

NEBRASKA LIGHT & POWER COMPANY

McCook, Nebraska

The Republican River Flood

in Southeastern Nebraska

as it affected the

Power Plant

1935

Foreword

This brochure is a brief story of the Republican River Flood of 1935 in Southwestern Nebraska, as it affected the Power Plant of the Nebraska Light and Power Company.

Many heroic deeds were performed during the thirty-six hours from the time the first men came to the plant to try to prevent the waters from entering the building, until the work of cleaning out was well under way, that will never come to the light of the public eye. Even if we had a complete account of every attempt to help, it would require a much longer narrative than can be written at this time. So, we have tried to give information without an attempt to dramatize or accentuate any one or more acts of individuals as being more important than others.

The fact that there were no serious accidents or illness among the employees during or as a direct result of the flood is a tribute to the courage and intelligent work of the men trapped at the plant by the water and the attempts of other employees and friends to rescue them.

after 3 days

The quick work of resuming service was the result of the whole hearted co-operation of the community, of the manufacturers of electrical and other equipment used in the power plant, of neighboring power companies from whom we borrowed materials and, of electrical wholesalers. This story shows how completely a service can be paralyzed, and yet what concerted effort can accomplish.

McCook, Nebraska,
March 20, 1935.

James R. Jaquet
General Manager
Nebraska Light & Power Co.



NEBR. LIGHT & POWER CO. BLDG. BEFORE FLOOD OF MAY 31st, 1935. MCCOOK, NEBR.

POWER PLANT BEFORE DESTRUCTION BY FLOOD
Photo by Ellingson

CHAPTER I.

THE FLOOD.

The fertile valley of the Republican River and its tributaries has been overflowed several times in the last few months and we now think of the floods of 1935 by numbers. At McCook the river was at flood stage four times in twenty days. The first flood, May 28 was, as far as we can determine, about the same as that of 1915, formerly spoken of as the "Big Flood". The second or really big flood occurred on May 31, the third on June 13 and the fourth, about the same as the first, on June 16-17.

The second or "Big Flood", as it will be designated in this narrative, is the worst known in this valley to any one living, as far as can be learned. The unofficial report of the state hydrographer is that the maximum flow at this point was 200 times normal. The peak flow near McCook was 171,000 cubic feet of water per second. Scores of lives were lost, dozens of homes washed away and destroyed thousands of acres of land rendered worthless for several years and some forever and millions of dollars of other damage caused on the 250 mile front of the river in Nebraska alone. Our story will be limited to the flood and the power plant. We would like to give a detailed account but we must limit ourselves to only a brief narration.

The big flood started early in the morning May 31 at McCook, reached its peak that afternoon, but water continued to run in the usually dry ditch near the power plant almost continuously until the latter part of June. From newspaper reports, we gather that damaging rains fell around Denver, Colorado, in the Republican watershed on May 30, and that the peak of the flood entered Kansas near Superior on June 1.

Flood Starts At about 4:00 A.M., the operator on duty at the power plant sent out the warning that water was running in the ditch north of the power plant. Employees were called and requested to secure other men and report at the plant as soon as

possible. By 5:00 o'clock, some 12 or 15 men had reported for duty and were filling sacks with sand and cinders. A wall of bags was built around the doors to keep out the water as had been done on the 28th.

The water receded before it reached the foot of the wall, and we thought that the danger was passed. However, we continued to build our sand bag wall bigger and better than before. Shortly after the water had begun to recede, it began to rise again. No call was issued for additional laborers, but as word reached the city that water was rising again, many men hurried to the plant in the hope of securing a few hours work as they or others had been able to do a few days before. Every regular employee of the company, not tied down to routine duties, was there to assist. Even the office men came down, some working at the plant, others running errands.

As the water continued to rise, more bags were secured and more shovels purchased until there were enough for all men. In a short time the land outside of the wall of bags was entirely under water and it was necessary to fill the bags with cinders only. One car had been sent to us two days before, and that morning two more were switched down near the power plant, by the C. B. & Q. Railroad.

Water Level
Previous Flood

The water soon reached the level of the previous Tuesday's flood, but we felt safe for the new dam was wider and built better than the old one that had been torn down the day before. In the meantime, men inside of the plant were also busy. Preparations were being made to cope with the water if some of it seeped through the wall and reached the power plant doors. All of the doors except two, were closed and sand bags placed against them to keep out the seepage.



10:00 A.M., a few minutes later the water
covered the embankment in the center ground
Photo by Geo. Kearns



11:00 A.M. the water has risen feet in
one hour
Photo by Geo. Kearns

Water Level
Higher

These sand bag walls were not very long, but the thirty or more men working on them could not keep ahead of the water.

