

## 1.0 EXECUTIVE SUMMARY

The potential introduction of contaminants from the Battlefield Golf Course fly ash into the Surficial groundwater has created a situation requiring immediate action. The City of Chesapeake has initiated a comprehensive water supply feasibility study to evaluate existing conditions and assess viable alternatives capable of delivering potable water to City residents located within the study area.

Existing local hydrogeologic data, water well information, and recent well water quality data were collected and evaluated to determine suitable water sources, well yield limits, and potential constituents requiring treatment to comply with drinking water standards. URS developed and assessed the following four alternatives:

**Alternative 1:** Extend the City of Chesapeake's central water distribution system via a water main extension.

**Alternative 2:** Install a "stand alone" community groundwater supply, treatment, storage and distribution system capable of providing potable water service to 100 equivalent residential connections (ERC).

**Alternative 3:** Install point-of-entry (POE) treatment systems on existing private wells currently used to provide water to these homes/businesses.

**Alternative 4:** Install and develop new individual residential and commercial water supply wells into aquifer(s) offering potentially less susceptibility to reduced water quality conditions and potential contaminants from the fly ash.

The four alternatives were evaluated using the following criterion: regulatory compliance, property owner impact, operational requirements, technical feasibility, permitting / administrative concerns, and present worth cost (capital and operations and maintenance (O&M) costs).

Alternatives 2 and 3 present significant regulatory issues. Even if these alternatives are able to overcome the regulatory obstacles, their ultimate costs from both capital and O&M perspectives are so substantial that a path forward make these alternatives unfavorable.

Alternative 4 costs are attractive and new wells can be implemented in a relatively expeditious manner, but this option suffers from the lack of certainty to completely protect the residents' future water quality without first obtaining more information from the concurrent City study focused on the fate and transport of any potential contaminants. Therefore, avoidance of future risk is not assured with this option. The complete present exercise of evaluating options and actions may only be temporarily delayed with this option.

URS recommends that the City proceed with the construction of Alternative 1 and extend the City distribution system to serve these areas. The provision of City water would allow for a safe, reliable, monitored water supply that would be most protective against any potential future impacts to the existing aquifer supply.