

EXHIBIT A

Project Description

**EXHIBIT A
PROJECT DESCRIPTION**

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1. GENERAL PROJECT DESCRIPTION

The Project consists of two hydroelectric facilities, each having a dam, water supply reservoir, and hydroelectric power plant. The dams are separated by a distance of about 12 river miles. Norway Dam is located about one mile north of the City of Monticello, and Oakdale Dam is located about seven miles south of Monticello.

The Norway Hydro Project (FERC No. UL00-2-000—referred to herein as the “Norway Facility”), a run-of-river facility, is located on the Tippecanoe River, in White County, Indiana. This is the northernmost of the two facilities, and its construction was completed in June 1923. The facility consists of a combination earth-fill and concrete dam creating the existing 10-mile-long, 1,291-acre Lake Shafer, with a 7.2-megawatt (MW) powerhouse containing four generating units, and transmission/interconnection facilities.

The Oakdale Hydro Project (FERC No. UL00-1-000—referred to herein as the “Oakdale Facility”), also a run-of-river development, is located on the Tippecanoe River in Carroll County, Indiana, south of Monticello. Its construction was completed in November 1925. The facility consists of a combination earth-fill and concrete dam creating the existing 10-mile-long, 1,547-acre Lake Freeman, with a 9.2-MW powerhouse containing three generating units, and interconnection facilities.

Both facilities are automated and can be either manually controlled locally, from within the powerhouse, operated remotely from NIPSCO’s Southlake Complex located in Merrillville, Indiana, or operated remotely via laptop computer. Tables A-1 and A-2 present project facility and operating data. Exhibits F-1 through F-9 show the principal project works.

2. PHYSICAL COMPOSITION OF EXISTING AND FUTURE DEVELOPMENTS

2.1 NORWAY FACILITY

The Norway Facility was constructed in the early 1920s and put into service in 1923. The dam forms Lake Shafer, which has an average depth of 10 feet and covers approximately 1,291 acres. The drainage area at the dam is approximately 1,732 square miles and the gross head at the dam is about 32 feet. The Norway Facility operates as a run-of-river project, meaning that outflows from the project are essentially equal to inflows to the project at any given time. The Norway Dam is not a flood control dam and does not appreciably change the natural river flow.

The major features of the Norway Facility, from left to right, are as follows (left and right refer to the direction when looking from upstream to downstream, in the direction that the river is flowing):

- a left earthfill embankment with a concrete corewall;
- a concrete gravity overflow spillway with flashboards;
- a concrete gravity gated spillway with three vertical lift gates; and
- a four-unit concrete and masonry powerhouse.

The project features are founded on rock that is clearly visible throughout the project area, except for a portion of the left earthen embankment.

As the project drawings predate the 1929 adjustment to the National Geodetic Vertical Datum (NGVD), the elevations shown on the project drawings are based on a local project datum. Surveying performed in 1999 and 2000 indicate that the local project datum equals 1929/1988 NGVD minus 2.32 feet. Elevations in this report are referenced to 1929/1988 NGVD, and are obtained by taking local datum project elevation and adding 2.32 feet.

2.1.1 Dam and Associated Structures

The left earth embankment dam extends about 410 feet from the paved county road at the left abutment to the concrete overflow spillway, parallel to the face of the concrete dam structures and perpendicular to the river flow. The crest at the left end of the dam blends into the paved county road, while the right end of the earth embankment terminates at a concrete training/retaining wall. The maximum height of the embankment section is about 34 feet, with a 10-foot-wide crest at El. 651.32 ft. The upstream slope from just below the waterline to the crest is protected by riprap, while the downstream slope is covered with grass. Project drawings for the embankment show a full-height concrete core wall for its full length that is two feet wide at the top, with battered slopes to provide greater thickness at the base. The drawings also show the core wall keyed into rock.

