Planning, 816 State Street, Madison, WI 53706

Please Check All Boxes and Include All of the Following Information, as Applicable.

I. GENERAL INFORMATION

- This is a new submittal.
 This is supplemental information relating to Case #: _____, and title: _____
 This project is being undertaken pursuant to the terms and conditions of a programmatic or other interagency agreement. The title of the agreement is _____
- a. Federal Agency Jurisdiction (Agency providing funds, assistance, license, permit): U. S. Nuclear Regulatory Commission
- b. Federal Agency Contact Person: Jennifer Davis Phone: 301-415-3835
- c. Project Contact Person: Richard Gallagher Phone: 860-447-1791, ext. 3876
- d. Return Address: Millstone Power Station, Rope Ferry Road, Waterford, CT Zip Code: 06385
- e. Email Address: richard.j.gallagher@dom.com
- f. Project Name: Kewaunee Power Station License Renewal
- g. Project Street Address: Dominion Energy Kewaunee, N490 Hwy 42
- h. County: Kewaunee City: Carlton Zip Code: 54216
- i. Project Location: Township Carlton, Range T22N, R24E, E/W (circle one), Section 25, 26, 35, 36, Quarter Sections _____
- j. Project Narrative Description—Attach Information as Necessary.
Dominion Energy Kewaunee is submitting an application to the U.S. Nuclear Regulatory Commission for renewal of its operating license. The renewed license would extend the current operating license, set to expire in December, 2013, by an additional 20 years. The License Renewal process itself does not involve the excavation or disturbance of land.
- k. Area of Potential Effect (APE). Attach Copy of U.S.G.S. 7.5 Minute Topographic Quadrangle showing APE. The land owned by Dominion Energy Kewaunee is shown in Figure 2 of the attached Phase I Archaeological Survey.

II. IDENTIFICATION OF HISTORIC PROPERTIES

- Historic Properties are located within the project APE per 36 CFR 800.4. Attach supporting materials.
 Historic Properties are not located within the project APE per 36 CFR 800.4. Attach supporting materials. Please see attached Phase I Archaeological Survey.

III. FINDINGS

- No historic properties will be affected (i.e., none is present or there are historic properties present but the project will have no effect upon them). Attach necessary documentation, as described at 36 CFR 800.11. The attached Phase I Archaeological Survey found no artifacts that meet the criteria for "Historic Properties," as outlined in 36 CFR 800.4.
- The proposed undertaking will have no adverse effect on one or more historic properties located within the project APE under 36 CFR 800.5. Attach necessary documentation, as described at 36 CFR 800.11.

- The proposed undertaking will result in an adverse effect to one or more historic properties and the applicant, or other federally authorized representative, will consult with the SHPO and other consulting parties to resolve the adverse effect per 36 CFR 800.6. Attach supporting documentation as described at 36 CFR 800.11 with a proposed plan to resolve adverse effect(s).

Authorized Signature: Pamela F. Faggert Date: 10/31/07

Type or print name: Pamela F. Faggert

IV. STATE HISTORIC PRESERVATION OFFICE COMMENTS

- Agree with the finding in section III above.
 Object to the finding for reasons indicated in attached letter.
 Cannot review until information is sent as follows: _____

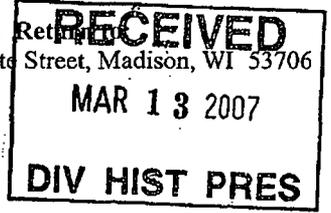
Authorized Signature: _____ Date: _____

07 (8/15/03)

HP-05-

REQUEST FOR SHPO COMMENT AND CONSULTATION ON A FEDERAL UNDERTAKING

Submit one copy with each undertaking for which our comment is requested. Please print or type. Return to:
Wisconsin Historical Society, Division of Historic Preservation, Office of Preservation Planning, 816 State Street, Madison, WI 53706
Please Check All Boxes and Include All of the Following Information, as Applicable.



I. GENERAL INFORMATION

- This is a new submittal.
- This is supplemental information relating to Case #: _____, and title: _____
- This project is being undertaken pursuant to the terms and conditions of a programmatic or other interagency agreement. The title of the agreement is _____
- a. Federal Agency Jurisdiction (Agency providing funds, assistance, license, permit): Nuclear Regulatory Commission
- b. Federal Agency Contact Person: None Phone: NA
- c. Project Contact Person: David Lohman Phone: (920) 388-8368
- d. Return Address: Dominion Energy Kewaunee, Inc. N490, Highway 42, Kewaunee WI Zip Code: 54126
- e. Email Address: david.c.lohman@dom.com
- f. Project Name: Independent Spent Fuel Storage Installation
- g. Project Street Address: N490, Highway 42
- h. County: Kewaunee City: Kewaunee Zip Code: 54216
- i. Project Location: Township Carlton, Range 24, E/W (circle one), Section 25, Quarter Sections -
- j. Project Narrative Description—Attach Information as Necessary.

The project will construct an Independent Spent Fuel Storage Installation and associated storm water detention pond on the Kewaunee Power Station Site. The project will be built on the existing site property. See attached Phase I Archeological Survey for more details.

- k. Area of Potential Effect (APE). Attach Copy of U.S.G.S. 7.5 Minute Topographic Quadrangle showing APE.
See attached Phase 1 Archeological Survey report, Map 1.

II. IDENTIFICATION OF HISTORIC PROPERTIES

- Historic Properties are located within the project APE per 36 CFR 800.4. Attach supporting materials.
 - Historic Properties are not located within the project APE per 36 CFR 800.4. Attach supporting materials.
- See attached Phase I Archeological Survey

III. FINDINGS

- No historic properties will be affected (i.e., none is present or there are historic properties present but the project will have no effect upon them). Attach necessary documentation, as described at 36 CFR 800.11.
See attached Phase I Archeological Survey.
- The proposed undertaking will have no adverse effect on one or more historic properties located within the project APE under 36 CFR 800.5. Attach necessary documentation, as described at 36 CFR 800.11.
- The proposed undertaking will result in an adverse effect to one or more historic properties and the applicant, or other federally authorized representative, will consult with the SHPO and other consulting parties to resolve the adverse effect per 36 CFR 800.6. Attach supporting documentation as described at 36 CFR 800.11 with a proposed plan to resolve adverse effect(s).

