

FORT HUACHUCA, ARIZ.

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COMPLETION REPORT
PUMPING EQUIPMENT FOR WATER SUPPLY SYSTEM
FORT HUACHUCA
ARIZONA

1939

Glenn Field - Mrs Carter - 6203 11081X
11082X
11083X
11084X

Submitted under the supervision of:
J.L. BROOKS, Major, U.S.A.
Constructing Quartermaster.

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December 10, 1963.

SUBJECT: Completion Report, Pumping Equipment for Water Supply System, Fort Huachuca, Arizona.

I N D E X

COMPLETION REPORT -- PUMPING EQUIPMENT FOR WATER SUPPLY SYSTEM.

FORT HUACHUCA, ARIZONA.

General Information ----- Page 1

Description of Completed Project ----- Pages 1 & 2

Construction Data ----- Pages 2 & 3

Financial Data ----- Page 4

List of Inclosures ----- Below

Pictures ----- 12 pages (supplement)

Print No. 6203-1062

Print No. 6203-1004

Print No. 6203-1018

Report of Field Tests of both pumps.

Progress chart *filed 6203* *1079 X*
 Layout plan of Power and *1080 X*
 Water Lines.
 Location sketch of New Well
 and Pump Houses.

1. Title Page

2. Preface

3. Summary of Work Accomplished and Recommendations

December 15, 1939.

SUBJECT: Completion Report, Pumping Equipment for Water Supply System. O.P. 7b2-13-1.

TO: Quartermaster General, Washington, D.C.

(1) General- This project consists of (a) Horizontal Centrifugal Pump, complete, installed in the Pump House adjoining the Surge Tank and (b) the furnishing and installing of a Deep Well Turbine at the location of the New Well No. 4. These pumps were installed in connection with the construction program underway for the improvement and enlargement of the Water Supply System on the Military Reservation, Fort Huachuca. The Horizontal Centrifugal Pump, purchased under Contract No. W-6203 qm87, is known as the Booster Pump and delivers the water from the Surge Tank, which is 182 ft from the New Well near the East Gate of the Reservation, to the 250000 gallon Reservoir located near the site of the old Reservoir in the Post proper. The Deep Well Turbine Pump was furnished and installed by the contractor under Contract No. W-6203 qm-68 and delivers the water from the New Well No. 4 to the Surge Tank. Both contracts included Pumps, Motors, and Electrical Starting Apparatus.

(2) Description of Completed Project -

(a) The Horizontal Centrifugal Pump manufactured by the United Iron Works, Oakland, California is a Type MS 4 stage pump complete with a 125 HP, 3 phase Motor and starting equipment and was installed in the pump house adjoining the Surge Tank with labor furnished by the Constructing Quartermaster. It was bolted to a reinforced concrete foundation and connected on the intake side to the 60000 gallon Surge Tank and on the output side to the 10" Main leading to the New Reservoir. As shown by the report of test this pump will deliver in excess of 500 gallons of water per minute under the existing conditions.

(b) The Deep Well Turbine Pump manufactured by the Wintroath Pumps, Inc., Alhambra, California is a 21 stage, screwed column pump with a 100 HP General Electric Vertical Hollow-shaft Induction Motor. As shown by the accompanying report of test, this pump will deliver in excess of 500 gallons per minute. The pump and motor as well as the starting equipment was installed by the contractor as specified in the contract.