Soon there was a cry from one of the men building the front walls that water was washing out our sand bags and all of the men around there rushed into the plant. In a few seconds the terrific force of the water obliterated all signs of the four foot rampart. It was not long until the walls at the rear of the plant also gave way and the men who were not on the cars, were all inside of the power plant. The water now being directly against the doors the seepage was becoming a serious problem.

Telephone calls were exchanged with the company office and that of the chief dispatcher of the Railroad Company to keep posted on the water situation up the river. News received was discouraging but as we talked the matter among ourselves we did not believe that the water could possibly reach a higher stage and expected it to begin to lower any minute. It was about this time we realized that the embankment on which we could have returned to land was partially washed out and that we were marooned for the time being at least.

It did not worry us for the water was almost as high a few days before and we thought when it began to go down it would not take long before we could return to the main land. It was after this that the water rose most quickly. Some conception of the speed with which the water arose can be gained by comparing photos on page 4. The first was taken at 10:00 A.M., the second at 11:00 A.M. This difference of water level is about feet.

Word was received from the chief dispatcher's office that the water had risen at the rate of 2 feet in 10 minutes at Culbertson.

The plea from a business man to "not let the plant go down regardless of what happens" made us re-double our efforts to not be whipped by the flood. Even the discouraging news of rapidly rising water was not enough to make us cease our efforts to keep up the service.

Plant Shut
Down

We were forced to shut down the large engines and cut off the current to the city at 10:50 A.M. We continued to operate one of the small engines until 11:20 A.M. when the water on the floor made the operation of these engines unsafe.

Although the plant was "dead" and the work seemed hopeless, we kept ourselves busy. The seepage through the cracks around the doors was increasing and the well house pit was filling up fast. Several motors in this room were loosened from their foundations, and were carried to a "safe" place where they would not get wet, so we thought. Water was also running in the oil pump pits. Efforts to remove the motors from these was unsuccessful for the water was filling these two pits very fast.

The motor generator set was dismantled and put on the large engines. Some of the men started bailing out water and were hoping to get rid of the seepage as fast as it came in when suddenly we heard a crash and a cry from the men in the old section of the plant. One of the doors in the rear had broken down permitting the flood to enter the plant. This drove us all onto the switchboard and on top of the engines. When the rush of water entered the plant one of the men, instead of seeking safety on a large engine climbed onto one of the smaller engines taking with him a piece of garden hose. From there he reached the roof through the pent house over the engine.



RESCUE WORK MSCOOK FLOOD 5-31-35

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A hand line and telephone cable car was brought to us on a rope. Two men were rescued in this way before the supporting poles were washed away

Photo by Don Gibson

Men in
Cars

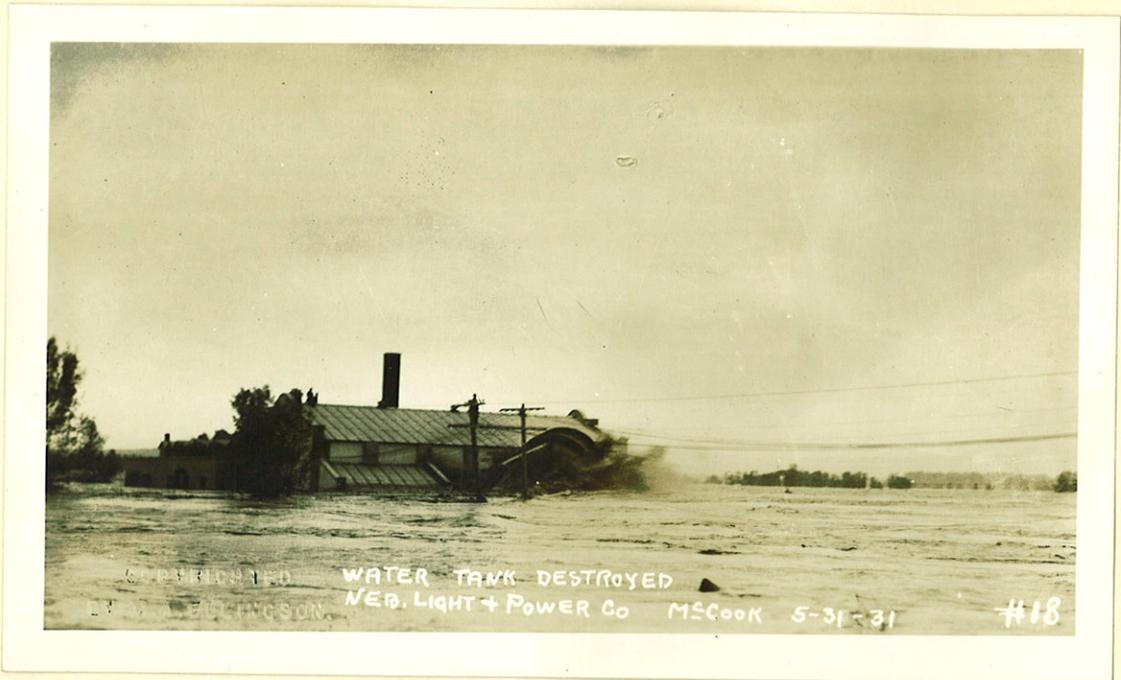
We who perched on top of the large engines could see the flood outside only through some of the small windows.

