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United States Department of the Interior
National Park Service

MAR 08 1989

NATIONAL
REGISTER

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in Guidelines for Completing National Register Forms (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries. Use letter quality printer in 12 pitch, using an 85 space line and a 10 space left margin. Use only 25% or greater cotton content bond paper.

1. Name of Property Pioneer Hydroelectric Power Plant Historic District

historic name

other names/site number Pioneer, Pioneer Station

2. Location

street & number 12th Street near Canyon Road n/a not for publication

city, town Ogden n/a vicinity

state Utah code UT county Weber code 057 zip code 84400

3. Classification

Ownership of Property	Category of Property	No. of Resources within Property	
		contributing	noncontributing
x private	___ building(s)	8	3 buildings
___ public-local	x district	___	___ sites
___ public-State	___ site	1	1 structures
___ public-Federal	___ structure	___	___ objects
	___ object	9	4 Total

Name of related multiple property listing:

Electric Power Plants of Utah

No. of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this _x_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _x_ meets ___ does not meet the National Register criteria. ___ See continuation sheet.

Max 7 E — 1.31.89

Signature of certifying official — Date

UTAH STATE HISTORICAL SOCIETY

State or Federal agency and bureau

In my opinion, the property ___ meets ___ does not meet the National Register criteria. ___ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

✓ entered in the National Register. ___ See continuation sheet — Bruce J. Noble, Jr. — 4/21/89

___ determined eligible for the National Register. ___ See continuation sheet

___ determined not eligible for the National Register.

___ removed from the National Register.

___ other, (explain:) _____

for Signature of the Keeper — Date

6. Functions or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Industry/Processing/Extraction:	Industry/Processing/Extraction:
energy facility	energy facility

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
	foundation concrete
Renaissance (powerhouse)	walls brick, wood
Queen Anne (supt. residence)	
Bungalow/Craftsman (other residences)	roof asphalt
	other n/a

Describe present and historic physical appearance.

(see continuation sheet)

x See continuation sheet

Built c.1897, the Pioneer Hydroelectric Power Plant is located in Ogden about one mile west of the mouth of Ogden Canyon. The Pioneer plant consists of a penstock, a powerhouse, a shop, and an operator's camp. The Pioneer station includes eight contributing and four non-contributing features. The facility has sustained some alteration over time, but overall it retains integrity of location, setting, design, materials, workmanship, feeling, and association. The Pioneer station is an outstanding example of a turn-of-the-century high-head hydroelectric plant.

General Setting

Historically existing on the east edge of Ogden, Utah, the Pioneer Hydroelectric Power Plant is now located within the city limits, approximately two miles from Ogden's center. Once situated away from residential development, the power plant site is now bordered on the east by suburban development along the penstock between the powerhouse and surge tank. The camp and powerhouse facilities occupy a site between 12th Street (state highway 39), which becomes Canyon Road, and Harrison Boulevard. Canyon Road progresses east through the narrow and steep Ogden Canyon along the Ogden River for about six miles to the Pineview Reservoir, the source of water for the plant.

A driveway from 12th Street provides access to a loop which wraps around the operators' camp. Within the compound are five residences, five outbuildings, a shop and the powerhouse, to the southeast of the other buildings. Directly south of the homes, between the homes and Canyon Road, is a large, green park area, filled with various species of trees. Originally, three of the cottages were situated in this space, but when Ogden city improved 12th Street in 1968, these houses were moved to the north side of the camp. Despite this alteration, the Pioneer Power Plant district retains good integrity.

1. Powerhouse

Constructed in 1896-97, the L-shaped powerhouse exhibits elements of the Italian Renaissance style. Faced with a sandy-colored brick, the solid-brick building has a concrete foundation and an

asphalt-shingled hip roof with a monitor along the central ridge and overhanging eaves. Windows in the monitor are presently boarded over. Two belt courses of corbelled brick wrap around the structure--one near the eaves and the other at the transom level. Massive, semi-circular arched windows with corbelled arched lintels dominate the powerhouse's facades. Resting on concrete sills, each opening contains a pair of 12/12 double hung windows under a round-arched transom of 28-lights which radiate from a central point. The west side features the main entrance which has a corbelled semi-circular arch lintel and 44-light transom over sliding wooden doors. Metal gates cover the opening. Under the eaves, a sign reads, "The Pioneer Electric Power Company." On either side of the entrance is a 15/15 double hung window, one of which has a lower sash replaced with a fixed 1-light. In the north facade are two entrances, one with double doors under an arched opening, and the other a single door with a metal canopy in a window bay which has been partially filled in. Adjacent to this facade is a fenced yard and a modern prefabricated metal storage building. The east side also had a door in an arched bay which is now filled in. Above the arch are a series of insulators in square openings under a concrete lintel. The existing eastern door has a segmental arched lintel and metal canopy. On the south side of the powerhouse is the substation.

