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AGENDA

- Introduction of Water Savings Award
- Savings with BMP
- Water and Sewer Leak Detection
- Water System (2 ea)
- Sewer System Lines and MH (6 ea)
- Leak Detection Goals and Deliverables
- Costs

EO 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," January 2007

Water Requirements

- **Establish 2007 Water Intensity Baseline**
- **Reduce water intensity from baseline by 2% per year over the next 8 years**
- **Conduct facility water audits at 10% of facilities on base each year**

Why Kirtland Saves Water !!!

- We are located in a high desert
- Continuation of drought expected
- We have a limited water supply
- Less than 9 inches of precip a year
- Feds should lead by Exec. Order
- Use Xeric (Xeric is beautiful)

Beautiful Xeric

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Results of Water Leak Detection

- CY06 use—1,051 MGallons from 6 deep wells
- Saved 179.0 MGY, payback if purchased, 2 years. Enough to water 150 football fields a year.
- 15.9% of production leaking
- FY06 ECIP funded Leak Detection and Repair Project, cost $590K, repairs cost $3/KG
- Reduced Sewage Charge
- Survey cost $695 per mile

Water Program Assessments BMP

- Info and Education program
- Water Efficient Landscaping
- Toilets, Urinals, Faucets, Showerheads
- Cooling Tower Systems
- High Water Using Processes
- Water Reuse and Recycling
- Single Pass Cooling Systems
- Leak Detection and Repair

Water Leak Detection Goals

- Survey 108 miles of base's oldest/most critical water lines for leaks
- Estimate size and volume of identified leaks and prioritize repair list
- Initiate repair of highest priority leaks and continue repairs as budget allows
- Provide tools and training to allow base to continue a water management/leak detection program in the future

Two Approaches to Water Leak Detection

- Active survey of lines by crews outfitted with acoustic listening devices (LD-12 Professional's Plus Water Leak Detector, SubSurface Leak Detection, Inc)
  - Crews are provided with utility maps and manually walk lines with listening equipment, material specific
  - Operators experience allows them to locate and size leaks as they go
    - » Best application—Survey of a large network of lines of unknown baseline condition that are expected to have multiple leaks.
- All Governed by the AWWA

Two Approaches to Water Leak Detection

- Active survey of lines by crews outfitted with acoustic listening devices (LD-12 Professional's Plus Water Leak Detector, SubSurface Leak Detection, Inc)
  - BENEFITS-allows relatively rapid survey of extensive lines and real time location and estimate of leaks
  - DISADVANTAGE-it is a one time event

Two Approaches to Water Leak Detection

- Passive data gathering with a Permalog device
  - Listening devices are installed on water lines at ¼ mile spacing.
  - Device record acoustic data and provide a leak/no leak signal.
    - If leak signal, an additional piece of equipment is needed to get specific location.
      - Best applications-Permanent installation as long term water management tool to monitor system with a baseline “no leak” status or Discrete survey of a smaller known problem

Two Approaches to Water Leak Detection

- Passive data gathering with a Permalog device
  - BENEFITS-Can provide for detailed pinpointing of leak locations and sizes; Quick and easy to do drive by patrols to assess leak/no leak status; Long term tool for future assessment of lines.
  - DISADVANTEGES-Devices only “hear” one leak at a time over a given section; Deployment of devices is relatively easy but can take a lot of time and coordination to deploy throughout large system at required spacing.

150 GPM leak in a 30” water line

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August 3-6, 2008

Any Leak Detection Deliverables

- Leak Detection Plan (Map)
- Project Mgt Plans-Health, Safety and Construction Quality Plans
- Leak Detection Survey with Priority List
- Leak Repairs & Cost Estimates
- Monthly Status Reports
- As-builts/Task Order Closeout
- Meeting agendas and minutes

SEWER LEAK SYSTEM REPAIR

- Governed by the National Association of Sewer Service Companies Pipeline Assessment Certification Program Codes
  - Sliplining
  - Formed-in-Place Pipe
  - Spiral-Wound Liners
  - Cured-in-Place Pipe
  - Pipe Bursting
  - Open Cut Replacement

Other Sewer Repair Considerations

- Diversion of Flow
- Traffic Disturbances
- Reduction in Flow
- Pipe Size and Material
- Survey Costs
  - 19,000 LF & 90 MH = $115,000
- Repair Costs $91/FT pipe bursting