We envied the men on the cars outside, apparently safe and comfortable, until suddenly we realized the water was so high the cars were beginning to float away. There was a mad scramble to the west wall by some of the men inside who could swim. The water was about 5 feet deep in the power plant by that time. The larger part of the men in two of the cars succeeded in entering the plant through the windows. Two of the men, on the car near the oil unloading station were thrown into the water and saved themselves by climbing onto the rood of the old portion of the power plant. The first employee on the roof, by using a rubber hose as a rope, assisted two of the men onto the roof. Thus all employees were saved either by coming on into the power plant or climbing onto the roof.

Men on
Roof

The water continued to rise until it appeared that we, standing on top of the large 900 engine would soon be standing in the water. Some of the men tried to make a hole in the corrugated asbestos roof but we had only a short piece of beard and this was not large enough to pound a hole through the thick roofing. The men on top must have heard us, for in a short time we heard a crash and a beard came through the roof from above, striking one of the men on the forehead. After the hole was enlarged sufficiently, we all went through onto the roof where we spent the next 24 hours.

From here we saw the crowd of people on the banks some 400 feet away, our wives, mothers, fathers and friends. Under normal conditions we could have conversed back and forth but the loud roar of the water made it impossible to hear even the loudest voices from the other side.



The 25,000 gallon water tank fell causing an anxious moment for all, friends and relatives on the bank and the men on the plant

Photo by Don Gibson

One or two suggested trying to swim to shore but this idea was quickly put out of their minds as we did not believe that anyone could get across the water to land. We were helpless until the water subsided, and realized that all we could do was to remain where we were.

Three Men
Rescued

On the shore ^{bank} there was a great deal of confusion. Thousands of people flocked to the waters edge. Many suggestions for means of rescuing the men were made and some tried, but all to no avail. Finally a plan to send a rope across to the plant was carried out. The insulators were shot off of one of the wires from the land to the plant with high powered rifles. To this a large rope was attached ~~and we~~ ^{men} on the roof, pulled it to the power plant. A telephone cable car and hand line were brought over on the rope so that we could pull the cart to and from the land. The two "H" frames, to which the wire had been fastened and which now held the rope, had to be crossed and one man was stationed at each frame to assist the rescued men in changing the car from one side of the pole to the other. *use*

Two men were thus transferred from the roof to land. As we were about to start a third man, the water washed out the poles and the employee on the H frame near the plant dived into the flood. By his skillful swimming he succeeded in reaching a point near land about one fourth mile below, where he was thrown a rope and rescued. The washing out of these poles and breaking of the rope ended the attempt to rescue us in this manner.

Water Tank
Falls

While this was going on the large water tank fell into the water just missing the roof. Later it swung against the building but caused no damage. We were fortunate



DUST ABOVE - WATER BELOW
LOOKING WEST UP RIVER M^CCOOK 5-31-35

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A dust storm at about the peak of the flood
Photo by Don Gibson

that the tank did not fall towards the plant for if it had some of us would certainly have been injured. This was the third big thrill of the day for the marooned men. The first was when we feared for the safety of the men on the cinder cars, the second Bob's rescue from the water.

Now that the rope from the land had been washed away we gave up all hope of rescue before the next day. Towards dusk we saw the launching of a large pontoon and were not surprised to see the current carry it back to the land. We are told that on one or two occasions men tried to row small boats across the current, all to no avail. It is well that no further attempts were made to rescue us that night. Nothing but a large motor driven boat could have crossed the water by that time.