Extending from the south facade is an addition constructed circa 1913. Although it has a flat roof, the cornice molding and brick belt course replicate the lines of the original structure. The 12-light windows have 3-light transoms and concrete sills and lintels. The addition's east facade has three square openings with large insulators in them which lead to the substation. Nine round brick openings have now-unused insulators in the east side and the west facade contains three square openings with insulators connected to the switchyard.

Power equipment at Pioneer consists of two S. Morgan Smith Company horizontal reaction turbines, each connected to a Westinghouse, 2300 volt a.c. generator. Each turbine-generator set also includes a Westinghouse 125 volt direct current exciter, which is belt-driven from the main generator shaft. Water to each turbine is controlled by means of a gate valve. Each turbine features a

woodward water-wheel governor, but the turbines are now controlled by Woodward-Lombard hydraulic oil governors. Oil tanks for the hydraulic system sit adjacent to the turbines. The turbine-generator sets and associated equipment rest on heavy concrete foundations.

Originally, power equipment at Pioneer consisted of five Knight impulse-type waterwheels connected to General Electric generators. The plant was designed to accomodate ten turbine-generator sets, but apparently only seven were installed at any one time. The S. Morgan Smith Co. turbines were installed in the plant in 1913. The Knight waterwheels were subsequently removed.

Wastewater from the turbines passes through a central tailrace canal beneath the powerhouse. The tailrace emerges from underneath the powerhouse a short distance to the west of the building. Within the Pioneer plant grounds the tailrace is lined with concrete. The tailrace exits the south side of the grounds.

Electrical equipment at Pioneer consists of modern switches and controls, which are located in a sound-proof control room in the northwest corner of the building. The 1913 addition to the powerhouse is a switch room containing old switches and overhead bus bars hanging from a steel framework. The switches, bus bars, and steel framework, along with some insulators, are still in place. The switchroom also contains a small battery room and a men's room. Separating the switch room from the main generator floor of the powerhouse are three openings topped by brick arches. These openings probably were originally window openings. The brick arches, unlike those that enclose the window openings, now feature corbelled brick imposts. Adjacent to these large openings, on the generator floor, are six Westinghouse, 2300 volt, water-cooled transformers. Switch equipment and transformers were originally contained in a gallery in the east end of the powerhouse. This gallery was removed during the early 1900s, possibly at about the same time the 1913 switch room addition was built. A 1901 article by J.R. Cravath stated that the location of transformers and switches on a different floor than the generators was "an undesirable arrangement...the transformer switches will be moved down onto the main floor where they can be got at quickly by

the men attending the waterwheels and generators. Both economy of labor and reliability of service demand this." The 1913 addition and the removal of the gallery may have been part of the same project. The east end of the powerhouse is now used as shop space and contains tools and materials.

Running the full length of the powerhouse interior is an overhead travelling crane, 15 tons capacity, manufactured by the Whiting Foundry Company. The crane is probably original. The crane tracks rest on horizontal, riveted steel I-beams, which are nearly flush with the north and south powerhouse walls. These I-beams in turn rest on brackets extending from vertical riveted steel I-beams, flush with the north and south walls, which extend from floor to the roof. At their tops, these vertical I-beams support a system of steel roof trusses.

Despite a few changes to the exterior facade of the powerhouse, such as the 1913 addition, some window and door alterations, and the replacement of the turbines, the structure still clearly represents a high-head hydroelectric plant. It retains its historic integrity of location, design, setting, materials, workmanship, feeling and association. The powerhouse contributes to the historic district.