The overflow spillway is a 29-foot high concrete gravity structure with a 225-foot long crest, located between the left earthfill embankment and the gated spillway. The overflow spillway section is considered an auxiliary spillway, while the gated spillway serves as the project's service spillway. The overflow spillway has a vertical upstream face, a four-foot wide horizontal crest, and a downstream face sloped at 0.9H:1V. The permanent crest of the overflow spillway is at El. 645.32 ft., and is fitted with two-foot high wooden flashboards. The flashboards span horizontally between vertical steel beams supported at the bottom on the spillway crest. The flashboards are left in place throughout the year. There is an inspection gallery inside the spillway at El. 622.32 ft. The overflow spillway section is founded on rock, which is clearly visible at the toe of the dam. Drawings show the structure to be keyed into the rock and the rock to have been grouted. A concrete training/retaining wall separates the overflow spillway from the left earth embankment on the left side of the structure.

The gated spillway consists of three gated bays, each with a vertical lift gate. Each bay is 30 feet wide at the crest of the ogee resulting in a total gated spillway crest length of 90 feet. The total length of the structure is about 120 feet. Adjacent to the spillway gates is an 18-foot wide sluice structure. The ogee crest of the spillway is at El. 625.32 ft. Mass concrete piers between the gates are eight feet wide. The gated spillway has a concrete spillway apron with concrete training walls and baffle blocks. The spillway crest ogee and downstream surface were reconstructed and reshaped in 1994. The concrete training walls direct the flow from the gated spillway towards the downstream river channel and away from the left earth embankment and powerhouse. A removable section in the left concrete training wall allows access to the concrete spillway apron. The gated spillway is founded on rock.

Each spillway gate is approximately 30 feet wide by 22 feet high. The gates are vertical lift slide gates that operate with a dedicated electric motor hoist. A steel grating bridge deck over the gated spillway provides access to each of the gate operators.

There are no separate low-level intake or outlet works. The crest of the gated spillway is set sufficiently low so that the reservoir can be lowered to the crest of the spillway, El. 625.32 ft, if necessary during an emergency.

A trash sluice is located to the left of the powerhouse. The trash sluice gate is 8-foot wide by 11-foot high and allows discharge via an 8-foot by 8-foot open concrete channel.

2.1.2 Powerhouse

The powerhouse is an integral part of the dam and serves as a water retaining structure. The powerhouse is about 142 feet long and is located between the gated spillway and the right abutment. The powerhouse has an integral intake structure with trashracks and steel intake bulkhead gates for each unit. The trashracks are maintained using an air blast system and by manually raking the racks.

The substructure portion of the main powerhouse section is mass concrete with a formed concrete semi-spiral scroll case and concrete draft tube. The superstructure walls are masonry and concrete. Access to the water passages and turbine runners is through manholes in the forebay deck. The powerhouse is founded on rock.

A tailrace channel excavated in rock directs discharge water from the draft tubes back to the river immediately downstream of the dam. The trash sluice discharges into the tailrace channel. A training wall and rock outcrop separate the tailrace channel flow from the spillway discharge.

Access to the powerhouse is from the switchyard area to the right of the powerhouse. The switchyard is located at the same elevation as the generator floor. A personnel door is located next to the larger service door. A door to the powerhouse is also located on the forebay level.

A floating pontoon and cable boater warning system is located approximately 325 feet upstream of the powerhouse and spillways to warn recreational boaters of flow hazards associated with the Norway Facility.

2.1.3 Reservoir

The reservoir formed by the Norway Facility is known as Lake Shafer and has an average depth of about 10 feet. The reservoir is approximately 10 miles long and covers approximately 1,291 acres at normal pool. The lake level at the powerhouse is normally maintained within plus or minus 0.25 feet of El. 645.15 ft. local datum or El. 647.47 ft. USGS datum for operation of the plant from June 1 to September 30. The lake level at the powerhouse is normally maintained within plus or minus 0.60 feet of El. 645.50/647.82 ft. for operation of the plant from October 1 to May 31.

The reservoir rim has generally very mild slopes, and is heavily developed all around the lake, with seasonal (summer) and permanent residences along the shoreline. Indiana Beach, Indiana's largest privately owned amusement resort, is located about one-half mile upstream of the Norway Facility on the west shore of the lake. Other property around the lake, except in the immediate vicinity of the Norway Facility, is owned, for the most part, by the Shafer and Freeman Lakes Environmental Conservation Corporation (SFLECC). This land was deeded to the SFLECC by NIPSCO in 1995.

