History

Old Bayo Canyon WWTP – Built in 1964 & 1966 & 1976 Convert from Imhoff Tank to Trickling Filter

White Rock WWTP – Built in 1965 & 1975

In 2000, when both wwtp's were 35 years +/- old, EPA & NMED started to promulgate more stringent effluent discharge permit limits which neither wwtp could meet

Old Bayo WWTP area already experienced increased nitrogen levels in the groundwater around the plant site

WR WWTP discharged onto tribal land and flowed directly into the Rio Grande with the same water quality as the Old Bayo WWTP

Both wwtp's discharged Class 1B effluent that severely limited expansion of the NP system

NMED started discussions with DPU regarding wwtp improvements to meet more stringent permit limits and to allow for expansion of the NP system

DPU determined that the Wastewater Fund, and DPU rate paying customers, could not adequately fund the replacement of both wwtp's at the same time. Because of the existing ground water situation at the Old Bayo WWTP, and because the feasibility of NP system expansion was greater with effluent from the Old Bayo WWTP, and because the WR WWTP was in better condition than the Old Bayo WWTP, it was decided that the Old Bayo WWTP would be replaced first and the replacement of the WR WWTP would be delayed for 10 years.

Old Bayo WWTP Replacement – Now the New LA WWTP

Facilities Plan – 2001 – Selected an Oxidation Ditch wwtp technology – cost estimate = $9,620,000 (2001 dollars)

New LA WWTP (Replace Old Bayo WWTP) – Built in 2006/07 for $14 million (2006 dollars)

Original bid came in "too high" @ $12 million so bids were rejected, and project was re-designed to cut costs (NOTE: re-design cost = $750,000)

Second bids came in @ $14 million and reduced scope project was built for the higher cost

$14 million (2006 dollars) times 3% per year escalating construction costs over 16 years = $22.5 million (2022 dollars)

WR WWTP Replacement – Planning & Design

In 2010 DPU determined that the Wastewater Fund could still not adequately fund the new WR WWTP and so the replacement of the WR WWTP was delayed for another 10 years

2010 Preliminary Engineering Report to extend the life of the WR WWTP an additional 10 years was completed. Estimated costs over this additional 10-year period = $750,000 (2010 dollars)

Actual costs over this 10-year period = $400,000 (2012 – 2016 dollars) (throw away costs)

WR WWTP began violating the discharge permit limits consistently in 2015

NMED added language to the latest permit renewal (Feb 2021) that newer more stringent limits would be imposed after the proposed new WR WTP replacement plant construction was completed

2016 Preliminary Engineering Report (Facilities Plan) – studied 5 different types of wwtp's and selected an oxidation ditch type plant as both the lowest construction cost and lowest operation & maintenance cost

2020 Design Analysis Report – Began the formal design process for the current proposed project

The first step in this formal process was a thorough and detailed value engineering effort starting with the recommended oxidation ditch technology recommended in the 2016 Report. It was reaffirmed that this technology, while not the most advanced on the market, met the current and future needs of the more stringent permit limits with the lowest construction and O&M costs.

It was also reaffirmed that the design capacity of the proposed new wwtp (0.50 MGD) was appropriate considering planned growth was relatively slow. Reducing the proposed wwtp capacity slightly – say to 0.40 MGD – would save virtually nothing on construction or O&M costs because the size of the basins and the O&M responsibilities for the equipment would be virtually identical.

Site planning does provide for the efficient expansion of the proposed wwtp to accommodate either increased growth of the White Rock community or the taking on of wastewater flows from LANL.