Dust
Storm

Going back to earlier in the afternoon. Just after the rescue of the men started on this rope, time seemed to pass slowly. Before long the skies darkened and we thought that dusk had come. We soon realized it was only a dust storm that soon broke away leaving behind it's usual deposit of dust. We are told that the tornado causing so much damage about six miles west of McCook occurred about the same time as the dust storm.

Darkness
Comes

Finally darkness came and with it a certain feeling of despair at the thought of the long hours before us with the roar of the flood and the lapping of the waves against the walls. The water was receding, it was true, but not fast, and we did not know how long the walls of the portion of the plant on which we were then staying, would stand the force of the water. The north or front of the plant, which we had always considered as being unusually strong, had been undermined. It is



The boat in which the larger part of the
men were brought from a point near the
water cooler to the land

Photo by Ion Gibson

true, it was reinforced with steel and the roof consisted of steel frame which was riveted and bolted together. We felt that we could always have some protection on this roof if we found the portion, where we were stationed to be unsafe.

We feel that we were fortunate in that two of the cinder cars were washed down only a short distance and were turned on their sides west of the old portion of the plant. This broke the force of the water and that which actually reached the wall could not do a great deal of damage. We were not sure of this but the presence of the cars, which we could now see protruding out of the water, gave us much comfort.

Possibly the greatest relief we had during the night was the light shining on the plant from the engines on the oil spurr, and the fire truck and other cars to the east. No one except we who spent the night on the roof know the cheer we received from these lights. The afternoon showers and the cold wind did not add to the pleasure of our enforced stay in the open.

There was some physical comfort by lying together on the roof where we could get a little bit of protection from the wind. Of course the men on the outside were cold and were forced to change places with the men on the inside from time to time. Some of us slept several hours that night while others walked around most of the time.

Morning and
Food Come

At last dawn came and with it sunshine and the hope that the water would recede sufficiently to permit us to return to land that day. Several attempts were again made to have small boats come to the plant. Finally two men succeeded in rowing to us with sandwiches, coffee and water, the first food we had for more than 24 hours. Later two others rowed out and took

back three of our roof dwellers, one of them had injured his hand the day before and we wished to get him home where he could consult a doctor as soon as possible.

Later when the water had gone down sufficiently so that we could wade out to a sand bar near the cooling tower, a large boat was brought to us and from then on, trips were made taking 7 or 8 men each time until we were all landed safely on land. The last boat reached land at about 2:30 P.M. Forty of us were marooned by the worst flood in the history of the valley with nothing but a few cigarettes to satisfy hunger and thirst, but not one was seriously injured or suffered very much from the experience.

During the period of our isolation in and on the power plant, there was very little general conversation. The men were not panicky and at no time was there a rush to be first when an opportunity presented itself for rescue. In fact, it was necessary for the manager, who was with the marooned group, to call out the men who were to be rescued. This was done without favor as nearly all the workers were strangers to him.

Rumors were sent out to the effect that much of the city was inundated and many houses destroyed in McCook. As a matter of fact only four or five houses were actually destroyed and no lives lost except those people away from their homes on the farms. McCook is built on a high hill far above the river. Some seven houses were partially or completely inundated and five were washed away from their property. One of these was broken to pieces and lodged in the bridge near the power plant. The other two houses were moved from their foundations and since then have been moved to higher points and placed on new foundations. It would be necessary for water to reach a level of 30 feet or more, higher than the top of this last peak flood before any number of houses would be affected. The larger part of the city is 75 feet or more above the peak of the flood.



Front view of power plant three days after
the flood. Note rails in foreground washed
from original location to the right. Debris
is being thrown out of the plant
Photo by Jaquet

"ROOF MEN"

The following men were trapped in the power plant except Paul Wilson, who brought the telephone cable from land. Three of the men were rescued before night. The balance spent the night with the roof for a bed and the sky for a ceiling.

Jake Amen	C. H. England	Hugh Meyers
Floyd Albright	W. R. Evans	E. J. Nelson
F. W. Anthony	R. H. French	W. Rishel
W. Baker	Frank Gillen	C. C. Parker
John Baker	John Herbst	Geo. Schlessman
Cloyd Bell	John Herman	Geo. Simmons
T. C. Bergin	Merl Huet	J. L. Snyder
Floyd Bower	A. S. Hockman	Ed. Sterr
Chas. Clark	J. R. Jaquet	Gunnar Swanson
Oscar Clark	Harry Jensen	Stewart Walker
Carl Cottingham	Ray Lytle	Paul Wilson
Lou Dulaney	V. Lytle	Louis Wolfe
Ralph Elwood	Elmer Mapes	Mike Worski
		Joe Ward

The data below gives a fair idea of the amount of water in the Republican river and its tributaries at flood stage. These figures were taken from the chart prepared by the Department of Public Works on exhibition during the Republican Valley Restoration Jubilee October 23 to 25th.