2.1.4 Turbines and Generators

The powerhouse contains four vertical Francis turbine-generating units with a rated head of 28 feet, a total hydraulic capacity of 3,675 cubic feet per second (cfs), and a total electrical output of 7,200 kW.

2.1.5 Transmission and Substation

An air-cooled, power transformer, rated at 10,500 kVA, is used to step up voltage from 2,400 to 69,000 volts. The transformer is not in line with the generators, but is universally connected through a buss. A power circuit breaker separates each generator from the 2.3-kV buss and another separates the 2.3-kV buss from the transformer. A sulfur hexafluoride (SF6) circuit breaker separates the transformer from the transmission circuit. A 69-kilovolt (kV) substation is located southwest of the powerhouse. A transmission line (Circuit 6979) connects the Norway Substation to the Monticello Substation located in Monticello, Indiana, a distance of approximately 2 miles.

2.1.6 Additional Mechanical and Electrical Equipment

Control equipment and miscellaneous mechanical equipment, including a 20-ton overhead crane, are located on the generator floor within the main powerhouse section.

Table A-1. Norway Facility Data.

NORWAY FACILITY	
Location: River Mile 30.2 above the confluence with the Wabash About 1 mile north of City of Monticello About 12 miles upstream (river miles) of Oakdale Dam	
Lake Shafer	
Drainage Area	1,732 square miles
Volume	12,910 acre-feet
Length	10 miles
Surface Area at normal pool	1,291 acres
Average depth	10 feet
Maximum depth	30 feet at hydro plant intake
Normal Water Level:	
June 1-Sept 30	EI. 645.15 ft. local / EI. 647.47 ft. USGS plus or minus 0.25 ft.
Oct 1-May 31	EI. 645.50 ft. local / EI. 647.82 ft. USGS plus or minus 0.60 ft.
Left Earth Embankment	
Type	Earthfill with concrete corewall
Length	410 feet
Maximum Height	34 feet
Crest Width	10 feet
Crest Elevation	EI. 649.00 ft. local / EI. 651.32 ft. USGS
Upstream slope	3horizontal:1vertical
Downstream slope	2horizontal:1vertical
Ungated (Overflow) Spillway	
Type	Concrete gravity, internal gallery at EI. 620.00 ft. local / 622.32 ft. USGS
Foundation	Rock
Length	225 feet
Maximum Height	29 feet to concrete crest; 31 feet to top of flashboards
Crest Type	Horizontal flat crest
Crest Width	4 feet
Fixed Crest Elevation	EI. 645. 3 ft. local / EI. 6475.62 ft. USGS

Table A-1 Norway Facility Data. (continued)

Flashboard Height	2 feet
Top of Flashboard	El. 645.00 ft. local / El. 647.32 ft. USGS
Gated Spillway	
Type	Concrete gravity, ogee crest with stilling basin
Foundation	Rock
Total Length	120 feet
Spillway Crest Length	90 feet (3-ft. x 30-ft.)
Spillway Crest Elevation	El 623.00 ft. local / El. 625.32 ft. USGS
Gates:	Three
Type	Motor-operated vertical lift
Size	30-ft.-wide by 22-ft.-high
Sluice Structure	
Type	Concrete gravity
Foundation	Rock
Length	18 feet total
Openings	
Trash Sluice	8-ft. wide with 8-ft. x 11-ft. high gate, crest El. 637.00 ft. local / El. 639.32 ft. USGS
Powerhouse	
Type	Concrete gravity and masonry
Dimensions	142 feet long
Number of Units	Four
Installed Capacity	7.2 MW total
Hydraulic Capacity	3,675 cfs
Turbine Units 1, 2, 3	
Manufacturer	S. Morgan Smith
Type	Vertical Francis
Rated Head	28 feet
Rated Output	2,650 HP
Speed	120 RPM
Full Gate Discharge	3 units at 1020 cfs per unit
Runner Diameter/Type	66 inches, Serial Type S
Governor	Units 1&2 Original Type HR Woodward Unit 3 High Pressure Sorensen
Generator Units 1, 2, 3	
Manufacturer	Westinghouse
Voltage	2,400 volts, 3-phase
Frequency & Rating	2,300 kVA, 60 hz
Speed	120 rpm
Excitation	Basler static