Following are value engineering items the design team identified to reduce scope and project cost:

- Removing the second oxidation ditch from the design, to be built in the future if additional capacity is required. We had to educate ourselves on how maintenance and repairs could be accomplished with/to the one ditch process if it had to be kept in operation (vs. being able to divert all flow and process to a second, redundant oxidation ditch)
- Pre-Selection of process equipment and negotiating cost agreements for the benefit of being the chosen equipment vendor/supplier to minimize equipment selection costs during the bid phase
- Selection of process equipment was in large part focused on value vs. simply choosing the most desired or advanced equipment – if it fulfilled the mission for that equipment
- Deleting demolition of the existing plant basins for future re-use as NP water storage basins
- Re-use of the existing Admin building and digester basins eliminating the construction of a new admin building and two digester concrete basins
- Including the demolition of internal equipment within the primary clarifier, trickling filter and secondary clarifier as bid alternates
- Eliminating the additional work to re-purpose the trickling filters and secondary clarifiers as NP water storage from the current project but allowing for this to occur in the future
- Solids handling loadout facility is designed to allow for enclosure in the future. Current design includes a roof but no walls
- Reduce the amount of asphalt in the base bid with bid alternates included to add the asphalt paving that would reduce future maintenance costs
- Odor control equipment was provided for but not included in the headworks facility
- Existing chemical feed building was reviewed as a possibility to be repurposed to the Hypochlorite Building. After review of using the building, it was determined a new building would be more cost effective and less complex.

- Reuse the existing effluent parshall flume concrete basin & trough and tying the treated effluent into the existing reuse pond piping with no new penetrations into the effluent storage pond
- Off-site drainage improvements were included as a bid alternate to allow the County to complete this work separately or with this project
- Improvements to existing on-site storage shed were completed by County such as roof and door repair/replacement
- The administration building layout was minimized (and much smaller) as compared to the LA WWTP. The layout was designed to fit within the existing administration building but the reduced size eliminated the need for a new administration building
- Old fine screen will be salvaged furnished to DPU for possible future use
- Choice of communication equipment and protocol between and from the PLCs and to the main control center was not the most advanced and expensive option (we chose Allen Bradley MicroLogix)
- Use of recycled materials where possible
- Using concrete basins in lieu of stainless-steel tanks in certain processes
- Removing stainless steel hardware in lieu of standard iron, or coated iron where it wasn't absolutely necessary
- Re-use of other existing plant facility buildings (old recirculation pump bldg., SO-2 building, etc.)
- Choosing the smaller footprint dewatering equipment to save critical (more costly) indoor floor space to allow for re-use of the existing Admin building
- Digester mix pumps were located outside of the solids holding area to save floor space
- Scaling down the solids loading bay to a simple covered port with no heating, etc.
- Removing the secondary sound attenuation wall around the generator
- Scaling down the size of the generator by shedding electrical loads to essential processes only in the event of an electrical outage
- Scaling back general demolition, decommissioning, and re-fitting of existing basins and processes for future projects and through optional bid alternatives
- Using standard plain designs for the new process buildings, plus housing multiple processes (i.e. UV disinfection and tertiary filters) in a single building
- Minimizing piping and electrical line runs by analyzing layout options – these optimal (shortest run) pipe and electrical run designs dictated the placement of facilities to minimize cost
- Removing primary utility feeds (gas, electric, water and communication fiber) scope from the bid project and perform these construction items directly through in house crews and the DPU on-call contract services (pre-negotiated prices, plus removing from the project's Contractor scope that would include overhead and profit)
- DPU pre-purchased, ordered/handled, and supplied (in-house) the new 750 KVA transformer for the new plant
- Generally minimizing site space for new construction, resulting in less site civil work (grading/drainage/surface improvements)

<u>WR WWTP Replacement – Where We Were</u>

Original project wwtp construction only cost plus NMGRT = $13.5 million (Jan 2020 dollars)

Early COVID Concerns revised the estimated construction only cost plus NMGRT = $14.5 million (June 2020 dollars)

Early Covid Total Project Estimated Loan Amount = $17 million (May 2020 dollars)

$17 million included other costs: admin, engineering, inspection, testing, etc.

WR WWTP Replacement – Where We are Today

Current Total Project Estimated Loan Amount = $30 million (October 2021 dollars)

$30 million includes all costs: admin, engineering, inspection, testing, and construction.

Total Estimated Loan Amount = $30 million (October 2021 dollars), however, only drawn expenses from the project will be applied to loan principal, to be repaid.