Dam, Conduit, Surge Tank

Water for the Pioneer plant comes from Pineview reservoir, located about 6 miles east of the plant up in Ogden Canyon in the Wasatch mountains. Water is conveyed from Pineview Dam to the Pioneer powerhouse through the Ogden Canyon Conduit, a wood stave pipeline that runs along the north side of the canyon. The Bureau of Reclamation built the Pineview Dam and the Ogden Canyon Conduit in 1934-1937. The conduit is 4.7 miles long and is operated and maintained by the Ogden River Water Users Association. Forty-four percent of the water carried by the conduit is used by Utah Power and Light at the Pioneer plant. The remainder of the water is chanelled through two irrigation canals, the Ogden-Brigham Canal and the South Ogden Highline Canal. At the point where the Odgen Canyon Conduit meets the top of the Pioneer plant's penstock, the Ogden River Water Users Association maintains a

large steel surge tank. The Bureau of Reclamation erected the surge tank during the mid-1930s, in conjunction with the Ogden Canyon Conduit and the Pineview Dam construction projects. The Ogden Canyon Conduit (not including the dam and surge tank) was determined eligible for the National Register on 5 May 1988; the line is recorded in HAER UT-51.

Pineview Dam, the Ogden Canyon Conduit, and the surge tank have no direct associations with the history of the Pioneer Plant. Furthermore, they were erected outside the period of significance for the Pioneer facility. Finally, one of these structures, the Ogden Canyon Conduit, has been determined eligible for the National Register on its own merits and has been documented in a HAER report. Therefore, Pineview Dam, Ogden Canyon Conduit, and the surge tank are not included in this National Register nomination.

2. Penstock

Between the surge tank and the powerhouse, the penstock is 4,600 ft. in length. Over this distance the line drops about 400 ft. in elevation. The top 250 ft. of the penstock is of welded steel, six feet in diameter, installed in the 1930s by the Bureau of Reclamation at the time of the surge tank construction. The more recent welded steel pipe met the older pipe at a concrete thrustblock topped by a pyramid made of rocks. Apparently about 70 ft. of penstock below the thrustblock was replaced in 1982. Below the thrustblock, to the west, the penstock is underground all the way to the powerhouse. At two points along the penstock, there are air valves, which are housed in a small wood sheds of recent construction. One hundred ft. from the powerhouse the penstock branches into two 54 in. diameter riveted steel pipes, each of which passes through a Venturi meter and a gate valve before attaching to tank-like, riveted steel penstock receivers, 6 ft. in diameter, situated underground on both the north and south sides of the powerhouse. Smaller branch pipes lead from the receivers to the turbines.

The penstock has undergone some alteration since its construction. Overall, however, the structure still maintains integrity of

design, setting, feeling, location, association, workmanship, and materials. However, the Pioneer penstock will be excluded from this nomination. Virtually all of the penstock lies underground, out of sight. Portions of it even lie under city streets and possibly private backyards. The penstock is not a prominent feature on the landscape, if at all. Lying underground, it conveys none of the historic visual associations of the Pioneer facility. Nominating surface ground which shows little or no physical, visual association with the penstock itself would be a complicated and ultimately ineffective way of including the structure within a district and this nomination.

3. Switchyard

Most of the transformer and switch equipment at Pioneer is modern and sits outside, adjacent to the building's south and west sides. Electrical cables from the generators are strung through a narrow basement passageway located between the machinery foundations and the building foundation wall. Because it is of relatively recent construction, the switchyard does not contribute to the historic district.

4. Shop

Erected in 1896-97 at the time of the powerhouse construction, the rectangular-shaped brick shop building has a concrete foundation, and an asphalt-shingled gable roofed central two-story block with one-story side wings that have sloped roofs. An eave molding extends around the building at the level of the sidewings and an eave molding on the gable roof returns onto the gable end. The building's windows have segmental-arched brick lintels but the original double-hung windows have been filled in and replaced with 2-light windows within the last few years. Within the south facade is a garage bay with a modern garage door and a 40-light transom under a semi-circular arched brick lintel. On either side of the bay are doors into the sidewings. In the north facade is another semi-circular arched transom and window over a pair of 4/4 double hung windows that have a segmental arched lintel. Attached to the north side is a corrugated metal addition with a corrugated metal shed roof and 4-light window. Also a small wooden shed with shed

roof and a new corrugated metal shed with shallow gable roof sit just north of the north facade. Originally, a tall, brick chimney stack extended from the northeast corner of the shop but it has since been taken down.

Attached to the shop's east facade is a row of four wood-frame, corrugated metal with corrugated metal shed roofs. The first garage has two bays with wood doors, the second garage has two fiberglass and one metal doors and the third garage has three metal and one fiberglass doors. These garages were probably built in the 1910s or 1920s.

Although the shop building has sustained minor alterations--such as the window and door replacements--it retains its historic integrity of location, setting, design, material, workmanship, feeling and assocation. It contributes to the historic district.