Table A-1 Norway Facility Data. (continued)

Turbine Unit 4	
Manufacturer	S. Morgan Smith
Type	Vertical Francis
Rated Head	28 feet
Rated Output	1,788 HP
Speed	150 RPM
Full Gate Discharge	1 unit at 615 cfs
Runner Diameter/Type	51 inches, Serial Type Z
Governor	High Pressure Sorensen
Generator Unit 4	
Manufacturer	Westinghouse
Voltage	2,400 volts, 3-phase
Frequency & Rating	1,500 kVA, 60 hz
Speed	150 rpm
Excitation	Basler static
Main Power Transformer	
Rating & Type	10.5 MVA-ffa, air cooled
Voltage	2,400 volts to 69,000 volts
Connection	Universally connected through a buss
Interconnection	
Voltage	69,000 volts
Breaker	SF6
Circuit/Length	Circuit 6979 to Monticello Substation, Approx 2 miles.

2.2 OAKDALE FACILITY

The Oakdale Facility was constructed in the early 1920s and put into service in 1925. The dam forms Lake Freeman, which has an average depth of 16 feet and covers approximately 1,547 acres. Drainage area at the project is approximately 1,793 square miles. Gross head at the dam is about 45 feet. The Oakdale Facility operates as a run-of-river project, it is not a flood control dam and does not appreciably change the natural river flow.

The major features of the Oakdale Facility, from left to right, are as follows (left and right refer to the direction when looking from upstream to downstream, in the direction that the river is flowing):

- a left (east) concrete buttress dam;
- a three-unit concrete and masonry powerhouse;
- a concrete sluice structure;
- a concrete gravity gated spillway with two vertical lift gates;
- a concrete gravity siphon spillway with six bays; and
- a right earth embankment with concrete core wall.

As the project drawings predate the 1929 adjustment to the National Geodetic Vertical Datum (NGVD), the elevations shown on project drawings are based on a local project datum. Surveying performed in 1999 and 2000 indicate that the local project datum equals 1929/1988 NGVD minus 2.10 feet. Elevations in this report will be referenced to 1929/1988 NGVD, and are obtained by taking local project elevation and adding 2.10 feet.

2.2.1 Dam and Associated Structures

The left concrete dam is a buttress and slab structure with a 10-foot-wide crest at El. 623.1 ft (El. 621.0 ft local datum). The structure is approximately 126 feet long and connects the left abutment to the powerhouse. The base of the structure is at different elevations, stepping up from a deep section adjacent to the powerhouse to a shallow section where it blends into the natural ground at the abutment. The foundation for the structure is soil with steel sheet pile cutoff walls. The downstream side of the structure is backfilled including inside the bays between the buttresses.

The gated spillway is a hollow concrete structure founded on soil with steel sheetpile cutoff walls driven into the soil foundation on both the upstream and downstream ends. The interior of the dam is filled with gravel to the level of a walkway inside the dam. Both the upstream and downstream faces of the dam are sloped.

The gated spillway section has two 30-foot-wide by 22-foot-high vertical lift gates. The concrete crest of the gated spillway is at El. 592.1 ft (El. 590 ft. local datum). The gated spillway is ogee-shaped and discharges into a two-stage concrete stilling basin. The first-stage stilling basin (tumble bay) has chute blocks, baffle blocks and an end wall. The tumblebay end wall is about 12 feet high. The second stage receives water coming over the tumblebay end wall, and is a smaller stilling basin with a concrete slab and dentated endsill. The smaller stilling basin discharges flow back to the river channel.

Each spillway gate is a vertical lift slide gate, with a dedicated hoist. A bridge deck over the gated spillway provides access to each of the gate operators.

