NAHB and URS Cost Estimates
For EPA's Proposed Option 2
(Turbidity Numeric Effluent Limit of 13 NTU)
Construction and Development ELG

As presented below the cost/economic impact of the proposed Option 2 would be great. The cost per new house will be significantly increased by the need to employ Active/Advanced Treatment Systems (ATS).

- URS/NAHB estimated Total National Cost for Option 2 at 18 months with an ATS cost of $0.044/gallon of **$7,218,349,568 and the National Cost/Acre of $24,211.** At 2.5 houses per acre, **the additional cost per house would be about $10,000.**
- URS/NAHB did sensitivity tests cost estimates for construction duration of 9 months, 12 months, 18 months, 24 months and 36 months for Option2 with an ATS cost of $0.044/gallon. The sensitivity tests provided **a national cost estimate range between $4,135,095,120 and $13,388,730,943** and a **cost per acre range between $13,870 and $44,907.**
- URS/NAHB did sensitivity tests cost estimates for construction duration of 18 months for Option 2 with a ATS cost of $0.044/gallon for 50 and 100 acres projects. The 50 acres project had a **national cost estimate of $1,555,144 and a national cost/acre of $31,130 per acre** while 100 acres project had a **national cost estimate of $2,581,222 and a national cost/acre of $25,811.**

Detailed Analysis: The following are the detailed modifications that URS/NAHB made to EPA's Cost Estimate Spreadsheet of the proposal. This information was submitted in comments by NAHB.

- URS/NAHB added 1,000 ft3 to each Basin per EPA Requirements;
- URS/NAHB added $2,500 to all medium and large sites for 1 skimmer and 1 baffle cost per site;
- URS/NAHB added $2,500 to half (1/2) large sites for skimmer and baffle assuming the sites would require 2 settling ponds;
- URS/NAHB used ATS cost of $0.044 per gallon;
- URS/NAHB changed construction duration time of 12 months to 18 month;
- URS/NAHB tripled EPA's calibration cost from $1,300 for 6 months to $3,900 to account for 18 months;
- URS/NAHB tripled EPA estimate Lab equipment and supplies costs of $4,250 because it was based on 6 months;
- URS/NAHB revised Chistosan polymer cost from $892 to $4,500 per million gallons treated based on the average of Clear Creek $1,000 to $8,000/M gal treated cost value submitted in the docket;
- URS/NAHB used freeze protection of $54,000 to all states except the 10 states that URS/NAHB estimates would not need freeze protection;
- And URS/NAHB estimates that at least half of the large sites would need an addition settling pond while EPA assumed only 1 settling pond per site. The cost estimate for pumps, piping, labor, generator, and energy cost for an additional pond is approximately $80,000 except for a cost estimate of $74,000 for 50% of the large sites in the 10 states (AL, AZ, CA, FL, GA, LA, MS, NM, SC, and TX) that would not require freeze protection.

Bullet List of Potential Toxicity Problems with Polymers
by URS
Date: 11/02/09

- **Many States have reported anecdotal evidence of fish kills by coag**ulants, including chitosan. In their comments, Idaho (Cours de Alene Region) reported a first hand incident. South Dakota and Maryland also expressed concern. California and Washington, the two States where ATS is most prevalent, require constant monitoring for residual chemicals using methods developed by the polymer industry, and less frequently require toxicity monitoring before discharge.

- **California is so worried about coagulant toxicity that they require any passive chemical treatment system (PTS) to meet the same strict turbidity and residual polymer requirements as an Active Treatment System (ATS).** The State of California has recently issued a verbal clarification statement regarding so-called Passive Treatment Systems (PTS), which utilize PAM logs or other passive delivery of flocculation chemicals prior to a settling pond to control sediment in the runoff. California regards such chemical treatment systems as equivalent to ATS, and as such must meet all the requirements of an ATS system, including meeting a 10 NTU limit, and meeting all residual chemical requirements (must be <10% of the MACT). These requirements would therefore in effect ban the use of any PTS because they would not be able to meet these stringent requirements without additional (full ATS) treatment. In a FAQ memo, California was asked why they selected 10 NTU as a discharge limit for ATS, since this was well below any conceivable Water Quality consideration. They replied that they believed the limit was technologically feasible (a debatable contention) and that they were concerned that the industry developed methods for measuring residual polymer would not work if the water contained turbidity higher than 10 NTU. Therefore, California is so concerned about potential polymer toxicity that the need for testing residual polymer was cited as part of the justification for the 10 NTU limit for ATS discharge.

- **WET toxicity testing is an inadequate measure of the overall affects of coagulants on aquatic life.** In practice, coagulant spills appear to cause the most aquatic damage by causing the sediment present in receiving streams where turbidity levels are naturally elevated during heavy rain events to coagulate. It is suspected that this can clog fish gills and suffocate fish. The WET toxicity testing is most often performed using relatively clear water, where a high level of sediment is not present. The tested polymer then appears to have less toxic effect than might occur in a higher turbidity environment likely during a heavy rain event. We are often told that chitosan, a natural polymer, does not exhibit high toxicity, but this might only be true in receiving water containing little or no sediment.

- **Some commenters have noted that overdose of polymers is unlikely to occur due to the high expense, but this statement does not consider chemical feed malfunctions or accidental spills.** Idaho comments to the rule note that in their experience, inadvertent discharges of excess polymer can and do happen at construction sites utilizing ATS or other polymer addition systems.