Authorized Signature: Tom Webb²

Date: 3 March 2007

Type or print name: Thomas Webb

IV. STATE HISTORIC PRESERVATION OFFICE COMMENTS

- Agree with the finding in section III above.
- Object to the finding for reasons indicated in attached letter.
- Cannot review until information is sent as follows: _____

Authorized Signature: Summer Bailey

Date: 3/22/07
HP-05-07(8/15/03)

**CHEESE FACTORIES
in
the
TOWN OF CARLTON**

**COMPILED
BY
DONNA URBAN**

September 2004

This information was gathered about 4 years ago from a variety of sources, most of them are indicated in the text.

Since most of the information was gathered in bits and pieces, it had to be combined and hopefully the pieces eventually all fit together. But this was not always the case. There often were gaps and conflicting information. I tried to come to reasonable and hopefully true conclusions.

The newspaper accounts referring to cheese factories often were brief references placed in a column called Carlton News, and usually didn't specifically name the factory.

Interviews with elderly residents of the town of Carlton were somewhat useful for more recent information. However, since the early factories dated to the last quarter of the 1800s, they were unable to provide much information about them.

There may be more information out there that might fill in some of the gaps and change some of my conclusions.

Photographs of many of the factories are available at the Kewaunee County Historical Society Research Center presently located on Steele Street in Algoma adjacent to the hotel.

Donna Urban
July 2004

SANDY BAY DAIRY ASSOCIATION

Donna Urban

LOCATION: The Sandy Bay Dairy Association Factory was located on Nuclear Road in the southern part of Section 26 a short distance west of Highway 42.

In April of 1909, the Sandy Bay Dairy Association decided to build their own factory. The newly organized association elected the following officers: Edward Alberts, president; John Martin, treasurer; and George Jorgeson, secretary. The board of directors was composed of: Charles Peterson, David Herman, John Peters, and Herman Heider.

The factory was built on the John Martins farm by Bert Paider, a carpenter. The farmers helped by hauling building materials to the factory site. The factory was a two story structure with living quarters upstairs.

By early June, the factory was finished and open for business. Equipped with all the latest equipment, it was under the management of Wenzel Kopetsky. The factory had a capacity of 11,000 pounds per day. Later that same year, a warehouse to store coal and wood for the factory was built and a heater was placed in the factory.

In 1910 Joe Kelnhofer was hired as the cheese maker. The following year, the quantity of milk being delivered to the factory made it necessary to hire an assistant. Mr. Pivonka of Tisch Mills was hired for that job. Joe Kelnhofer resigned in January 1914 after working at Sandy Bay almost 4 years. He intended to move to a farm that he had purchased in Luxemburg.

Mr. Binner was hired to replace Joe Kelnhofer. In 1917, the cheese maker was Art Johns.

At the annual meeting held in January of 1924, the following officers were elected: president, George Jergensen; secretary and treasurer, Carl Martin. Norman Johnson and Edwin Hieter were elected as directors of two year terms.

In 1923, the factory received 988,205 pounds of milk. 108,509 pounds of cheese were made. The average test was 4.05. The average price paid per hundred was \$2.269. The average yield was 10.9 pounds of cheese per hundred pounds of milk. Ed Sticka was the cheese maker.

William Welsing was also a cheese maker at the factory at some time. The last cheese maker was Arthur Mueller. The factory closed in 1940. It was later used as a residence before being torn down, probably when the nuclear plant was built in the area.

SANDY BAY PIER

Donna Urban

LOCATION: The factory at the Sandy Bay Pier was in the NE quarter of Section 25 near Lake Michigan.

John Waegli planned to erect a cheese factory at his place in Carlton in the spring of 1891 according to a report in *The Kewaunee Enterprise*. (An 1895 plat book indicates that a J. Waegli owned the property where a cheese factory was located near Lake Michigan in the northeastern corner of Section 25 at Sandy Bay.) A cheese maker from Manitowoc County had been hired.

At one time the village of Sandy Bay had a store, sawmill, lake pier, and a group of houses. An article describing the community of Sandy Bay as it was in 1891 was published in *The Kewaunee Star*, August 4, 1971. It states that Gust Clemm operated the small cheese factory there at that time. A cheese factory is indicated on the plat map in 1895, but not in 1912.

Polk's State Gazetteer and Business Directory indicates that Vogel Bros. were manufacturing cheese at Sandy Bay from 1893-1896. Then it seems that there was a frequent turnover of factory operators. On May 8, 1896, *The Kewaunee Enterprise* reported that John Sipple leased the factory at Sandy Bay and had taken charge of it. Apparently Mr. Sipple had been involved in the cheese making industry in Norman before taking over the factory at Sandy Bay since Polk's State Gazetteer and Business Directory lists John Sipple at Norman for several years prior to 1896.

The following year, April 1897, *The Enterprise* reported that the factory had been rented by Wm. Smoke for the season. New machinery was reported to have been installed in the factory over the winter and the factory reopened in April 1898 with Chas. Peterson in charge.

In March of 1899 it appears that another cheese factory was to be opened in the Sandy Bay area. The old Union Church, which had been unused for a couple of years, had been moved to the Joe Bohman place and was to be equipped with new machinery. This cheese factory was to be operated by Charles Peterson.

A lease agreement is in the courthouse. Charles Peterson leased a parcel of land 50 feet x 50 feet in the northwest corner of the northwest quarter of section 24 from Joseph and Barbara Bohman. The rent was to be \$2 per year, paid in advance. (This land is across the road from where the Kanera factory was later located.)