1. Buildings -
None

2. Utilities -
None

3. These pumps installed for the service of the Government and the 25th Infantry, at present stationed at Fort Huachuca.

4. The construction of the pumps was accomplished for the purpose of delivering the water developed by the New Well No. 4 in the area near the east gate of the Military Reservation to the 250000 gallon reservoir located on the hill above the Post proper, thus eliminating restrictions and guaranteeing a sufficient quantity of water for sprinkling of lawns, irrigation of shrubbery, fire protection and other necessary uses.
5. The land on which these pumps are situated is within the Military Reservation and is owned by the Federal Government. No easements nor licenses are involved.
- (b) These pumps are located in pump houses as shown on Location Drawing No. 6203-1018 attached hereto.
- (c) Name Plate Data -
1. Horizontal Centrifugal Pump, United Iron Works, Oakland, California. Date 5-31-59, Job No. 4136, Size 4" MS-C-4 stage.
 1. Motor with above pump. General Electric Induction Motor Model 94E902G1, Frame 5465, Type KT 2300 volts, F-1-Amps. 29-3 phase, cycles 60, RPM 1775, HP 125 cont. 40 degree C rise, No. 5415145, Schenectady, N.Y.
 1. Deep Well Turbine Pump, Serial No. 2491, Wintroath Pumps Inc., Alhambra, California.
 1. General Electric Induction Motor, Model No. 12F1870, Frame 546Y, Type FT, Volts 2300 F-L Amps 24, 3 phase, 60 cycles, H.P. Cont. 100-40 degree rise, No. 5445885.
- (d) Photographs -
Reference is made to photographs with titles noted and attached to this report. These photographs are numbered as follows. Horizontal Centrifugal Pump (Booster) photographs No's 2073, 109, 113, 116, 120, 118, 124, 125, 136, 139, 140, 123, and Deep Well Turbine Pump, No's 2070, 2072, 100, 102, 110, 114, 119, 133, 134, 135. 2071.
- (e) Soil Data -
The soil at this location is hard compact gravel and silt. Its bearing value is 3000 pounds per square foot.
- (f) Plans -
Reference is made to accompanying plans and drawings as submitted by the contractors and made a part of the attached report of Field Test.
- (g) Complete information relative to the guarantees given by the Contractors are found in the attached report of Field Test, the same being made a part of this Completion Report.
- (3) Construction Data -
- (a) General Conditions-
During the first half of the month of June, 1939 the work of constructing the foundations for both the Horizontal Centrifugal (Booster) Pump and the Deep Well Turbine Pump was accomplished by the workmen employed by the Constructing

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Quartermaster and those employed by the Contractor, respectively. By the 15th of June the company supplying the turbine had delivered its pump, suction pipe and other units required for delivering the water from the well to the Surge Tank and the contractor started assembling the column and shaft lowering same into the Well. Photograph No. WS-100 taken July 1st indicates that, at that date, the column and shaft had been completely lowered into the well and the head of the Turbine Pump had been installed on the concrete foundation. Some delay was occasioned the contractor in completing his installation due to vendors inability to make prompt delivery of the electrical equipment necessary. However, By July 29th all equipment had been received and installed in place and ready for the field test which was accomplished during the next few days. As stated above the foundation for the Horizontal Centrifugal (Booster) Pump was completed by the workmen employed by the Constructing Quartermaster early in June and by July 11th the pump was delivered at the site of the pump house and installation work was started. After this pump had been placed on its foundation the necessary connections between the Surge Tank and the 10" Main leading to the Reservoir were made and at the same time the electricians were installing the switchboard, starter, and other electrical equipment so that the test of this pumping equipment could be accomplished at the same time as the test of the contractors deep well pumping installation was made.

(b) Operation of Contractor -

1. Organization

The contractor for the furnishing of the Horizontal Centrifugal (Booster) Pump was the United Iron Works of Oakland, California. The contractor for furnishing and installing of the Deep Well Turbine Pump was W.E. Lane, of Bisbee, Arizona, who operates as an individual expert well driller and represents the Wintroath Pumps, Inc., as their local distributor and dealer.

2. The methods, equipment and material used by the installing contractor were modern and efficient and up to specifications in every respect. The labor used was competent.
4. The contractor demonstrated out-standing ability and experience in the line of work called for by this contract and executed the completion of this contract to the satisfaction of all concerned. He bears an excellent reputation as an expert well man and payment of his obligations for material and labor were promptly consummated.

(c) Progress -

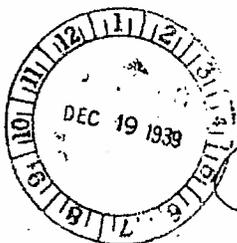
Reference is made to Drawing No. 6203-1062.

- (d) Supervision of this work was conducted by the Constructing Quartermaster, US Government Inspector and Assistant Engineer.