Adjacent to the spillway gates, between the spillway and the powerhouse, is an 18-foot wide structure containing an abandoned, non-functional fish ladder and a gated trash sluice.

The auxiliary spillway is a six-bay siphon-type spillway about 90-feet long. The permanent crest of the siphon spillway is at El 610.10 ft (El. 608 ft local). Each of the siphons is fitted with a gate, with the top of gate at about El. 612.6 ft. Three of the siphons have pneumatically operated crest gates. The siphon spillways discharge to a two-stage stilling basin. A concrete training-retaining wall separates the siphon spillway from the right earth embankment, and an intermediate wall in the first stage of the stilling basin separates the siphon spillway tumble bay from the gated spillway tumble bay.

The siphon spillway is also a concrete gravity structure with steel sheetpile foundation cutoff walls at both the upstream and downstream ends. The siphon spillway section is considered an auxiliary spillway, as the gated spillway serves as the project's service spillway. The siphon spillway has a sloped upstream face. There is an inspection gallery inside both spillways.

The right earth embankment dam extends about 1,260 feet from the concrete training and retaining wall for the siphon spillway to natural high ground at the right abutment, parallel to the face of the concrete dam structures and perpendicular to the river flow. The maximum height of the earth section is about 58 feet, with a 30-foot-wide crest at El. 624.34 ft. The downstream slope is 2.5H:1V and the upstream slope

is 2H:1V in the upper section and flattens to 3H:1V in the lower sections. The upstream slope from just below the waterline to the crest is protected against erosion by riprap, while the downstream slope and crest are covered with grass.

Project drawings indicate that the embankment consists of three materials. The material downstream of the concrete core wall is noted to be largely gravel material. The material upstream of the concrete core wall is indicated to be a soil or clay adjacent to the core wall, with the outer slope material being called out as gravel or clay. Coarse gravel and riprap are indicated on the upstream face of the embankment.

Project drawings for the embankment show a full-height concrete core wall for its full length that is two feet wide at the top, with battered slopes to provide greater thickness at the base. The drawings also show the earth embankment and corewall to be founded on sheet piling.

There are no separate low-level intake or outlet works. The crest of the gated spillway is set sufficiently low that the reservoir can be lowered during an emergency, if necessary, through the gated spillway.

2.2.2 Powerhouse

The powerhouse is an integral part of the dam and serves as a water retaining structure. The powerhouse is about 114 feet long and is located between the left (east) concrete dam and the concrete sluice structure. The powerhouse has an integral intake structure with trashracks and steel intake bulkhead gates for each unit. The trashracks are manually raked. The powerhouse is provided with steel sheet piling in the perimeter of the foundation. Plan and sectional views of the Powerhouse are shown in Exhibit F.

The substructure portion of the main powerhouse section is mass concrete with formed concrete semi-spiral scroll cases and concrete draft tubes. The superstructure walls are masonry and concrete. Access to the water passages and turbine runners is through manholes in the generator floor.

A tailrace channel directs discharge water from the draft tubes back to the river immediately downstream of the dam. A retaining wall along the left bank separates the tailrace channel from the river bank.

Access to the powerhouse is from the service area to the left of the powerhouse, located at the same elevation as the generator floor. A personnel door is located next to the larger service door. A door to the powerhouse is also located at the fourth floor penthouse accessible from the crest of the east dam. The transformers are located on the powerhouse roof.

A floating pontoon and cable boater warning system is located approximately 300 feet upstream of the powerhouse intake and spillways to warn recreational boaters of flow hazards.

2.2.3 Reservoir

The reservoir is known as Lake Freeman, and has an average depth of about 16 feet and covers approximately 1,547 acres at normal pool. There is approximately 12 feet of freeboard from the normal reservoir water level to the top of the earthen embankment. The lake level at the powerhouse is normally maintained within plus or minus 0.25 feet of El. 610.35 ft. local datum or El. 612.45 ft. USGS datum for operation of the plant from June 1 to September 30. The lake level at the powerhouse is normally maintained within plus or minus 0.60 feet of El. 610.50/612.60 ft. for operation of the plant from October 1 to May 31.