WR WWTP Replacement – How We Got Here

Recent news reports have been describing the impact that COVID has had on supply chain issues. These supply chain issues have caused severe shortages of materials, supplies and equipment directly related to a wwtp construction project. These severe shortages have caused drastic price increase that range in the 5 to10% per month – with sometimes week to week increases

The COVID has also severely and adversely impacted the construction labor market

Furthermore, severe weather events such as recent hurricanes and floods have impacted the manufacturing of pipe and pipe appurtenances – which are also a major portion of the WR WWTP project.

All these impacts, labor and material shortages and supply chain deficiencies, are causing significant shortages with consequential price increases.

Nobody is predicting when this current market volatility will end and prices will stabilize.

Experience indicates that, after conditions improve, prices may stabilize but will not come down significantly. Instead, years of inflation will eventually catch up to those “stabilized” prices with prices then again beginning to climb.

WR WWTP Replacement – Recommended Path Forward

The State of New Mexico is offering to adjust the WR WWTP Replacement Project loan amount up to a revised value of $30 million (October 2021 dollars).

If the DPU and the County can process all documents necessary to approve and accept these State loan funds, and if these loan funds do become authorized for expenditure, both within the current time-compressed schedule, the new financing can be formally and officially authorized on 7 December 2021 per State financial advisors.

At the same 7 December 2021 meeting, the Council can award the current bid for construction of the WR WWTP Replacement Project, subject to loan closing on January 7th, which is 30 days after the ordinance adoption.

If the current bid on hand is not awarded by 7 December 2021, then the current bid price locked in by the bidding process will have expired. Regardless of this outcome, the bid evaluation committee first needs budget authority before recommending a bid to Board and Council (staff is exploring if the bid could be extended by 30 days).

If the bid expires the project will have to be re-bid. If the project is re-bid the costs will most likely go up again because typical State wage rate adjustments and annual construction cost increases are adjusted in January of each year.

One way to avoid these potential additional cost increases that may be incurred if the State loan funds were not fully authorize for expenditure until after the 7 December deadline, is for the County to provide a short term "bridge" loan to DPU until the State loan funds are fully authorized. It is anticipated that, if necessary, this "bridge" loan would be for only a matter of one month (staff is also exploring this option).

ARPA funding has also been discussed in the amount of $1.3 million (October 2021 dollars) to go toward the cost of the WR WWTP Replacement Project – to offset some of the cost increases caused by the COVID. These funds, in whatever level they are ultimately approved, would reduce the final loan amount required from the State; also helping to keep rate pressure from DPU customers.

<u>WR WWTP Replacement – Alternative Paths</u>

Delay the award and re-bid the project.

Almost always, when this approach is taken, the next round of bids is higher than the original round of bids: both for the exact same project and for a project that was re-designed to minimize costs.

If the project is re-bid the costs will most likely go up because State wage rate adjustments and annual construction cost increases are adjusted in January of each year.

<u>WR WWTP Replacement – Impact on Sewer Rates</u>

In establishing stability in the Wastewater Fund while also preparing to finance the WR WWTP Replacement Project, the DPU and County Council agreed to a series of aggressive 8.0% sewer rate increases between FYFY15 and FY19.

Three years ago, when the DPU was recommending the current 3-year set of sewer rate increases, the DPU stated that these three years (FY20, FY21 & FY22) would contain the last of the aggressive rate increases needed to stabilize the Wastewater Fund and to provide for construction of the replacement WR WWTP.

Those rates were: FY20 = 6.0%; FY21 = 3.0%; FY22 = 2.0%; FY23 thru FY26 0.0%; FY27 thru FY31 2.0%.

Basically, DPU projected that starting in FY22 sewer rates should only need to be increased in amounts equivalent to offset inflationary pressures. There were four years with no rate increase projected so that the cash balance in the Wastewater Fund did not grow too rapidly.

The current cost increases caused by the aforementioned circumstances change the sewer rate projection completed in FY20 by adding a 2.0% increase in FY23 thru FY26 – as opposed to the original estimate of keeping rates at no increase during those four years.

This is a surprisingly minimal impact to DPU customer sewer rates considering the significant cost increases occurring due to the current volatility of the equipment, supply, materials, and labor markets.

The construction loan has a rate of 2.38% and at completion of the project, DPU can seek to refinance the project should more favorable interest rates exist.