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(4) Financial Data -

- (a) List of Appropriations Involved -
 Procurement Authority OP 752-13-1, (P.W.A. QM)
 0581; 1938-1940, 21-408/00581
 QM 3601 P13213 A0581-80 \$10386.65
- (b) Name and Address of Contractors
 United Iron Works, 580 2nd St., Oakland, California.
 Contract dated June 2, 1939, amount \$4500.00, no
 change orders nor extensions thereto.
 W.E. Lane, Box 333, Bisbee, Arizona, contract dated
 June 1, 1939, amount \$5886.65, no change orders nor
 extensions thereto.
- (c) 1. Total Cost of Work: \$10386.65
 2. Cost of various items entering
 into the work:
 Labor (QM) (Booster Pump Foundation
 and Installation) 179.50
 Material (QM) (Booster Pump
 Foundation and Installation) 20.50
 3. Amount of Contracts
 (a) Horizontal Centrifugal Pump
 Complete, Contract No. W-6203
 qm-67 4300.00
 (b) Furnishing and Installing
 Deep Well Turbine Pump, Contract
 No. 6203-qm-66 5886.65
 4. Expenditures under Purchase and Hire: 183.00
 5. Overhead and other charges: 17.00
- (d) Date of Final Payment -
 September 6, 1939.
- (e) Amount and Disposition of Unexpended
 Balance: None



[Handwritten Signature]
 J.L. BECKS,
 Major, Q.M. Corps.,
 Constr. Quartermaster.

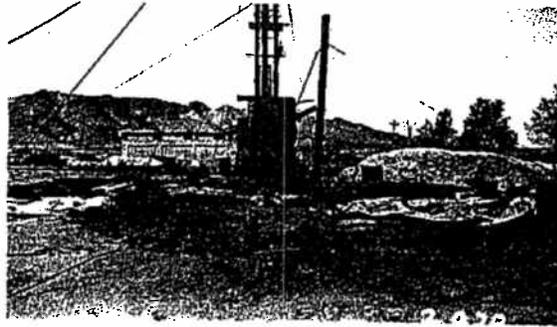
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FORT HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: DEEP WELL TURBINE

Film No. 2070

June 15, 1939.



Showing arrival of Pump Column Shafting, etc., for installation.

Film No. 2071

June 15, 1939.



Showing contractor assembling column and shaft and lowering unit into casing.

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WATER SUPPLY SYSTEM: DEEP WELL TURBINE

Film No. 2072

June 15, 1939.



Showing contracting equipment installing Pump and Column into 14" casing.

Film No. 100

July 1, 1939.



Head of Turbine Pump installed on concrete foundation; workmen starting wall forms for pump house.

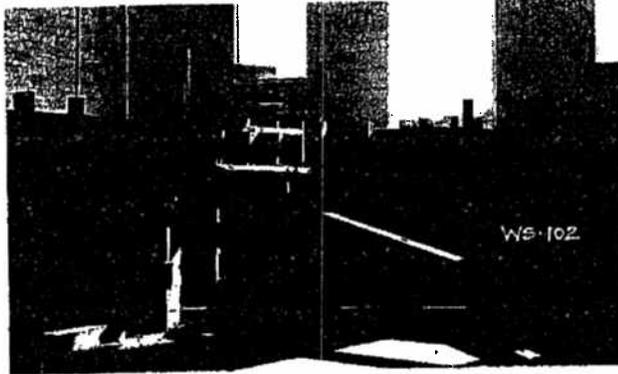
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FORT HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: DEEP WELL TURBINE

Film No. 102

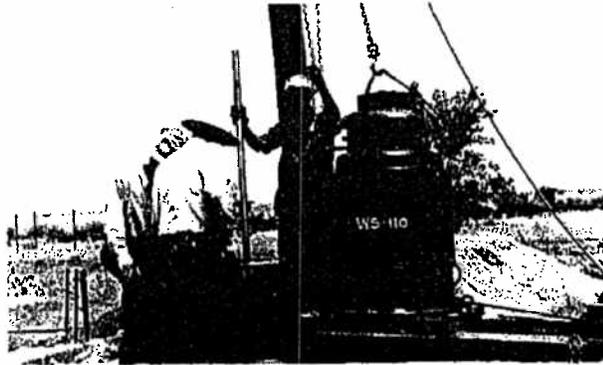
July 3, 1939.



Interior view of Booster Pump House showing concrete slab forms for electric station.

Film No. 110

July 11, 1939.