The reservoir rim has generally mild slopes except for local areas of steep slopes. The reservoir rim is heavily developed all around the lake, with summer and permanent residences right along the water’s edge. The property immediately around the lake, except in the immediate vicinity of the dam, is owned, for the most part, by the Shafer and Freeman Lakes Environmental Conservation Corporation (SFLECC). This land was deeded to the SFLECC by NIPSCO in 1995.

2.2.4 Turbines and Generators

The powerhouse contains three vertical Francis turbine-generating units with a rated head of 42 to 48 feet and a total hydraulic capacity of 3,200 cubic feet per second (cfs), and a total electrical output of 9,200 kW.

2.2.5 Transmission and Substation

Air-cooled, power transformers, rated at 5,600 kVA, 4,682 kVA, and 5,250 kVA, are used to step up voltage from 2,400 to 69,000 volts for generator Nos. 1, 2 and 3, respectively. Manually operated disconnects separate the generator from its transformer. A sulfur hexafluoride (SF6) circuit breaker separates the transformer from the 69-kV buss. A 69-kV substation is located on the powerhouse roof. The Oakdale Facility interconnects with the electrical grid at this substation. Therefore, there are no transmission lines associated with the Oakdale Facility.

2.2.6 Additional Mechanical and Electrical Equipment

Control equipment, and miscellaneous mechanical equipment, including a 30-ton overhead crane, are located on the generator floor within the main powerhouse section.

Table A-2. Oakdale Facility Data.

OAKDALE FACILITY	
Location: River Mile 17.8 above the confluence with the Wabash About 7 miles south of City of Monticello About 12 miles downstream (river miles) of Norway Dam	
Lake Freeman	
Drainage Area	1,793 Square Miles
Volume	24,752 acre-feet
Length	10 miles
Surface Area at normal pool	1,547 acres
Average Depth	16 feet
Maximum Depth	45 feet at hydro plant intake
Normal Water Level: June 1-Sept 30	El. 610.35 ft. local / El. 612.45 ft. USGS plus or minus 0.25 ft.
Oct 1-May 31	El. 610.50 ft. local / El. 612.60 ft. USGS plus or minus 0.60 ft.
East Concrete Dam	
Type	Concrete slab and buttress
Foundation	Earth with steel sheetpile cutoff
Length	126 feet
Maximum Height	58 feet
Crest Width	10 feet
Crest Elevation	El. 621.00 ft. local / El. 623.10 ft. USGS

Table A-2. Oakdale Facility Data. (Continued)

Siphon (Emergency) Spillway	
Type	Concrete gravity, internal gallery at El. 596.00 ft. local / 598.10 ft. USGS
Foundation	Earth with steel sheetpile cutoff
Length	90 feet
Maximum Height	58 feet
Fixed Crest Elevation	El. 608.00 ft. local / El. 610.10 ft. USGS
Gate Height	2.5ft.
Top of Gate	El. 610.50 ft. local / El. 612.60 ft. USGS
Gated Spillway	
Type	Hollow concrete gravity, ogee crest with two level stilling basin, internal gallery at El. 579.00 ft. local / 581.10 ft. USGS
Foundation	Earth with steel sheet pile
Total Length	84 feet
Spillway Crest Length	60 feet (2 ft. x 30 ft.)
Spillway Crest Elevation	El 590.00 ft. local / El. 592.10 ft. USGS
Gates:	Two
Type	Motor-operated vertical lift
Size	30-ft.-wide by 22-ft.-high
Sluice Structure	
Type	Concrete gravity
Foundation	Earth with steel sheetpile
Length	18 feet total
Openings	
Trash Sluice	9 feet wide with 9-ft.-wide by 12-ft.-high gate, crest El. 600.00 ft local / El. 602.10 ft. USGS
Fish Ladder/Sluice	Abandoned, non-functional
Right Earth Embankment	
Type	Zoned earthfill with concrete corewall
Length	1,260 feet
Maximum Height	58 feet
Crest Width	30 feet
Crest (core wall) Elevation	El. 622.24 ft. local / El. 624.34 ft. USGS
Upstream Slope	2horizontal:1vertical upper portion to 3horizontal:1vertical lower
Downstream Slope	2.5horizontal:1vertical
Powerhouse	
Type	Concrete gravity and masonry
Dimensions	114 feet long
Number of Units	Three
Installed Capacity	9.2 MW total
Hydraulic Capacity	3,200 cfs
Turbine Unit 1	
Manufacturer	S. Morgan Smith
Type	Vertical Francis