5-9. Ancillary Buildings

At the rear of the powerhouse is a small, rectangular-shaped, brick building used as the oil house (no. 5). It has a concrete foundation, a corrugated metal gable roof with vents and 4-light fixed windows. A new door faces west. The oil house maintains integrity of design, materials, workmanship, setting, location, feeling, and association. It is a contributing element in the historic district.

North of the powerhouse, within the plant yard, are three pre-fabricated moveable offices (nos. 6,7,8). Of modern construction, these buildings are rectangular-shaped with shallow arched roofs, metal siding, 2-light windows and metal canopies over the steps and door. Because they are of recent construction, these buildings do not contribute to the historic district.

North of the shop is the barn (no. 9), a rectangular, wood-frame structure with corrugated metal siding and shed roof. Rafter ends appear under the roof eaves. A single door faces south while double corrugated metal doors open to the east. This building is of unknown origin. However, minor stylistic features on the building (exposed rafter ends) indicate that the building probably

dates from c.1920. In addition, the barn appears to retain integrity of design, materials, workmanship, setting, location, feeling, and association. It contributes to the historic district.

10-14. Operator's Camp

Just west of the shop is the superintendent's house (#1218 12th Street) (no. 10), also constructed between 1896 and 1897. This brick veneered, one and a half story, irregularily-shaped Queen Anne residence has a concrete foundation, an asphalt shingled hip roof with intersecting gables. In the south, east and west gable ends are decorative elements with a sunrise motif and octagon-shaped shingles. Windows are 1/1 double hung. A 3-sided projecting bay with rusticated stone quoins and colored glass transom window faces south. In the east side is an eyebrow dormer with two 3-light windows. Porches have been altered somewhat. The south-facing porch has concrete steps, iron railings and posts and door with glass brick sidelights. One wood porch post and the porch entablature and dentil frieze remain. The east-facing porch has a concrete floor, no railing and square post. A fiberglass extension with metal rods extens from the porch. On the north, a small porch has concrete steps and a shed roof. A large 2-light fixed pane window has replaced the original windows in the west facade.

Despite the alterations to the porches and the window replacement. this dwelling still conveys its original architectural style and function. It retains its historic integrity of location, setting, design, materials, workmanship, feeling and association. It is a contributing feature in the historic district.

Behind the superintendent's residence are two wooden sheds. One has drop siding and a rolled asphalt shed roof and the other is construction of plywood with a sloped corrugated metal roof and corrugated metal sliding doors.

The remaining four houses in the Pioneer operators' camp were constructed in 1920 and are all virtually identical. Three of the cottages sit in a row behind the superintendent's house and are

numbered 1204 (no. 11), 1206 (no. 12) and 1208 (no. 13) 12th Street. The house at #1183 12th Street (no. 14) sits directly west of the superintendent's residence. These dwellings are one-story, rectangular-shaped, wood-frame structures with asphalt-shingled hip roofs, drop siding and concrete foundations. Under the overhanging eaves, rafter ends are exposed. The buildings have single and paired 1/1 double hung, 9-light and 2- or 3-light basement hopper windows. Porches have concrete steps and pipe railing. The house at #1208 has a patio extension in the rear that has a concrete pad, square posts and a shed roof. Behind #1183 are two sheds. The wood-frame structure has an asphalt-shingled gable roof, boarded windows and a fiberglass garage door. The other shed is a modern, prefabricated metal structure.

All four of these wood-frame cottages retain their historic integrity of setting, design, materials, workmanship, feeling and association. However, originally, the three workers' cottages in the rear (#1204, 1206 and 1208) were constructed in 1920 in a row at the southern edge of the camp. When the city of Ogden widened and improved Canyon Road and Harrison, the houses stood in the right of way. In 1968, they were then moved to their present site to allow for the road improvements. Despite this relocation outside the district's period of significance, these are contributing structures and retain the majority of their historic integrity. Because the houses were moved within the camp compound and were placed in a row, they remain in a similar setting as the original location. Although the relocation of the cottages altered the site, the camp as a whole still conveys the distinguishing characteristics of a hydroelectric plant operators' camp. The house at #1183, which sits on its original location, retains its historic integrity.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties: ___ nationally x statewide ___ locally

Applicable National Register Criteria x A ___ B x C ___ D

Criteria Considerations (Exceptions) ___ A ___ B ___ C ___ D ___ E ___ F ___ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Industry	1896 - 1920	1896, 1897, 1913,
Engineering		1920.

