City of Lawrenceville

Public Information Meeting Development of Groundwater Resources

November 15, 2007

Lawrenceville City Hall

Precision Planning, Inc.
planners, engineers, architects & surveyors

CURRENT WATER DEMAND & SUPPLY

Current Daily Demand averages about 2.1 Million Gallons per day (MGD):

- **Gwinnett County** – About 93% (1.96 MGD) of the City's supply by wholesale purchase via 5 master meters.

- **Rhodes-Jordan WTP** – About 7% (0.14 MGD) of the City's supply from 2 wells at the City-owned facility.

POTENTIAL GROUNDWATER SUPPLIES

In addition to the 2 wells in use at RJWTP, the City has drilled 13 wells as potential supplies of potable water.

Flow Range:

45–350 gallons per minute (gpm)

Total Capacity:

1,405 gpm (2.0 MGD)

DEVELOPMENT STRATEGIES

- **Interim Strategy** – Augment existing supplies by developing wells most feasible for "direct" connection to distribution system; i.e. – utilize wells which provide an economical connection for short-term needs.

- **Long-Term Strategy** – Connect multiple number of wells as combined raw water supply for new water treatment facility; i.e. – centralized plant to maximize production.

ADVANTAGES OF GROUNDWATER DEVELOPMENT

- Additional water supplies which have higher sustained use.
- Reduction in cost to customers.

PROPOSED PROJECTS FOR IMPLEMENTING INTERIM AND LONG-TERM STRATEGIES

1. Develop Ezzard Well #3.
2. Construct interim pumping and treatment facilities at selected new well sites.
3. Construct new WTP for treatment of as many as 10 wells.

WATER TREATMENT OBJECTIVES

- The focus will be on four parameters exceeding maximum contaminant levels (MCL).

Secondary Contaminants:

Iron:	MCL = 0.3 mg/l
Manganese:	MCL = 0.05 mg/l

Radionuclides:

Uranium:	MCL = 20 pCi/l
Radium 226/228	MCL = 5 pCi/l

IRON AND MANGANESE REMOVAL

- Naturally occurring nutrients. MCL's reflect aesthetic degradation of water – mainly staining of laundry, fixtures, etc.
- More prevalent in groundwater than in surface water.
- Typical treatment is by granular media filtration.
- Where levels are at or slightly above MCL, treatment using chemical addition only (sequestration) may be employed.
- RJWTP employs pressure filtration to remove iron and manganese.

URANIUM AND RADIUM REMOVAL

- Presence in groundwater typically due to dissolution by water passing through rock containing naturally occurring uranium and radium compounds.
- Uranium is easily passed through the body, but if left untreated some levels may build up in kidneys, causing renal failure as well as some cancers.
- Radium is easily passed through the body, but if left untreated can substitute for calcium in the bones. Internal damage of organs is possible from radiation emitted by the embedded radium.

URANIUM AND RADIUM REMOVAL (cont.)

Treatment options include:

- Ion exchange.
- Reverse osmosis.
- Lime softening.
- Hydrous manganous oxide.

1. Develop Ezzard Well #3

- Pumping facilities already constructed.
- Water to be treated at RJWTP.
- Iron and manganese levels slightly above MCL. To be removed by conventional filtration at RJWTP.
- Uranium to be removed by filtration unit provided by Water Remediation Technology, LLC (WRT) at Ezzard Site (i.e. – prior to RJWTP).
- Radium 226/228 is below MCL.

2. Develop Interim Facilities

- Goal is to secure additional water as water supplies from Lake Lanier are depleted.
- Temporary facilities to be constructed at well sites where connection to the distribution system is feasible.
- Wells with exceedances of radium MCL will not be included.
- The wells and their interim facilities will eventually be incorporated into the long-term WTP project.

3. New WTP Treating Multiple Well Sources

- Water from all wells will be pumped to a central facility for treatment and then pumped into the distribution system.
- A total of three wells with exceedances of radium MCL may be included. Radium 226/228 levels in these wells range 8-10 pCi/l.
- No wells exceeding uranium MCL are included.
- Radium to be removed by appropriate technology. Facilities design will include a stage for review and selection of a radium removal process.

City of Lawrenceville

Public Information Meeting
Development of Groundwater Resources

Questions and Comments

Precision Planning, Inc.
planners, engineers, architects & surveyors