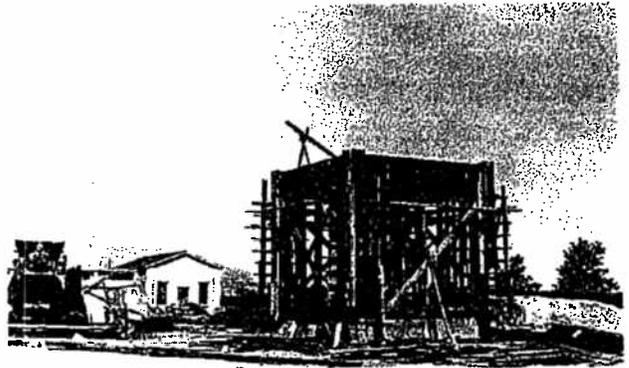
Contractor setting electric drive motor over Turbine Pump Head at 14' Well.

FORT HUACHEUCA
ARIZONA

WATER SUPPLY SYSTEM: DEEP WELL TURBINE

Film No. 114

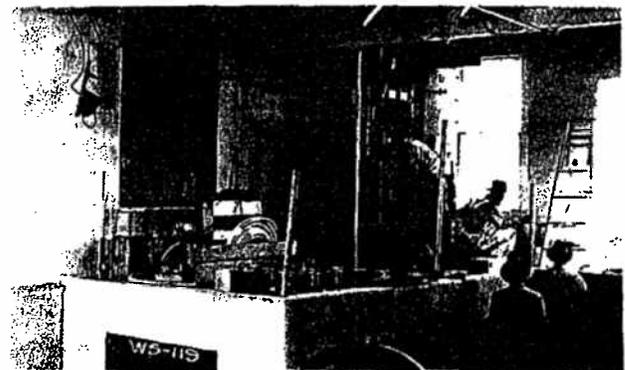
July 15, 1939.



Showing completed form work for base of Pump House covering
Deep Well Turbine installation.

Film No. 119

July 25, 1939.



Electricians assembling Electric Units for operation of
Turbine.

REPRODUCED AT THE NATIONAL ARCHIVES

USFH-00000783

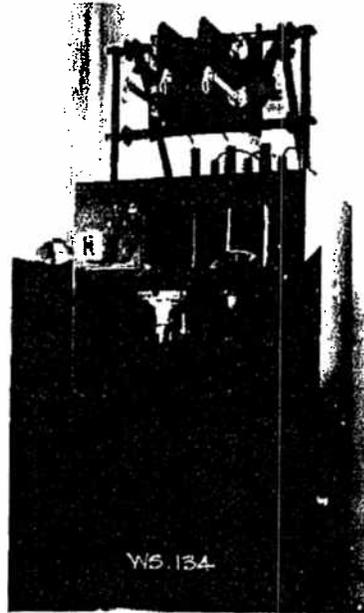
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FORT HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: DEEP WELL TURBINE

File No. 134

July 29, 1959.



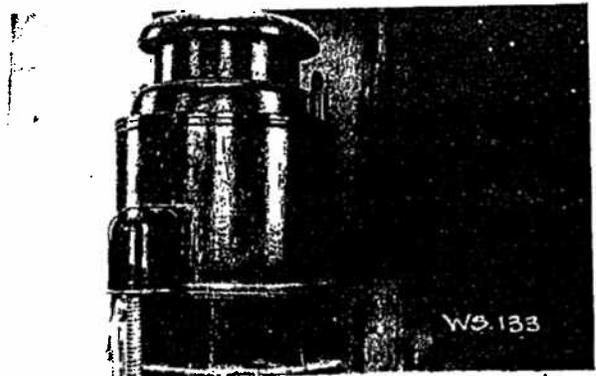
Motor-starting equipment for Deep Well
Turbine installed by contractor.