Cultural Affiliation
n/a

Significant Person
n/a

Architect/Builder
Bannister, C.K./Fisher, William; Rhodes Brothers; Pioneer Electric Power Company.

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

(see continuation sheet)

x See continuation sheet

Pioneer hydroelectric power plant is significant to the history of Ogden and the state of Utah under Criteria A and C. Under Criterion A, the Pioneer Plant is significant because of its associations with the development of the hydroelectric power industry in Ogden. Built in 1896-1897, the Pioneer Plant was the only hydroelectric power station of its size and type built in the city. Although electricity produced by the facility never created an economic boom in Ogden as some of the city's people hoped, the plant was an important supplier of power for lighting and industry. Under Criterion C, the Pioneer Plant is significant within a statewide context because at the time of its construction (and for almost a decade thereafter), it was the largest, most powerful, and most sophisticated hydroelectric plant in Utah. Moreover, the systematic planning, engineering, and construction techniques that went into the building of Pioneer were far superior to those of other hydroelectric developments and foreshadowed projects of the 1920s (such as Cutler) that were undertaken by a large-scale, highly organized corporation.

The Pioneer Electric Power Company was incorporated in December 3, 1893. Officers of the company included President George Q. Cannon, head of the Mormon church, Vice President F.J. Kiesel, Charles K. Bannister, Secretary-Treasurer, and Frank J. Cannon, General Manager. The company was organized for a variety of purposes, primarily to generate power but also to provide irrigation water and to eventually build a sugar factory in Ogden to process sugar beets. Bannister, an engineer, had previously conducted surveys and prepared preliminary designs for a hydroelectric power plant to be built for $1.25 million.

As one of Utah's leading industrial centers, and with mountain streams in close proximity to the city, Ogden presented an outstanding potential market for electricity generated from water power. Prior to the Pioneer Plant, only a few, small electrical generating stations had operated in Ogden. These facilities included one small hydroelectric plant, operated from 1883 to 1890 by the Ogden Electric Light Company, and two steam plants. All three plants provided only limited service. With the plans for the proposed hydroelectric plant made public, Ogdenites welcomed the prospect of more power. Newspapers predicted economic growth caused by industries locating in the city to take advantage of inexpensive electricity. The Ogden City Council, affirming the city's faith in the proposed plant, awarded the Pioneer Electric Power Company a franchise to supply the city with electricity.

Actual construction work on the Pioneer Plant did not begin until 1895. The Panic of 1893, a disastrous nationwide depression, may have prevented the Pioneer Company from starting the project earlier. It also may have kept the company from easily finding investors to fund the work. Before Pioner Electric and Power had arranged for financing of the entire plant, it hired a construction contractor. On 19 April 1895, the Pioneer Company signed the Rhodes Brothers of Denver, Colorado, to a contract for the construction of a six-mile pipeline, to run from upper Ogden Canyon to the powerhouse. About five miles of the conduit would consist of wood stave pipeline. The last mile would consist of a penstock made of riveted steel.

While Rhodes Brothers initiated construction work, officials of Pioneer Electric Power Company tried to secure financial backing to complete the project. Attempts to interest eastern capitalists in the project had begun during the preliminary survey work. In May of 1894, G.A. Purbeck of Purbeck and Company, New York, and engineers Thomas S. King and Warren H. Loss visited Ogden to examine the Pioneer Company's project, of which they approved. Pioneer Electric Power may have brought the men to Odgen in order to attract attention and lend professional legitimacy to the proposed hydroelectric power plant. The Pioneer Company's efforts finally bore fruit in the spring of 1896, as the nation's economic depression began to abate. On March 10, Joseph Bannigan (or Banigan), a multimillionaire rubber magnate of Providence, Rhode

Island. agreed to invest $1.5 million in the hydroelectric plant provided it was completed and capable of producing 10,000 horse power (the proposed capacity) by the end of 1897.

With financial backing secured, construction went forward at full speed. On August 11, 1896, the Pioneer Company awarded a contract to William Fisher of Ogden for the construction of a brick powerhouse, to be located about two miles north of downtown Ogden and about one mile east of the mouth of Ogden Canyon. At about the same time, a temporary timber crib dam was erected about six miles up Ogden Canyon, at a place where the canyon widened into a narrow valley, an ideal location for a reservoir. The timber crib dam was intended to be temporary, but it is unknown whether or not the Pioneer Company ever implemented its plans for a much larger, more permanent masonry structure.