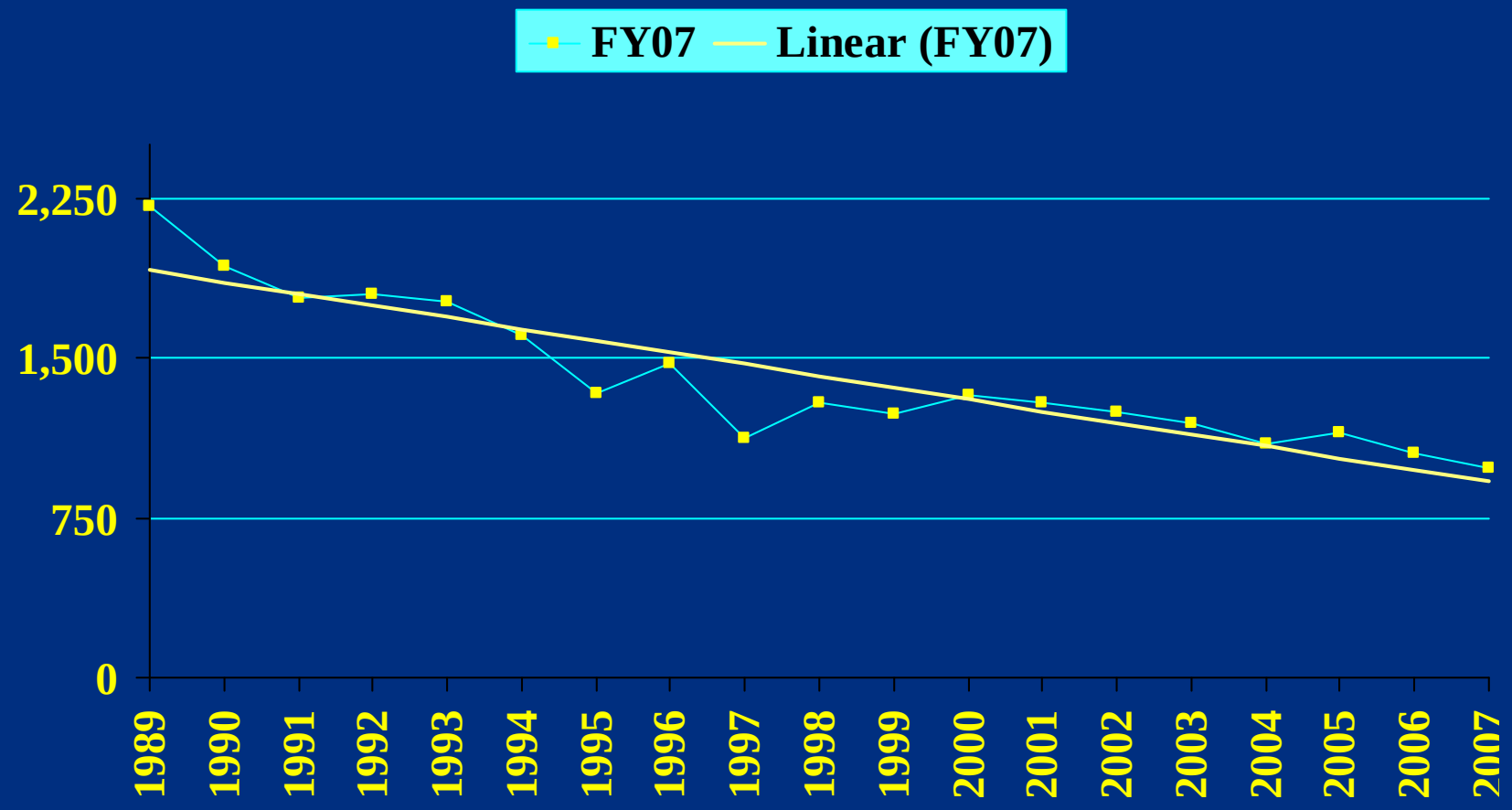
Sewer Pipe Corrections Needed

- Severe Offset Joints
- Collapsed or Deformed Pipe
- Heavy Deposits
- Severe Roots
- Protruding Laterals
- Misalignments

MANHOLE REPAIRS

- Replace Frame, Cover, and Riser
- Repair Cone and Barrel
- Step Removal
- Repair Bench and Channel
- Structural MH Liners
- Replace MH

KIRTLAND'S ANNUAL WATER USE (MGY)



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For More Information

- Would you like to know more about this session?
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Don’t forget to fill out and drop off your session evaluations!