FORT HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: DEEP WELL TURBINE

Film No. 133

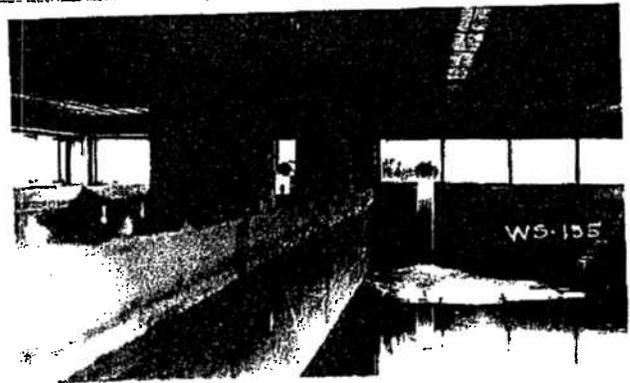
July 15, 1939.



Complete installation of Electric Motor on Pump-Head of
Deep Well Turbine.

Film No. 135

July 30, 1939.



Water from Deep Well Turbine filling Surge Tank at rate
of 280 gallons per minute.

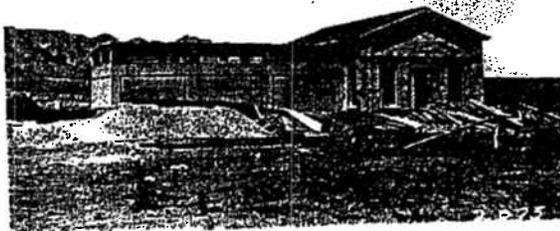
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PORT HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: BOOSTER PUMP

Film No. 2073

June 10, 1939.



Showing Pump House and Reservoir awaiting arrival of Pump Unit from San Francisco.

Film No. 109

July 11, 1939.



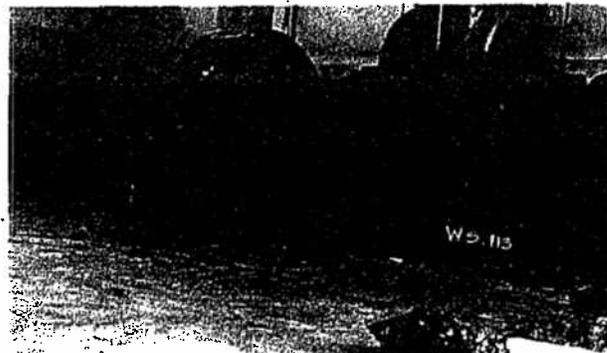
Four stage Booster Pump being unloaded from truck to doorway of Booster Pump House.

FORT HUACHUGA
ARIZONA

WATER SUPPLY SYSTEM: BOOSTER PUMP

Film No. 113

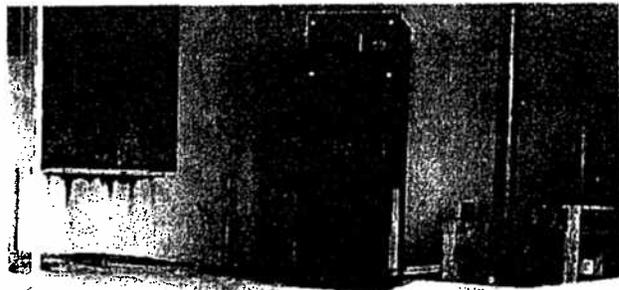
July 13, 1939.



Showing 4-stage Centrifugal Pump on its foundation in the
Booster Pump Station at 14" Well.

Film No 115

July 15, 1939.



Recording the arrival of Electric Starter for Booster Pump
and varied assortment of Switch Board Equipment.

REPRODUCED AT THE NATIONAL ARCHIVES

USFH-00000787

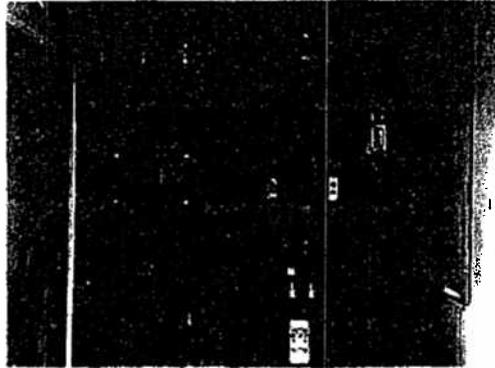
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FORT HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: BOOSTER PUMP

Film No. 120

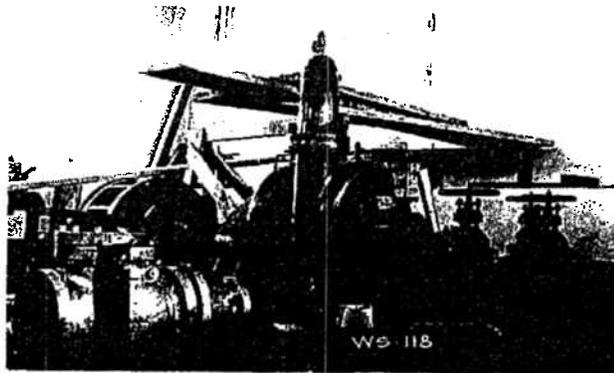
July 20, 1939.