Much of the work that went into the Pioneer Plant involved fabricating and laying the pipeline, a difficult task because of the distance to be covered and the ruggedness of the rocky walls of Ogden Canyon. Construction of the pipe was a sophisticated, highly organized and systematized process, one which revealed the skill of the project's chief engineer, Charles K. Bannister, and his associates. In order to house the operation that would fabricate the steel pipe, the Rhodes Brothers built a large shop building near the powerhouse site at a point where the lower end of the mile-long penstock would be located. The Union Pacific Railroad then built a three-mile spur from its mainline to the shop, which was open on one end to allow railroad cars to be shunted inside and unloaded. The shop contained all necessary machinery for making the penstock, such as rollers and punches. Engineer George H. Pegram designed special power riveters for the project. Fabricating the pipe on-site served two purposes: first, it allowed the steel to be shipped in flat plates instead of in finished sections, which would have been more expensive; and second, it allowed Bannister and an assistant to closely supervise and inspect the pipe-making operation. Adjacent to the machine shop the Rhodes Brothers also built a planing mill, where lumber was made into staves for the wood sections of the pipeline.

Construction of the Pioneer Plant involved approximately 500 men, many of whom probably welcomed the opportunity to work following

the nation's mid-1890s depression. Contractors employed nearly all of the workers, but the Pioneer Company hired some men to erect power machinery, structural steel for the powerhouse, and bridges for the pipeline. Four work camps were erected near the construction site, with buildings for housing and eating. In addition, a hospital was erected to take care of workers injured on the job. A fee was deducted from the men's wages to help pay for medical expenses. During the construction of the Pioneer Plant, several labor disputes occurred. The medical insurance program may have been a consequence of the disputes.

When completed in May 1897, the Pioneer Plant was an impressive achievement, the largest and most advanced high-head hydroelectric plant in Utah and probably the intermountain west. For one thing, the plant's capacity for producing power far surpassed previous Utah hydroelectric stations. The powerhouse contained space for ten turbine-generator units, of which five were originally installed. Together these produced a total of 3.75 megawatts. This figure contrasted, for instance, with the 1.8 mw capacity of Stairs Station (1895) and the 1.5 mw capacity of the Granite plant (1896), both located in Big Cottonwood Canyon near Salt Lake. Stairs and Granite, moreover, were built to their capacities, whereas Pioneer when constructed had room for even more power generation equipment. More turbine-generator units were to be installed at Pioneer as demand for electricity increased.

Another significant design feature of the Pioneer Plant was that the apparatus (including receiver pipes, turbines, generators, switchboards, exciters) on one side of the powerhouse roughly duplicated the apparatus on the other. If an accident occurred on one side of the powerhouse, this symmetrical arrangement allowed the other half to remain in operation. This design was unusual among Utah hydroelectric plants built during the 1890s and indicated Bannister's foresight in planning the facility.

A third important technological feature of the Pioneer station related to the transmission of electricity. Although primarily built to supply electricity to Odgen, a 36-mile transmission line was built to Salt Lake City. At the time of its construction, this was the longest line in Utah (shortly superceded by a transmission line from the Nunn Plant in Provo Canyon). Power was

sent over the line at 16,000 volts, but in 1898 engineers made important tests showing that power could be transmitted at 30,000 volts.

The overall size of the Pioneer Plant, along with its other design features, attracted a great deal of national attention. National engineering journals published numerous articles on the facility. In 1897, Henry Goldmark, an engineer for the Pioneer Electric Power Company, delivered a paper describing the plant at the annual convention of the American Society of Civil Engineers. A panel discussion followed Goldmark's presentation, during which one of the commentators, engineer Arthur L. Adams, stated that the Pioneer Plant, "By reason of its magnitude...easily takes front rank among the high-pressure water-power developments and long-distance transmission plants in this country." Adams also stated that the facility's careful design made it notable (see Goldmark's article).

The architecture of the Pioneer powerhouse, reminiscent of the Italian Renaissance style, was a fitting symbol of the Pioneer Electric Power Company's prominence. Along with the powerhouse, the station included a brick shop reminiscent with architectural details reminiscent of the powerhouse, and a large residence for the plant superintendent.