Table A-2. Oakdale Facility Data. (Continued)

Rated Head	42 feet
Rated Output	5,100 HP
Speed	164 RPM
Full Gate Discharge	1,440 cfs
Runner Diameter/Type	62.5 inches, Serial Type U
Governor	High Pressure Sorensen
Generator Unit 1	
Manufacturer	Westinghouse
Voltage	2,300 volts, 3-phase
Frequency & Rating	1,255 amps, 60 hz
Speed	164 rpm
Excitation	Basler static
Turbine Unit 2	
Manufacturer	S. Morgan Smith
Type	Vertical Francis
Rated Head	42 feet
Rated Output	4,350 HP
Speed	120 RPM
Full Gate Discharge	1,240 cfs
Runner Diameter/Type	79.2 inches, Serial Type N
Governor	High Pressure Sorensen
Generator Unit 2	
Manufacturer	Westinghouse
Voltage	2,300 volts, 3-phase
Frequency & Rating	941 amps, 60 hz
Speed	120 rpm
Excitation	Basler static
Turbine Unit 3	
Manufacturer	S. Morgan Smith
Type	Vertical Francis
Rated Head	48 feet
Rated Output	2,380 HP
Speed	164 RPM
Full Gate Discharge	520 cfs
Runner Diameter/Type	55 inches, Serial Type K-3
Governor	Original Type HR Woodward
Generator Unit 3	
Manufacturer	Westinghouse
Voltage	2,300 volts, 3-phase
Frequency & Rating	1,255 amps, 60 hz
Speed	164 rpm
Excitation	Basler static

Table A-2. Oakdale Facility Data. (Continued)

Main Power Transformer Unit 1	
Rating & Type	5,600 kVA, air cooled
Voltage	2,400 volts to 69,000 volts
Connection	SF6 breaker
Main Power Transformer Unit 2	
Rating & Type	4,682 kVA, air cooled
Voltage	2,400 volts to 69,000 volts
Connection	SF6 breaker
Main Power Transformer Unit 3	
Rating & Type	5,250 kVA, air cooled
Voltage	2,400 volts to 69,000 volts
Connection	SF6 breaker

2.3 FUTURE DEVELOPMENT

In its September 26, 2000 Order requiring NIPSCO to obtain a federal license for the Norway and Oakdale Facilities, the Federal Energy Regulatory Commission (FERC) also required NIPSCO to comply with Part 12 of the Commission’s regulations regarding dam safety. Therefore, the Project is subject to periodic safety inspection by an independent consultant experienced in dam safety review. The initial inspection of both projects was completed in November 2001. Based on these inspections, it was determined that significant modifications would likely be required to both dams in order to ensure higher overall factors of safety with respect to passage of flood flows under a rare flood event, and to make security upgrades. Discussion with the FERC regarding these potential modifications are presently underway.

Once plans for the modifications are agreed upon by FERC, final designs would be prepared, and construction completed by about 2006 or 2007. This work would be performed under Part 12 of FERC’s regulations, and therefore is not reflected in drawings currently being submitted with this license application under Part 4 of the Commission’s regulations.

3. LANDS OF THE UNITED STATES

With the exception of small areas surrounding Norway Dam and Oakdale Dam, NIPSCO owns no property associated with the Norway and Oakdale Hydroelectric Project. In 1995, NIPSCO donated most of its property around and under the lakes to the not-for-profit SFLECC. NIPSCO retained only those parcels of property necessary for operating the Norway and Oakdale dams and hydroelectric plants. In turn, SFLECC agreed to hold the properties for public charitable, recreational conservation and environmental purposes. There are no lands of the United States known to be occupied or affected by the project.