

A dynamic splash of clear blue water against a white background, with several bubbles visible on the left side of the splash.

# **Water Arabia 2015 Conference and Exhibition**

## **Overview of Water Safety Plans**

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# Overview of WSPs

## Session structure

- Background to WSP
- What is a WSP?
- Why do we need them?
- WSP approach
- Benefits of a WSP
- Requirements

# Overview of WSPs

## Background to WSPs

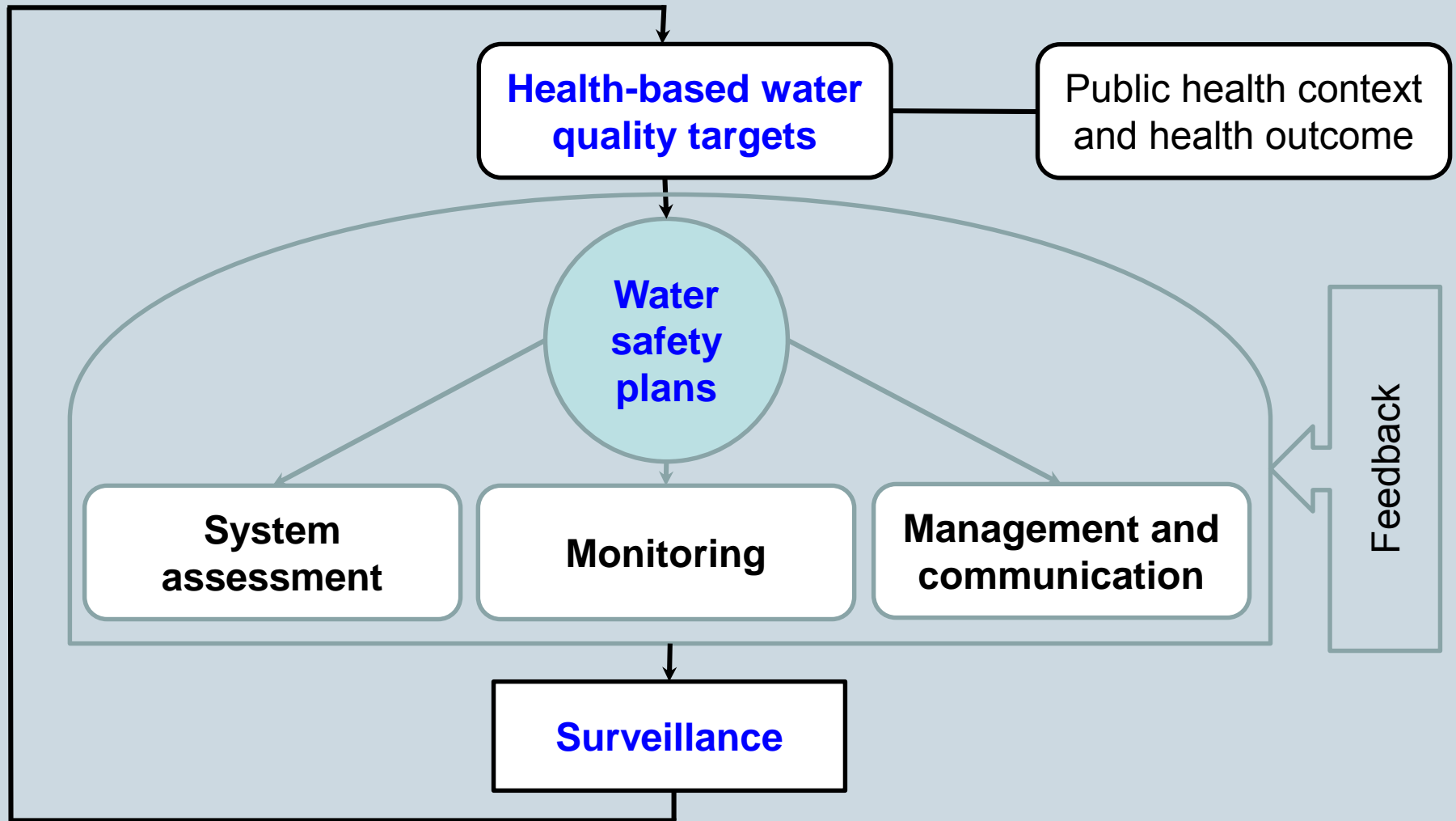
- HACCP principles
- Multi-barrier approach
- IWA Bonn Charter
  - Bonn Charter, 2004 “to provide good safe drinking water that has the trust of the consumers”
  - Integrated and proactive approach for entire system
- WHO
  - 2004 - Guidelines for Drinking-water Quality, 3<sup>rd</sup> Edition
  - Water Safety Plans – risk management from catchment to consumer
  - 2011 - Guidelines for Drinking-water Quality, 4<sup>th</sup> Edition