The next year the Kewaunee paper reported that Mr. Quit would be in charge of the factory at Sandy Bay and Mr. Peterson would run the factory located near the old Eaton farm. (The 1895 plat map indicates that an H. Eaton owned 40 acres adjacent to the Joseph Bohman property. The current plat book indicates that the Eaton property is now owned by Ronald Wisnicky and the Bohman property by Fred Ihlenfeldt.)

In early May of 1901, *The Enterprise* reported that the Sandy Bay cheese factory had been destroyed by fire. The loss was estimated at several thousand dollars. The cheese was saved, but about 5,000 cheese boxes were destroyed in the fire. The factory was to be rebuilt immediately.

The next year H. Bulgrin was employed as the cheese maker at Sandy Bay.

Here the records of these two plants seem to end. Later references to a cheese factory seem to refer to the cheese factory that operated to the southwest of these factories.

According to Dayton Ihlenfeldt, a cheese factory was located on the Clarksen farm in the late 1800s at the northeast corner of the junction of what is now Highway 42 and Sand Bay Road. Mr. Ihlenfeldt's father, William Ihlenfeldt, had worked at that factory at one time, but the building was gone when Mr. Ihlenfeldt was a child, only some equipment remained.

Background

for

Historical Markers

Kewaunee County Historical Society

This information does not include in-depth research, but provides a general background about the historical markers erected by the Kewaunee County Historical Society.

*Donna Urban
March 2002*

thousands of dollars, were destroyed. A remarkable result of the fire was the fact that the firm's bridge pier, extending several hundred feet into the lake, was entirely consumed.

"It is needless to say that this calamity was a great misfortune to the people of Carlton. The loss of the pier took away their means of shipping products of their forests. But the firm of Dean & Borland immediately began the rebuilding of the place, although it never again attained the importance it had prior to the great fire."¹³

The pier, general store and sawmill were later purchased by the firm of Taylor and Bach & Co. In March of 1871, the *Enterprise* reported that the pier had received considerable ice damage. However, the next year, it was reported that the company had had a profitable winter due to the very large amount of bark and ties they had received.

Sandy Bay Pier

"At one time, Sandy Bay boasted of a sawmill (the second such mill constructed in Kewaunee County), a general store, cheese factory, post office and a hotel."¹⁴

John McNally, who moved to Sandy Bay in 1851, began to build a dam on Fisher Creek. Here he erected a sawmill in 1852, the second only to Volk's mill near Kewaunee.

Guido Pfister, began shipping lumber to Milwaukee and bark to his new tanning company from Sandy Bay in the 1850s with John Waegli overseeing the operation at Sandy Bay.

In early February 1872, the *Kewaunee Enterprise* reported that 700 cords of bark had been received at Pfister's pier in the preceding three weeks.

A month later, it was reported that Hugo Reuss, who managed "Vogel's establishment at Two Creeks" had bought the pier property at Sandy Bay.

A large amount of forest products had been received at the Sandy Bay pier that winter.

That spring, a new firm, Pfister, Vogel and Bozart, had been formed. Pfister and Vogel had been in a partnership previously, but the partnership had been dissolved a few years before.

The bridge part of their pier was being rebuilt under the supervision of John Waegli that summer.

However, by 1891, the settlement had all but disappeared. D.B. Harrington wrote, "The other week I rode through southern Carlton Township and visited Sandy Bay. Once a thriving center of commerce, the pier has rotted away nor is there any store or saloon and the Blue Ribbon Hall is deserted. John Waegli is postmaster while Gust Clemm operates the small cheese factory."¹⁵

Barrette's Dock

Barrette's dock was built by Charles Scofield of Sturgeon Bay in the early 1870s. "Scofield and Co., at Red River on the shore of Green Bay, have an important establishment. Here the company have made expensive improvements to constitute a safe harbor on that exposed shore for the safe keeping of logs. A breakwater enclosing

¹³ George Wing, "Local Happenings in 1864," Echoes from the Past.

¹⁴ George A. Richard Jr., "Sandy Bay," *Kewaunee Star*, August 4, 1971.

¹⁵ *Ibid.*

Background for Historical Markers KEWAUNEE COUNTY PIERS

The marker is located at the wayside on Highway 42 south of Algoma.

BLACK EARTH

A common planting ground for the Pottawottami Indians of what later became Kewaunee, Door and Manitowoc Counties was located in the southern part of the town of Carlton. Known as Ma-kah-da-we-kah-mich-(cock) (Black Earth) comprised about 200 acres, not all in one tract, of some of the best farmland in the area.

The Pottawottamis, numbering as many as 1000 at one time, would come there each spring to plant their crops among the stumps on the land where the trees had been removed and burned. Their main crops of corn, beans, pumpkins and squash were cultivated with wooden tools. Their diet was supplemented with the abundant fish and game in the area.

While they were at Black Earth, hundreds of horses grazed nearby, and as many as 200 birch bark canoes were kept at the mouth of the creek that flowed into Lake Michigan.

In the fall after the crops had been harvested, they were placed in baskets and carried by horses to the Pottawottamis' winter villages.

Black Earth is the site of an Indian burial ground. Here is the grave of War Thunder, a war chief who led a group of Pottawottamis from northeastern Wisconsin to fight the British at Fort Detroit during the Revolutionary War and to Mackinac during the War of 1812.

But a centuries' old lifestyle was coming to an end. By the 1840s the Pottawottamis were becoming concerned that they would lose the land that they had been cultivating for hundreds of years to incoming settlers.