	Normal Width of River	Flood Wid.Of River	Flood Depth of River
North Fork west of Haigler	50 ft.	65 ft.	2 ft.
Haigler	100	1350	13
Arickee River	40	1210	71
Rock Creek	150	1750	9
Parks	100	2500	17
North Fork	100	4980	11
South Fork	200	3040	14
Benkleman	210	2730	19
Stratton	225	1900	14
Trenton	225	4960	16
Culbertson	100	1400	12
Beverly (e)	75	1230	14
Triftwood Creek	20	680	27
West of McCook	225	8500	14
East of McCook	360	4100	29
Red Willow Creek	18	1600	20
Indianola	300	5700	22
Bartley	225	7100	17
Medicine Creek	35	1020	17
Cambridge	300	7814	20
Edison	275	7955	21
Oxford	300	8725	18
Beaver Creek (Stamford)	40	845	16
Alma	360	7360	25
?	260	6540	20
Franklin	450	4020	20
Riverton	250	6650	25
Red Cloud	300	5150	24
Guide Rock	300	5180	24
Superior	400	8550	14



West side of old portion of plant. Note the two cinder cars that were overturned by the water and which later diverted the heavy current from the wall. We spent the larger part of our time on this roof while marooned

Photo by Jaquet

CHAPTER II.

SERVICE RESUMED

The water that went through the plant carried its share of trash and debris including dead animals. After the water had receded the plant was literally full of mud, twigs, branches, trees, leaves, all water animals, dead and alive and all other kinds of debris together with carcass of a cow, coyote and others. The first task was to remove this debris from the engines before the specialist could go to work.

The generating equipment consisted of six Diesel engines varying in size from 200 to 900 horsepower direct connected to generators. It was not necessary to put all of this equipment in serviceable condition before giving service for the city water pumps. The wells and pumps are located across the river. The first flood washed out a part of the line but did not in any way damage or endanger the city wells. None of the flood water entered the wells.

Service was cut off at 10:50 A.M. Friday. The last men were rescued from the plant at 2:30 P.M. the next day. By 5 P.M., the same day, 25 men had been transported across the water to the plant and were digging out one of the units. Emergency lights were arranged for and men worked day and night until the service was again resumed.

Before noon, the day of the flood, machinery had been set into motion to bring us experts to supervise the reconstruction of the power plant. The next morning, Saturday, before the water had receded sufficiently to be able to

communicate with the men on the plant, a company engineer had arrived from New Jersey and another electrical expert from Omaha by plane. That evening a third engineer had arrived from Washington State and the next day others were here from Omaha, Kansas City and other points. By Sunday evening, 24 hours after the first men were sent into the power plant, seven experts, representing every department of electrical generation and distribution were ready to take their part in the restoration of the power plant. A total of 200 men were engaged in the work of "mucking out" the plant and rebuilding destroyed lines. These men were fed one meal on the job during the first few days.

The 6 cylinder 300 horsepower was the first one cleaned up. Portable instruments were mounted on a temporary panel until a more permanent arrangement could be prepared. Gasline torches provided heat to dry out the generator that had been covered with canvas. The engine was almost entirely dismantled and cleaned out before it could be started. Three-fourths of a mile of 2300 volt line was built across the old river bed to the city pump line. At 2:00 A.M. Wednesday we were ready for service to the city pumps. At 3:00 A.M., 88 hours after the current was cut off, only 58 hours after the work of cleaning up had started, the city pumps were running again. *me*

The next Saturday night another engine was added and a limited service given to certain industries. Four or five days later, a third engine was started and limited service given to the entire community. A short time later full service was resumed.

Much credit is due the people of the community collectively and individually. Everyone helped and supplied us with every means within their power to assist in getting the plant back into normal operating conditions.

CHAPTER III.

BUILDING THE NEW PLANT

On June 22nd it was announced that a new power plant would be built where it could not be damaged by flood. On July 9th work was started in the excavation for the first engine foundation. Forty-seven days later the first engine (840 H.P.) had been installed and was operating. The walls of the building were well started, and water, oil, air connections, etc., had been established in the new location.

Other units were moved one at a time and the construction of the plant continued along with the moving of the equipment. There was no interruption of service except for a period of two hours after midnight to make some changes in the switchboard.

The new building is 48' x 80', 20' high, has a good cement foundation with a tile and brick super structure. Four units have been installed in the building to date.