# Overview of WSPs

## What is a WSP?

- **A way to ensure safe drinking-water by:**
  - Knowing the system thoroughly
  - Identifying where and how problems could arise
  - Putting barriers and management systems in place to stop the problems before they happen
  - Making sure all parts of the system work properly
- **A comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer**
- **Fits within a framework for safe drinking-water – health driven**

# Framework for safe drinking-water



# Overview of WSPs

## Why do we need WSPs?

- 783 million lack access to “safe” drinking-water
- Traditional ways of ensuring water quality?
  - Measure water quality:
    - At works
    - At point of use

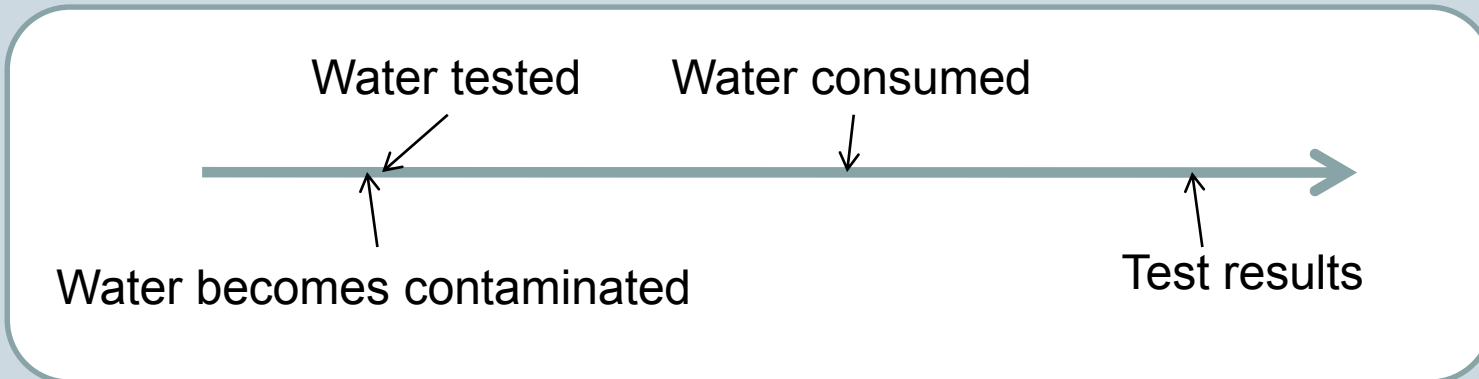


Picture source: National Water and Sewerage Company Uganda