They decided that the best way to ensure their continued use of their planting ground was to obtain a title to the land as the new settlers did. They enlisted the help of Andrew Vieau, son of Jacques Vieau, the man who had operated the "jackknife" trading post at Kewaunee, to help them acquire the land from the government. This was accomplished, but, unaware that they had to pay property taxes, or not seeing the need to do so, the Pottawottamis lost their rich planting grounds to settlers who coveted this land when they were forced to leave in 1862 for non-payment of taxes.

Driven from their land, the Pottawottamis left the county, eventually settling in northern Wisconsin near the Wisconsin River.

BIBLIOGRAPHY

- "Historians Travel Back Into Time," *Algoma Record-Herald*, spring, 1973.
 "Indians Cleared, Cultivated Carlton Land for Many Years," *Algoma Record-Herald*,
 September 8, 1966.
 Kewaunee County Historical Society, newsletter, April 1995.
 Kewaunee County Historical Society, newsletter, October 1996, taken from the
Kewaunee Enterprise, August 2, 1929.
 Kewaunee County Historical Society, text of historical marker, "Black Earth Indian
 Village," 1995.
 Wing, George, "Tale from Long Ago," *Algoma Record-Herald*, September 11, 1969.

Background for Historical Markers

BLACK EARTH

The marker is located south of Norman in the town of Carlton.

SANDY BAY LUTHERAN CHURCH (St. John Evangelical Lutheran Church)

In 1882, an association was formed in the Town of Carlton which formed the Congregation of the Evangelical Lutheran Church of Sandy Bay. The official name was the Deutsche Evangelische Lutherische St. Johannis-Gemeinde. The location was on State Highway 42, about seven miles south of Kewaunee. It appears that the church was built in 1879 on part of the land owned by the Sandy Bay Cemetery Association. There are church records dating from 1880. The church was a white frame building with no steeple which stood across the road from the Sandy Bay School. There was no electricity or plumbing in the building; heat was provided by a wood stove. There was also a horse barn located on the property. The cemetery still occupies the site, overlooking Lake Michigan about one mile to the east.

Some of the ministers who served the congregation were Rev. Pieper, Rev. Bergholtz, Rev. A. Schlei, Rev. Baganz, Rev. W. A. Kuether, Rev. W. Haase, Rev. Roland Ehkle, and Rev. Frederic Zarling. Services were held every two weeks, on Sunday afternoon. The church was a mission of Immanuel at Kewaunee or St. John Lutheran Church in Two Rivers. When the church was closed in 1951, Pastor Zarling took the church records to St. John's in Two Rivers where they are currently on file.

The members of the congregation were primarily of German descent. Some common names of those who were baptized were Clarksen, Brandt, Dietrich, Foelschow, Glandt, Golembiewsky, Heiter, Helbich, Hermann, Ihlenfeldt, Kiefer, Klarksen, Klocksien, Kloxiem, Krueger, Kubel, Kudick, Lehmann, Luebke, Mafsmann, Mafsman, Martens, Matthiesen, Mefsmann, Messmann, Ness, Papiham, Paral, Peters, Puls, Rietzow, Schroeder, Schumacher, Struck, Waegli, and Zirzow.

CH 041



A 1994 photo of the site of Sandy Bay Lutheran Church and cemetery

CK 018



1970 photo of Sandy Bay Lutheran Church

03310-045



LUTHERAN CHURCH

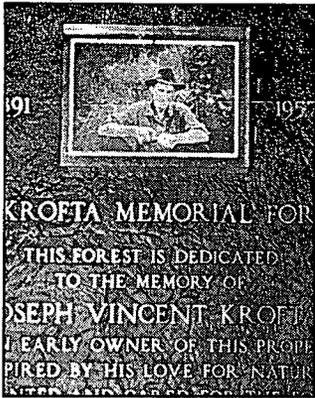
SANDY BAY SCHOOL

Driving north of Two Creeks on Hwy. 42



Above: The Sandy Bay School in the 1890's before an addition, including a belfry had been added. The school was still in use when bought in the 1960's by the Kewaunee Nuclear Plant and used for storage. The interior view, taken a bit later, shows an interior typical of schools at the turn of the century--double desks where punishment might consist of being made to sit with someone of the opposite sex--the long stove pipe helping to radiate heat in a none-too-warm room--and kerosene lamps. (Some schools did not boast of these and for an evening performance lamps and lanterns were brought from home.)





Joe Krofta
Born 4/5/1891
Died 1/26/1957

The Kewaunee School Forest is dedicated to the memory of Joe Krofta, who planted many of

the trees you see today. Joe's father purchased the land in 1887, a few years before Joe was born. As a youth, Joe began planting many varieties of pine, spruce and cedar on the family's 10 acre farm. He bought the farm and his beloved trees from his father in 1914.

He would not let any cattle in the woods and kept all wild currant and gooseberry bushes out. If he didn't, the bushes would become a home to the pine bud beetle, an insect that would kill his trees.

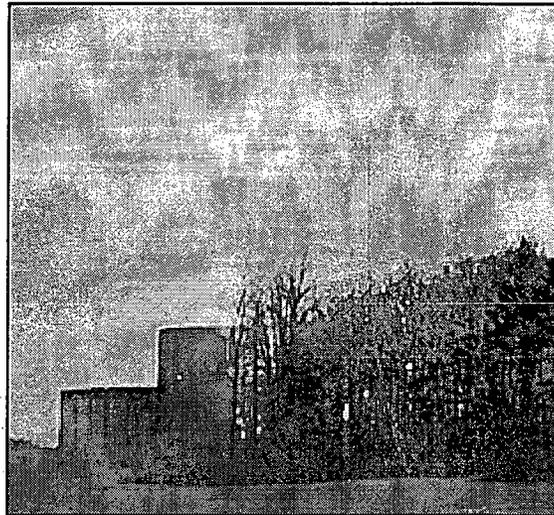
Joe used the wood from his trees. Using a saw mill in the woods, he handmade all of the oak trim for the farmhouse, a boat, wooden bowls and violins. In 1931, he used the black ash and pine in his small forest to build a cabin.

