

Uncertainty in the Buffalo & Whiteoak Bayous Bacteria TMDL Allocations

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WWTP Discharges & Biosolids Releases

- **Certain** – human health risk known – human source
- **Certain** - discharges and releases contribute load to bayous
- **Certain** – they contribute to exceedences especially at low flow conditions
- **Uncertain** - of the exact load that is contributed

WWTP Discharges & Biosolids Releases

- Regardless of the magnitude of the loads, the goal will be to keep these loads as close to zero as possible.
- The Implementation strategy is the same for any magnitude of load from these sources.
- The uncertainty in these loads does not affect what needs to be done.

Dry Weather Storm Sewer Discharges

- **Certain** - discharges contribute load to bayous
- **Certain** – they contribute to exceeding the standard especially at low flow conditions and a major contribution at intermediate flow
- **Uncertain** – human health risk unknown – mixed source
- **Uncertain** - of the exact load that is contributed

Dry Weather Storm Sewer Discharges

- Regardless of the magnitude of the load, the goal will be to keep this load as close to zero as possible.
- The Implementation strategy is the same for any magnitude of load from this source.
- The uncertainty in this load does not affect what needs to be done.

Sanitary Sewer Overflows

- **Certain** – human health risk known – human source
- **Certain** - overflows can contribute load to bayous
- **Certain** – they contribute to exceedences at low and intermediate flow conditions
- **Uncertain** - of the exact load that is contributed

Sanitary Sewer Overflows

- Regardless of the magnitude of the load, the goal will be to keep this load as close to zero as possible.
- The Implementation strategy is the same for any magnitude of load from this source.
- The uncertainty in this load does not affect what needs to be done

Storm Sewer Discharges

- **Certain** - discharges can contribute significant load to bayous
- **Certain** – they contribute to exceedences at intermediate and wet flow conditions
- **Uncertain** – human health risk unknown – mixed source
- **Uncertain** - of the exact load that is contributed although it is clear that it is large

Storm Sewer Discharges

- The three flow allocation strategy allows exposure prioritization to give time to understand the human health aspects of this load
- Regardless of the magnitude of the load, the priority is the same, focus on the low and intermediate flow conditions where exposure is the highest
- The uncertainty in this load does not affect what needs to be done

On-Site Sanitary Sewer Systems

- **Certain** – human health risk known – human source
- **Certain** - overflows can contribute load to bayous
- **Certain** – they contribute to exceedences at low and intermediate flow conditions
- **Uncertain** - of the exact load that is contributed

On-Site Sanitary Sewer Systems

- Regardless of the magnitude of the load, the goal will be to keep this load as close to zero as possible.
- The Implementation strategy is the same for any magnitude of load from this source.
- The uncertainty in this load does not affect what needs to be done

Bed Sediment

- **Certain** – re-suspension of bed sediment can contribute load to bayous
- **Certain** – it contributes to exceedences at high flow conditions
- **Uncertain** – human health risk unknown – mixed source
- **Uncertain** - of the exact load that is contributed

Bed Sediment

- This is an uncontrollable source that can only be limited over time by reducing the loads that contribute to the bacteria population in the sediment
- The Implementation strategy is the same for any magnitude of load from this source.
- The uncertainty in this load does not affect what needs to be done

Direct Deposit

- **Certain** – direct deposit into the bayous by animals can contribute load to bayous
- **Uncertain** – human health risk unknown
– non-human source
- **Uncertain** – that it contributes to exceedences at any flow condition
- **Uncertain** – of the exact load that is contributed

Direct Deposit

- This is an uncontrollable source that cannot be significantly controlled
- The Implementation strategy is the same for any magnitude of load from this source.
- The uncertainty in this load does not affect what needs to be done

Uncertainties in loads will affect implementation activities

- All of the human source loads are regulated by an existing program
- The bacteria concentrations in the bayous are so high that regardless of what proportions are assigned for reduction, all sources need to reduce significantly
- The Implementation Plan will be developed by stakeholders subject to the constraint of identifying sources of funding

Uncertainties not associated with the allocations

- Human health risk associated with non-human sources is unknown
 - EPA requires all bacteria to be considered the same risk unless it is demonstrated that there is a different level of risk
 - This can be examined in the implementation phase
 - Study conducted by Standards Group/HGAC will help

Uncertainties not associated with the allocations

- Many unknowns in the fate and transport of bacteria
 - This is important in understanding why and how loads enter the bayous
 - This does not change the fact that they get there through discharges including runoff
 - Re-growth is an in-stream property that does not change the character of the loads to the streams
 - If re-growth is occurring then assimilative capacity is reduced

Uncertainties not associated with the allocations

- It is not clear that the standard can be achieved
 - The EPA requires TMDLs to be written to meet the standard.
 - Currently only contact and non-contact recreation standards are available in Texas and both of these standards require significant load reductions
 - Any future changes in the standard for the water bodies in the TMDL will result in revisions in the TMDL allocations
 - Current triennial review
 - Current project by TCEQ and HGAC
 - This can be examined during implementation

Thank You

**Texas Commission on Environmental
Quality**

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Buffalo & Whiteoak Bayous Bacteria TMDL Budget

	Work Order	Fiscal Year	Amount
1st Contract	1	2000	\$95,000
	2	2001	\$114,000
	2	2002	\$140,827
	5	2003	\$120,000
	6	2004	\$449,750
	8	2005	\$250,000
Current Contract	1	2006	\$100,000
	9	2007	\$100,000
		TOTAL	\$1,369,577