# Overview of WSPs

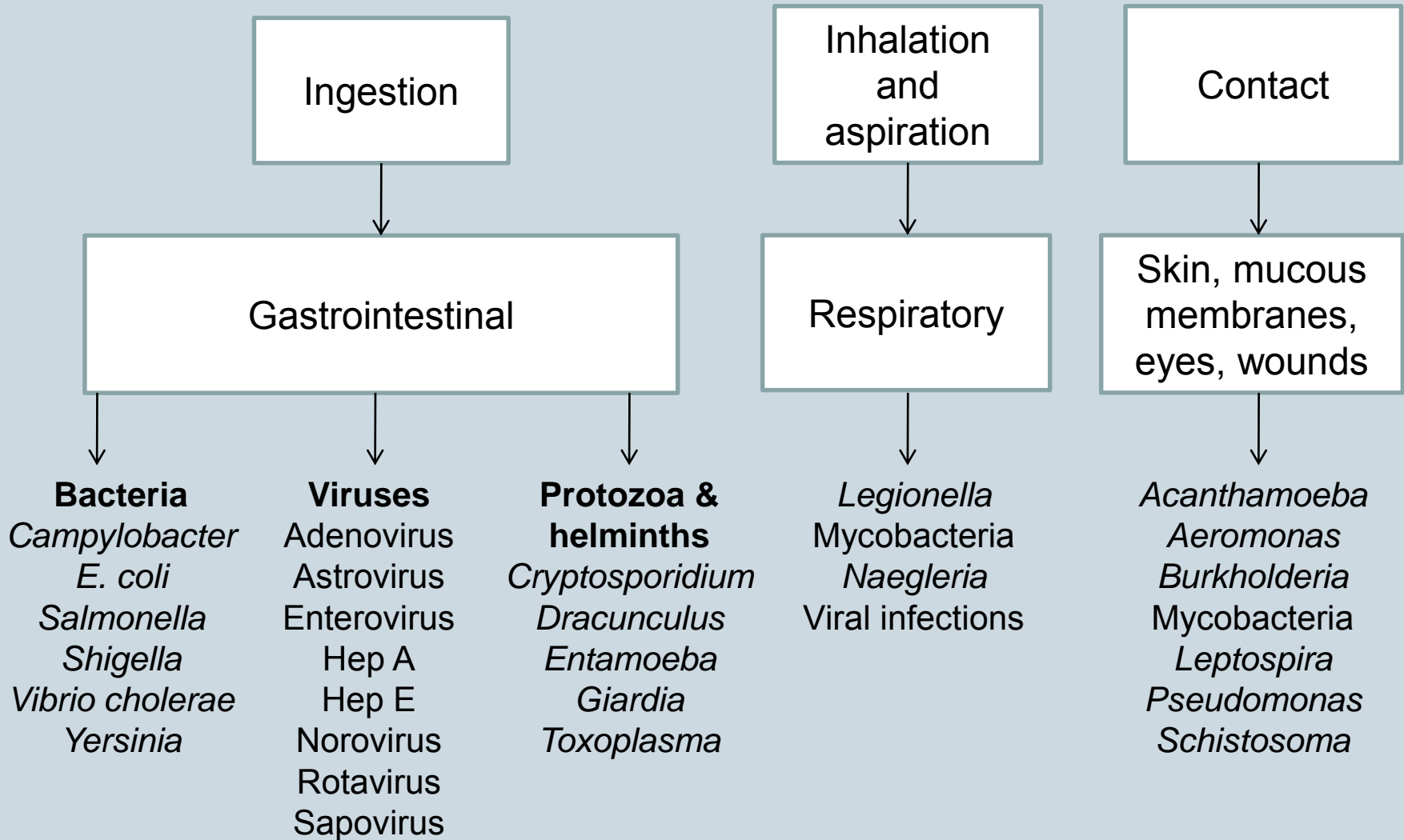
## Why do we need WSPs?

- **Why end-product testing (compliance monitoring) is not enough?**
  - **Reactive** – problem has already occurred
  - Sampling takes time – response delayed



- **End-product testing still important in verification**

# Overview of WSPs





# Waterborne Outbreaks Statistics

Country	Outbreak	Year	Cases	Death
Milwaukee, USA(1)	Cryptosporidiosis	1993	403,000	116 (4,400 hospitalized)
Haiti(2)	Typhoid	June 2003	200	40
Sudan(2)	Cholera	June 2006	2007	77
New Hampshire, USA (3)	Giardiasis	2007	30	---
Iraq(2)	Cholera	September 2008	341	5
Central Africa(1) (Cameroon, Chad, Niger and Nigeria)	Cholera	October 2010	40,468	1,879
Pakistan(2)	Cholera	October 2010	99	---
Haiti(2)	Cholera	November 2010	60,240	1,415
Democratic Republic of Congo(2)	Cholera	March 2011	3,896	265