Part of that cabin now serves as a memorial to Joe, who used the trees wisely while also protecting the forest that served as his home. May we all be so wise.

The Kewaunee Nuclear Power Plant has been making clean, safe, inexpensive electricity since 1974. It has consistently been among the top performing plants in the country.

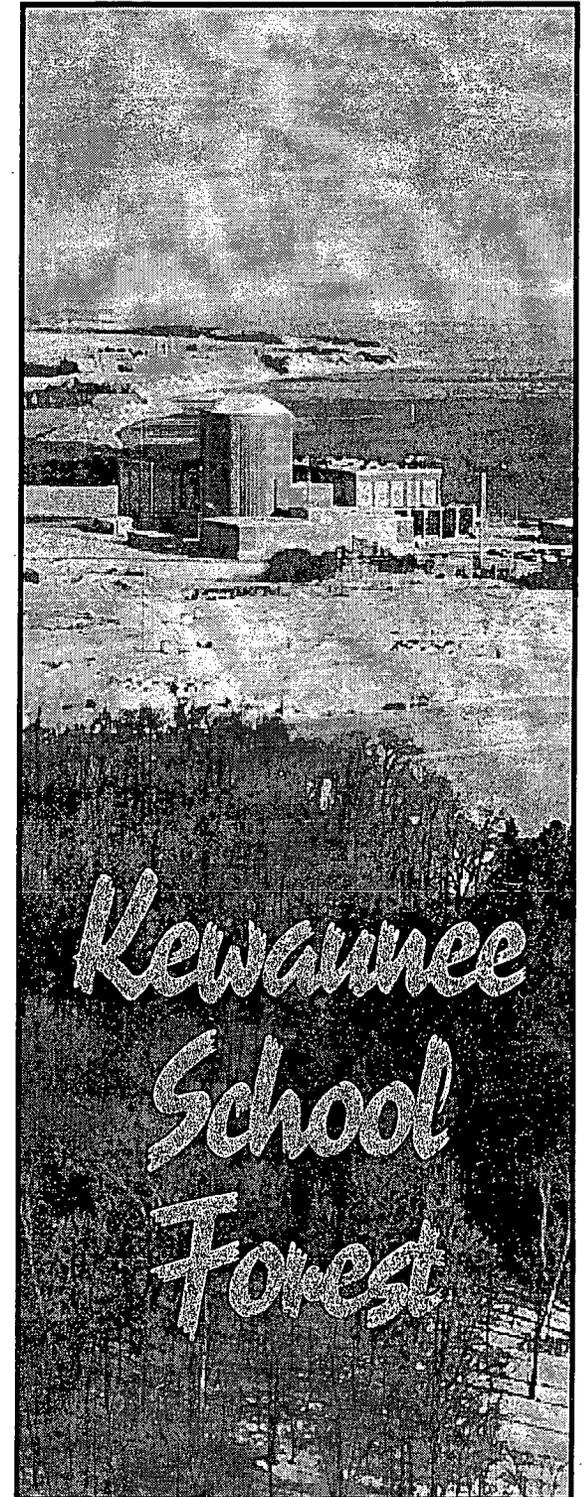
Three utilities share ownership of the Kewaunee plant. Wisconsin Public Service of Green Bay operates it for the other two owners, Wisconsin Power & Light of Madison, and Madison Gas and Electric.

Located in the Town of Carlton, the Kewaunee plant offers more than just

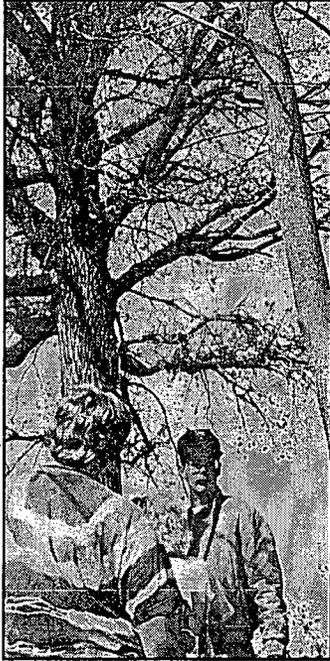


electricity. You'll find great fishing at the public fishing pier. The Kewaunee School Forest to the south is perfect for outdoor education. A public nature trail is located to the north.

Special group tours of the plant can also be arranged with advance notice.



A wooded portion of the Kewaunee Nuclear Plant site has been set aside as an outdoor education laboratory. The six acres of woodland are an ecologist's dream, bordering on Lake Michigan just south of the plant. The forest can be used by schools for outdoor classes in ecology and nature study, science, social studies, environmental sciences and art.



The School Forest has two nature trails with many distinctive ecological and instructional areas. You will find an evergreen stand, hardwoods, a field-to-forest succession, lake bank, beach, lake and lakeshore gully.

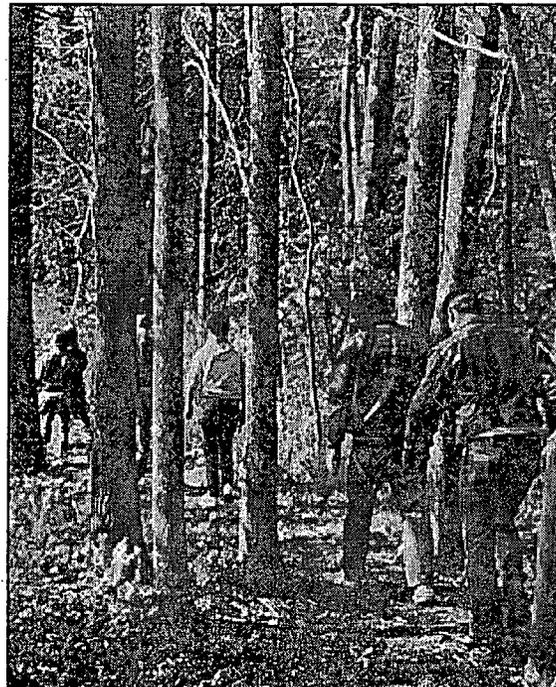
Trail guides, instructor's manuals and lesson plans are available to make your trip to the School Forest a valuable experience in the world of nature.

