Extreme Makeover for a 60-year Old High Service Pump Station: Transitioning from Horizontal to Vertical Pumps

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Agenda

- Background
- Project Goals
- System Analysis
- Clearwell Capacity
- Secondary Access
- Construction Schedule
Background

North Texas Municipal Water District (NTMWD)

Formed in 1951

Wylie, Texas
Background

13 Member Cities

- Allen
- Farmersville
- Forney
- Frisco
- Garland
- McKinney
- Mesquite
- Richardson
- Plano
- Princeton
- Rockwall
- Royse City
- Wylie

49 Customer Cities, Towns, & Water Supply Corporations

Nearly 2 Million People

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- Nearly 2 Million People
- 13 Member Cities
- 49 Customer Cities, Towns, & Water Supply Corporations

Legend:
- NTMWD Reservoirs
- NTMWD Service Area
- Texas Counties
- Urban Areas
Project Goals

Maximized Treatment Plant’s Capacity
- Utilize 70 MGD of treated water from Plant I

Clearwell Capacity
- Approximately 46% of the storage within the clearwells are not accessible

Secondary Access
- Single point of access with limited area
System Analysis

Water Treatment Plant I

HSPS 1-1
Plano, Allen, S. Garland

14-inch, 20-inch, 24-inch to 42-inch
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North System  East System  North Garland  South Garland

Q=334 MGD  Q=158 MGD  Q=152 MGD  Q=46 MGD
System Analysis

Water Treatment Plant I
70 MGD

- Plano: 1.6-MGD
- Allen: 4.8-MGD
- S. Garland: 42.3-MGD
- Rockwall: 7-MGD

14-inch, 20-inch, 24-inch to 42-inch

Total Firm Pumping Capacity of WTP I is 55.7 MGD
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System Analysis

Water Treatment Plant IV

Water Treatment Plant III

Water Treatment Plant II

Water Treatment Plant I

HSPS 3-1

Water Treatment Plant III

HSPS 2-2

Water Treatment Plant II

HSPS 2-1

Rockwall 7 MGD

Wylie Rockwall Farmville

HSPS 2-3

Plano

S. Garland

To North System

To East System

To North Garland

To North System

To North Garland

To North System

To South Garland

To East System

North System

East System

North Garland

South Garland
System Analysis

- Seis Lagos MUD
- Parker
- Wylie NE WSC
- Wylie Water Treatment Plant (HSPS 1-1)
- Murphy Booster PS
- Plano No. 1
- Plano No. 2
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System Analysis
System Analysis

New Firm Pumping Capacity of WTP I 70 MGD

Water Treatment Plant I

HSPS 1-1

14-inch 20-inch 42-inch

Proposed Connection To South Garland

To South Garland

To South Garland

Rockwall 7 MGD Clearwall

20-inch

To East System

North System

East System

North Garland

South Garland

North System

East System

North Garland

South Garland
Clearwell Capacity
Clearwell Capacity

Max Clearwell EL @ 510.00

Accessible Clearwell Capacity

Min Clearwell EL @ 492.75

EL @ 488.00

Pump Room Floor EL @ 500.00
Clearwell Capacity

[Diagram showing the 20' between Excavation Area and Water Tower, with marked excavation areas and distances.]
Clearwell Capacity

Prohibited Excavation Area
Clearwell Capacity

Max Clearwell
EL @ 510.00

Min Clearwell
EL @ 492.75

EL @ 488.00

Pump Room
Floor EL @ 500.00
Clearwell Capacity

Max Clearwell EL @ 510.00
Min Clearwell EL @ 492.75
EL @ 488.00

Pump Room Floor EL @ 500.00

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Clearwell Capacity

Area of Excavation
Secondary Access
Secondary Access

New Access Location
Secondary Access
Secondary Access
Construction Schedule

- Pump and Motor Pre-Purchase
- Pump Station Bid
- Piping Interconnections Construction
- Plant Shutdown and Pump Station Construction
Construction Schedule

- $9,763,172 Total Construction Cost
- Construction scheduled for July 18th
- 16 months for construction
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Questions?
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