A few months after the completion of the Pioneer Plant, in July 1897, George Q. Cannon, C.K. Bannister, and others organized the Union Light and Power Company. In August, Union Light and Power consolidated a number of companies under its name, including the Pioneer Company, the Big Cottonwood Power Company (Stairs Station), and others. In 1899, Union Light and Power underwent reorganization and was renamed Utah Light and Power Company. Shortly thereafter, Utah Light and Power began operating the Pioneer Plant, Stairs Station, and the Granite plant in conjunction with each other. As part of an interconnected system, these plants served Salt Lake City and Ogden as well as a number of smelters south of Salt Lake. In 1904, Utah Light and Power merged with Consolidated Railway and Power to form Utah Light and Railway. Ten years later, in 1914, Utah Light and Railway and the Salt Lake Light and Traction Company combined to form Utah Light and Traction. In 1915, Utah Light and Traction came under the

management of Utah Power and Light Company.

After 1900, the Pioneer Plant underwent some important alterations. In 1913, new Francis-type reaction turbines were installed in the powerhouse. At the same time, an addition was built on the south side of the powerhouse to house switches and transformers (this equipment was later moved outside). Utah Light and Railway may have undertaken these changes as part of an overall effort to make its individual plants more efficient components in a larger, integrated power generation network. In 1920, Utah Power and Light erected several new dwellings for the Pioneer Plant operators. UP&L installed new houses at several of its plants during the 1920s. By 1925, at least eight men worked at the Pioneer Powerhouse. As hydroelectric plants needed constant monitoring, it was essential that operators live on the site. The construction of the houses in 1920 represented UP&L's effort to improve Pioneer and to provide adequate homes for the plant's operators.

9. Major Bibliographical References

Previous documentation on file (NPS):

___preliminary determination of individual listing (36 CFR 67) has been requested

___previously listed in the National Register

___previously determined eligible by the National Register

___designated a National Historic Landmark

___recorded by Historic American Buildings Survey # _____

___recorded by Historic American Engineering Record # _____

x See continuation sheet

Primary location of additional data:

x State Historic preservation office

___Other State agency

___Federal agency

___Local government

x University

x Other

Specify repository:

Utah Power and Light Company

University of Utah, Marriot Library

10. Geographical Data

Acreage of property 5.2 acres

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
A	1/2	4/2/0/8/2/0	4/5/6/6/0/0/0	B	1/2	4/2/0/6/8/0	4/5/6/6/0/0/0
C	1/2	4/2/0/6/5/0	4/5/6/7/0/1/0	D	1/2	4/2/0/6/4/0	4/5/6/6/1/4/0

x See continuation sheet

Verbal Boundary Description

x See continuation sheet

Boundary Justification

x See continuation sheet

11. Form Prepared By

name/title Mark Fiege/Janet Ore, Consulting Historians

organization for Utah Power and Light Co. date November 1988

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Verbal Boundary Description:

The Pioneer Hydroelectric Plant Historic District is located on the western edge of section 22, T6N, R1W, USGS Quad, Odgen, Utah. The historic boundary begins at the southeast corner of the fenceline, a point 380 ft. SE of the SE corner of the powerhouse. This point is located 40 ft. from Harrison Boulevard at the bottom of the embankment. The boundary parallels Harrison Boulevard for 1,115 ft., then turns directly W for 660 ft.--running N of the northernmost cottages--to the W edge of the driveway accessing the northernmost cottages. The boundary then proceeds directly S along the W edge of the driveway for 743 ft. to the N side of Canyon Road. The boundary then parallels Canyon Road 10 ft. from the road for 413 ft. in a SE direction. It then proceeds directly E along the southernmost fence line for 206 ft. to the point of beginning at the fence line at the bottom of the Harrison Boulevard embankment.

Boundary Justification:

The boundary of the Pioneer Hydroelectric Plant Historic District ecompasses those intact and visible structures historically associated with the operation of the Pioneer powerhouse. The boundary excludes surrounding buildings, mainly residences, not associated with the Pioneer plant. The boundary generally conforms to the parcel of ground that Utah Power and Light maintains for its operation of the Pioneer plant.

Pioneer Photograph Log:

Pioneer Hydroelectric Plant Historic District
Ogden, Utah
Mark T. Fiege, photographer
July 1988
Original negative at Utah SHPO

Photo #:

1. Pioneer powerhouse (no. 1), view to east (switchrack, no. 3, on left).

2. Pioneer powerhouse (no. 1), north facade, view to southwest.

3. Pioneer powerhouse (no. 1) interior, showing turbine, generator, transformers, high tension room in rear behind arches, view to southwest.