The School Forest has bathrooms, a fire pit, outdoor classrooms and a shelter to make your study more convenient and more comfortable.

The forest is dedicated to the memory of Joe Krofta, an early owner of the property. His love of nature inspired him to plan and care for the forest.

In 1986, a decision had to be made about the future of the School Forest due to erosion caused by high lake levels. Many trees were falling into the lake.

The cabin where Joe Krofta lived was also in danger. At one time, it was about sixty feet from the shoreline. Erosion had eaten away at the land and the cabin was in danger of falling into the lake. The front of the cabin was saved, and now serves as a memorial to Joe Krofta.



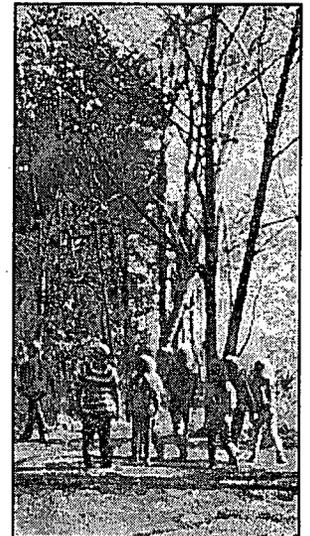
Krofta planted 17 species of trees in his grove. They included many different kinds of pine trees, Norway and Black Hills spruce, and white cedar. Trail markers and the trail guides help you find and identify them, and to learn about other aspects of the forest.

The School Forest is made possible by the Kewaunee School District and the owners of the Kewaunee nuclear plant: Wisconsin Public Service, Wisconsin Power & Light, and Madison Gas and Electric.

Special thanks to Jerry Zwicky and Fran Grant, science teachers in the Kewaunee school system, for their insight, energy and effort in bringing about the School Forest and its nature program.

The School Forest is available to all schools, groups and individuals. Reservations

are necessary so that we may provide you with all the materials you will need to take full advantage of the School Forest. For information call the Kewaunee plant at (920) 388-2560 and ask for the School Forest Coordinator.



SHORELINE NEWSLINE

An open line for neighbors of the Kewaunee Nuclear Plant

Wisconsin Public Service Corporation

Fall 1987

Forest Dedicated

Krofta's Dream Becomes Memorial

"A thing of beauty is a joy forever." These words were echoed by Gerald Gerard, Kewaunee High School principal, at the recent dedication of the former Kewaunee School Forest as the Joe Krofta Memorial Forest.

The six-acre tract of woods just south of the Kewaunee Nuclear Power Plant was developed by Wisconsin Public Service as an outdoor classroom for local school children.

About 70 guests were on hand September 1 as the Krofta Memorial Forest was dedicated. The forest features two trails through several ecologically distinct environments, a shelter building, rows of permanent benches in a classroom arrangement and a memorial to Joseph Krofta, the man who originally planted and managed the forest.

The forest is commonly referred to as "Krofta's Grove." There are about 17 different species of trees on the land, all planted by Joseph Krofta, who purchased the land from his father in 1887.

Joseph's son, Ken Krofta, currently lives on the first homestead adjacent to the forest. Ken said his dad was a wood craftsman. "He made everything from a boat to a violin." He added his dad was also a hunter, trapper and fisherman.

In 1931, Krofta built a small cabin in the forest with black ash logs he cut from the woods. The cabin stood until the spring of 1986 when shoreline erosion nearly washed it away into the waters of Lake Michigan. At that time, a decision was made to preserve the cabin because of its historical significance.

Larry Schies, Kewaunee district manager for Wisconsin Public Service, met with representatives of the Kewaunee Historical Society and school district. A decision was made to create an outdoor classroom. Additionally, the front portion of the deteriorating cottage was moved inland to a central area in the outdoor classroom.

Other improvements made by Public Service included installing shoreline erosion abatement materials to prevent the banks from slipping and the upgrading of the trail system through the woods.

Jerry Zwicky, a science teacher in the Kewaunee School District for the past 20 years, feels the outdoor classroom will get a lot of use. Zwicky has put a lot of time and effort into developing the site since he began working on the project in 1974. Zwicky is pleased with the upgrade of the area and feels it will be more suitable and accessible to students.

Al Peronto of the Kewaunee County Historical Society told guests at the dedication that the historical society's involvement is to preserve the land's priceless heritage. Peronto added that all too often this heritage is forgotten as time passes. Peronto unveiled the plaque paying tribute to Joe Krofta at the September dedication.