Installing Switch Board and Starting Unit in substation
at Booster Pump House.

Film No. 118

July 25, 1939.



Assembling Units connecting Pump to 10" Discharge Valves
and Pipes. Check Valve on left.

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WATER SUPPLY SYSTEM: BOOSTER PUMP

Film No. 124

July 28, 1939.



Installing Tank overflow lines and Clean-out Valves.

Film No. 125

July 28, 1939.



Electric connection made to Motor and Mechanical Coupling
between Motor and Pump assembled and bolted.

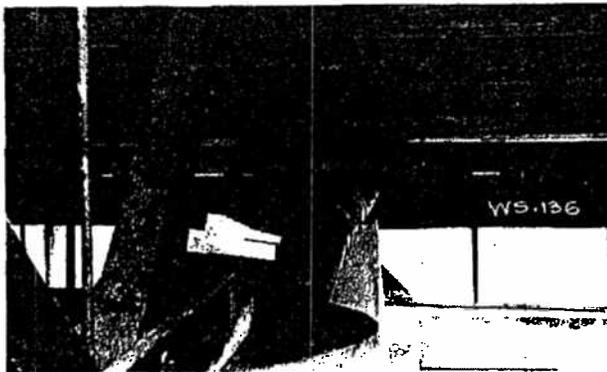
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FOUR HUACHUCA
ARIZONA

WATER SUPPLY SYSTEM: BOOSTER PUMP

Film No. 138

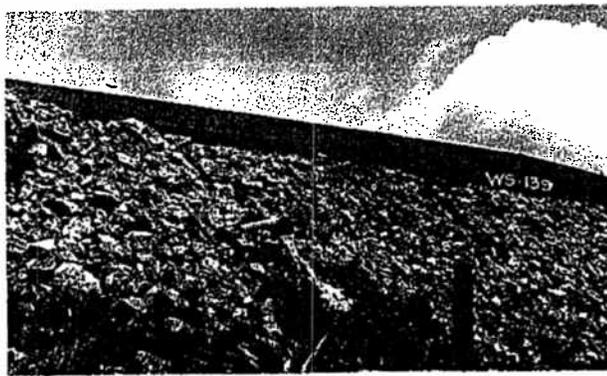
July 30, 1939.



Water from Booster Pump flowing from end of 10" Steel Pipe into Distributing Box of old Reservoir at rate of 530 gallons per minute.

Film No. 139

August 1, 1939.



Water overflowing from New Reservoir filled to capacity through Discharge Pipe into Ravine Feeding.

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WATER SUPPLY SYSTEM: BOOSTER PUMP

Film No. 140

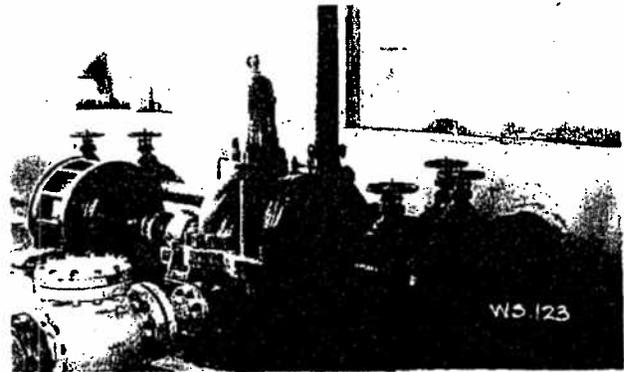
August 1, 1939.



Overflow from New Reservoir issuing from Discharge Pipe at
100-gallons per minute.

Film No. 123

July 28, 1939.



Completed installation, Booster Pump.