4. Shop building (no. 4), view to northwest.

5. Oil house (no. 5), view to northeast.

6. Superintendent's residence (no. 10), view to north.

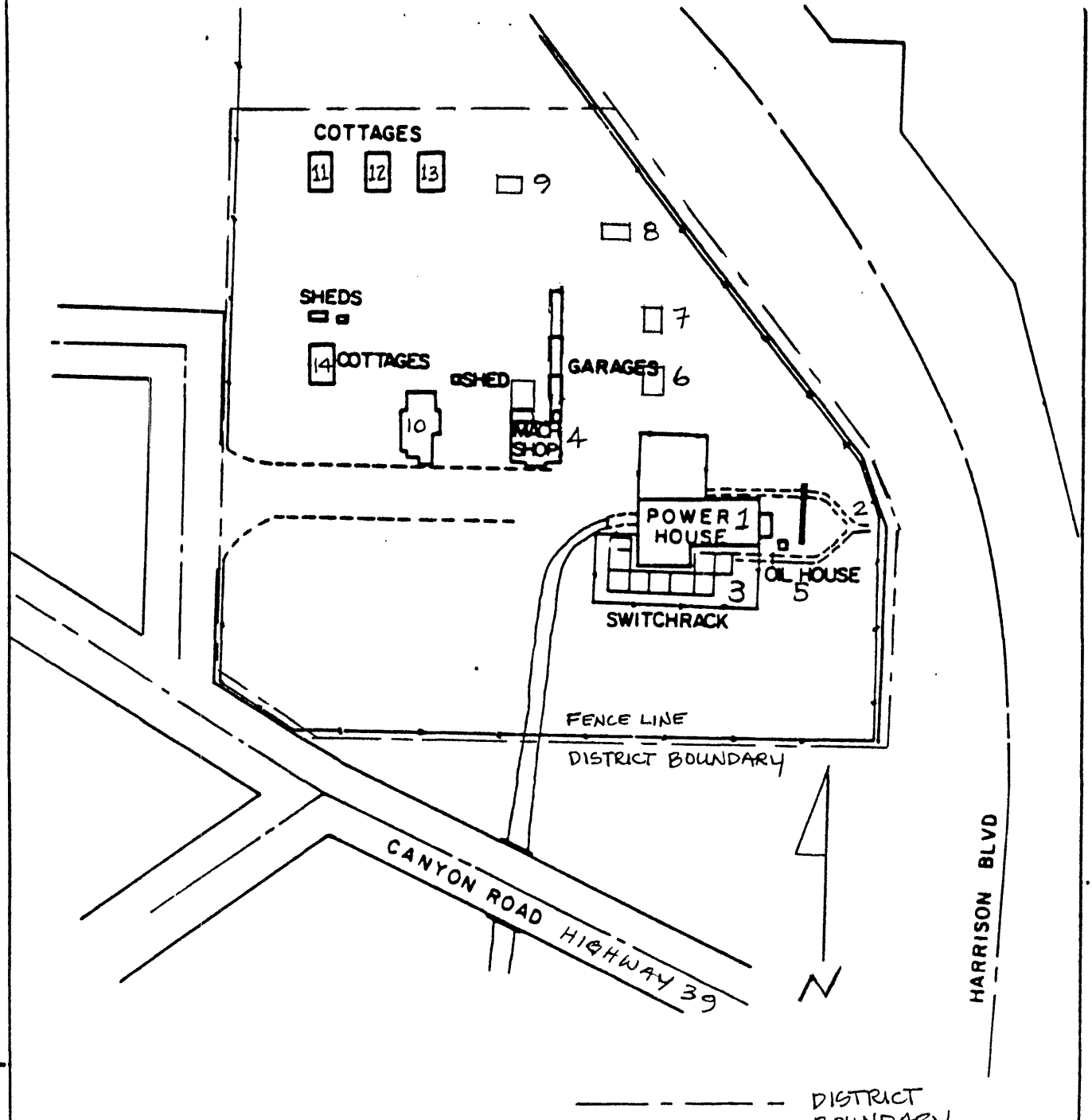
7. Operator's cottage (no. 14), view to north.

8. Operator's cottage (no. 11), view to northeast.

9. Operator's cottage (no. 12), view to northwest.

10. Operator's cottage (no. 13), view to northwest.

PIONEER HYDRO. PLANT
HISTORIC DISTRICT



DISTRICT BOUNDARY

DRAWN BY	VRH
TRACED BY	
CHECKED BY	J.L.T
CORRECT	

APPROVED J. R. Kenny
CIVIL ENGINEER

PIONEER DEVELOPMENT
GENERAL MAP

UTAH POWER & LIGHT COMPANY

SCALE NONE APRIL 9, 1975

UA-20132