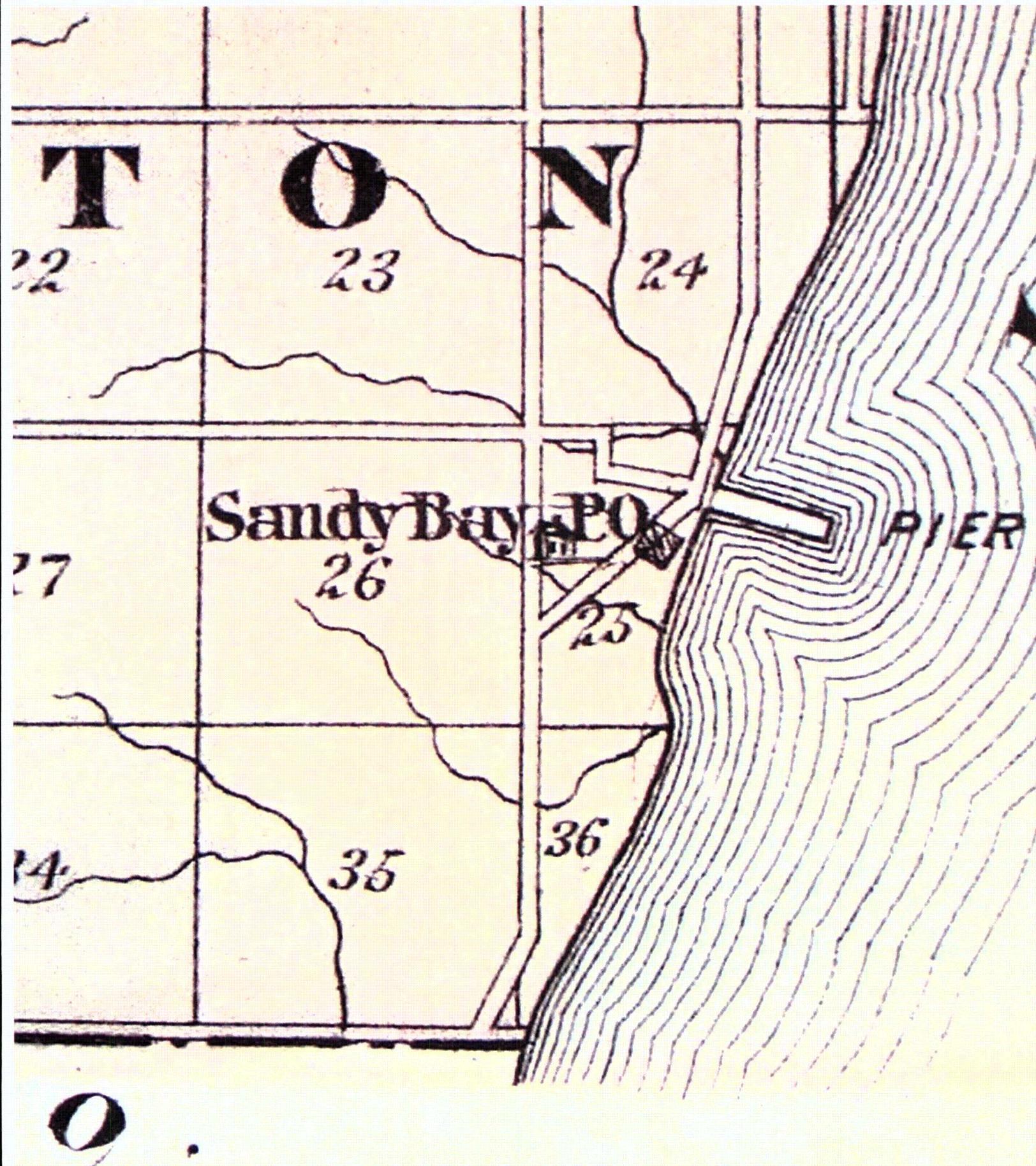
Joseph Krofta died in 1957 at the age of 66. His son said, "Joseph loved and respected the land, which is a good lesson to teach future generations. Now that lesson will be made available to local school children for generations to come."

More photos on page 2

Joseph Krofta

1891 to 1957





1878

<http://www.rootsweb.com/~wikewaun/Carlplat.htm>



CO.

1912

<http://digicoll.library.wisc.edu/cgi-bin/WI/WI-idx?type=article&did=W1.STANWALASKELAW.10008&isize=m>



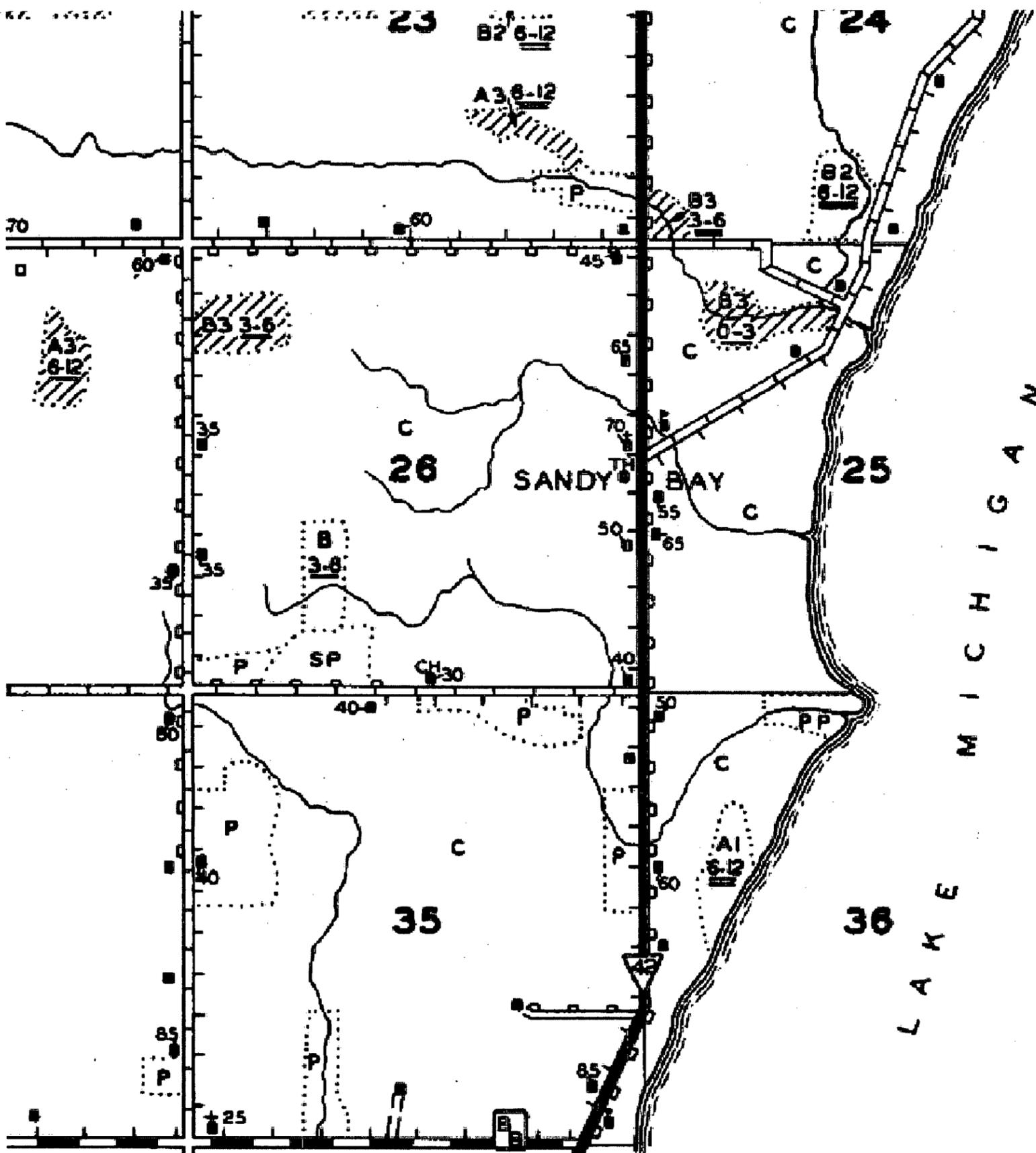
WISCONSIN LAND INVENTORY

LAND COVER MAP

T. 22 N. R. 24 E.

TOWN OF CARLTON

KEWAUNEE COUNTY



LEGEND

UPLAND FOREST NUMERALS 1-2	LOWLAND FOREST ALL NUMERALS 3	NON-TILLABLE A-PP-CPP-SP-E1-A4-C4-E4-A	INFERIOR FOREST POORLY STOCKED WOODLAND B1-C1-D5-D5	OPEN SWAMP ALL NUMERALS 4	TILLABLE LAND C-CS-P	ALL SWAMP LAND NUMERALS 5-9
-------------------------------	----------------------------------	---	---	------------------------------	-------------------------	--------------------------------

FOREST PLANTING RECOMMENDED

LAND COVER

..... COVER BOUNDARY	C1 POPPLE WITH WHITE BIRCH	D3 BALSAM
A ABANDONED	C2 NORWAY PINE	D4 LEATHER LEAF
A1 UPLAND HARDWOODS	C3 TAMARACK	D5 RECENT BURN
A2 HEMLOCK WITH HARDWOOD	C4 GRASS MARSH	D6 DEAD TIMBER
A3 SWAMP HARDWOODS	C5 SEDGE MARSH	E1 PIN CHERRY
A4 TAGALDER, WILLOW, DOGWOOD ETC.	CS CULTIVATED STUMP LAND	E4 WEEDY PEAT
B BIRCH	CP POOR LAND PREVIOUSLY CROPPED	F4 CRANBERRY MARSH
B1 HARDWOOD WITH CONIFERS	D SCRUB OAK	FP FOREST PLANTATION
B2 WHITE PINE	D1 OAK-HICKORY	O OPEN
B3 WHITE CEDAR	D2 JACK PINE	P PASTURE
B4 CAT TAIL MARSH	D3 BLACK SPRUCE	PP PERMANENT PASTURE
		RC RED CEDAR
		SP STUMP PASTURE
		TG TRUCK GARDEN

MISCELLANEOUS SYMBOLS

Q QUARRY	C CEMETERY	GC GOLF COURSE
G GRAVEL PIT	N NURSERY	BD BEAVER DAM
S SPRING	E EROSION	PD PUBLIC DUMP
F FUR FARM	T FIRE TOWER	Y ORCHARD
--- DRAINAGE DITCH	~ INTERMITTENT STREAM	--- CIVIL TOWN BOUNDARY

ROADS

14 FEDERAL HIGHWAY	V STATE HIGHWAY	A COUNTY HIGHWAY
===== HARD SURFACED ROAD	===== IMPROVED GRAVEL ROAD	===== UNIMPROVED GRAVEL ROAD
===== IMPROVED DIRT ROAD	===== UNIMPROVED DIRT ROAD	----- TRAIL
----- DRIVABLE FIRE LANE	----- NON-DRIVABLE FIRE LANE	----- TELEPHONE LINE
----- POWER LINE	----- RAILROAD	----- ABANDONED RAILROAD

IMPROVEMENTS

■ OCCUPIED HOUSE	□ VACANT HOUSE
□ SUMMER HOME	□ OCCUPIED SCHOOL
□ VACANT SCHOOL	□ CHURCH
□ TOWN HALL	□ CHEESE FACTORY
□ CREAMERY	□ FILLING STATION OR GARAGE
□ STORE	□ TAVERN
□ HOTEL	□ SAW MILL
□ GRIST MILL	□ FARM BLDG. LESS THAN 100 FT. FROM CENTER OF ROAD.
□ LOGGING CAMP	2 INDICATES NO. OF HOUSES IN A GROUP
50 INDICATES THE NUMBER OF FEET BUILDING IS LOCATED FROM CENTER OF ROAD.	

WOODED AREAS

DENSITY OF STAND	DIAMETER CLASSES
IS INDICATED BY THE LINE OR LINES BELOW THE DIAMETER	NUMERALS 0-3, 3-6 ETC. PLACED AFTER A TIMBER SYMBOL (D1612)
D1 0-12 ONE LINE=GOOD STAND	INDICATES IN INCHES THE AVERAGE DIAMETER OF THE TREES BREST HIGH (4 1/2 FT) WITHIN A GIVEN COVER AREA.
D1 0-12 TWO LINES=MEDIUM STAND	
D1 0-12 THREE LINES=POOR STAND	
D1 0-12 FOUR LINES=SCATTERED	