(1) USA, CDC

(2) WHO

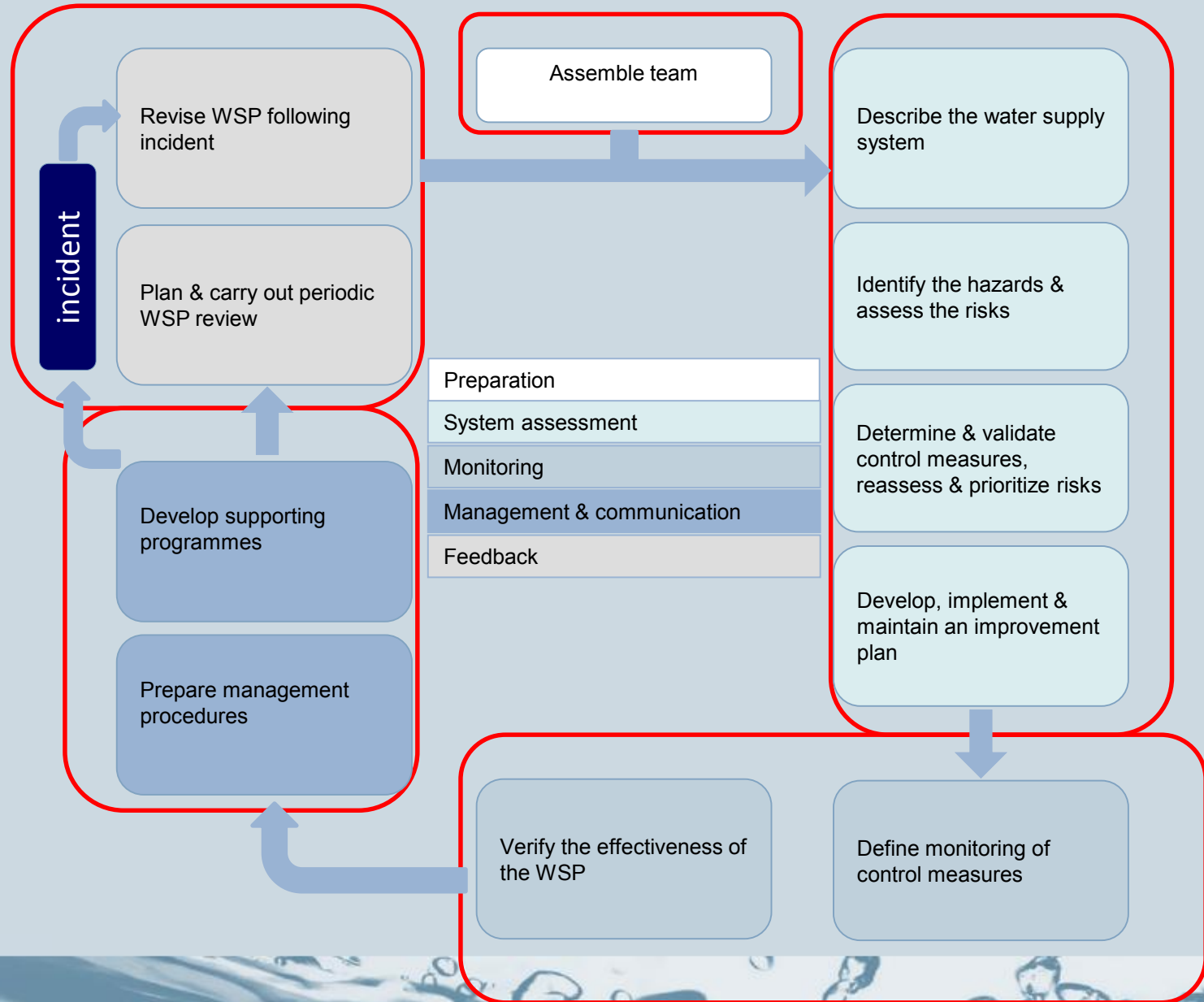
(3) US National Library of Medicine

# Overview of WSPs

## WSP approach

- “Route maps” to best provide safe water
  - Based on **proactive** risk management
  - Entire supply: catchment to point of use
- **Five basic components:**
  - Preparation
  - System assessment
  - Monitoring
  - Management and communication
  - Feedback

# Overview of WSPs



# Overview of WSPs

## WSP approach

- Should address all components of a water supply
- Will vary in complexity according to situation
- Objectives:
  - Minimize contamination of source water
  - Reduce or remove contamination by treatment
  - Prevent contamination during storage, distribution and handling

# Overview of WSPs

## WSP approach

- Safety is secured through a multi-barrier approach
- Key control points are known and monitored effectively
- Does not necessitate starting over:
  - Build on existing procedures
  - Continuous improvement
  - Transparent and shared experience with all stakeholders

# Overview of WSPs

## Benefits of a WSP

### Utilities

- Clearer understanding of roles and responsibilities
- Helps to prioritize limited resources most effectively
- Reduced costs

### Consumers

- Increased confidence in water supply
- Safer water

### Regulators

- Clear risk-based targeting and justification of investment
- Anticipates future regulatory agenda

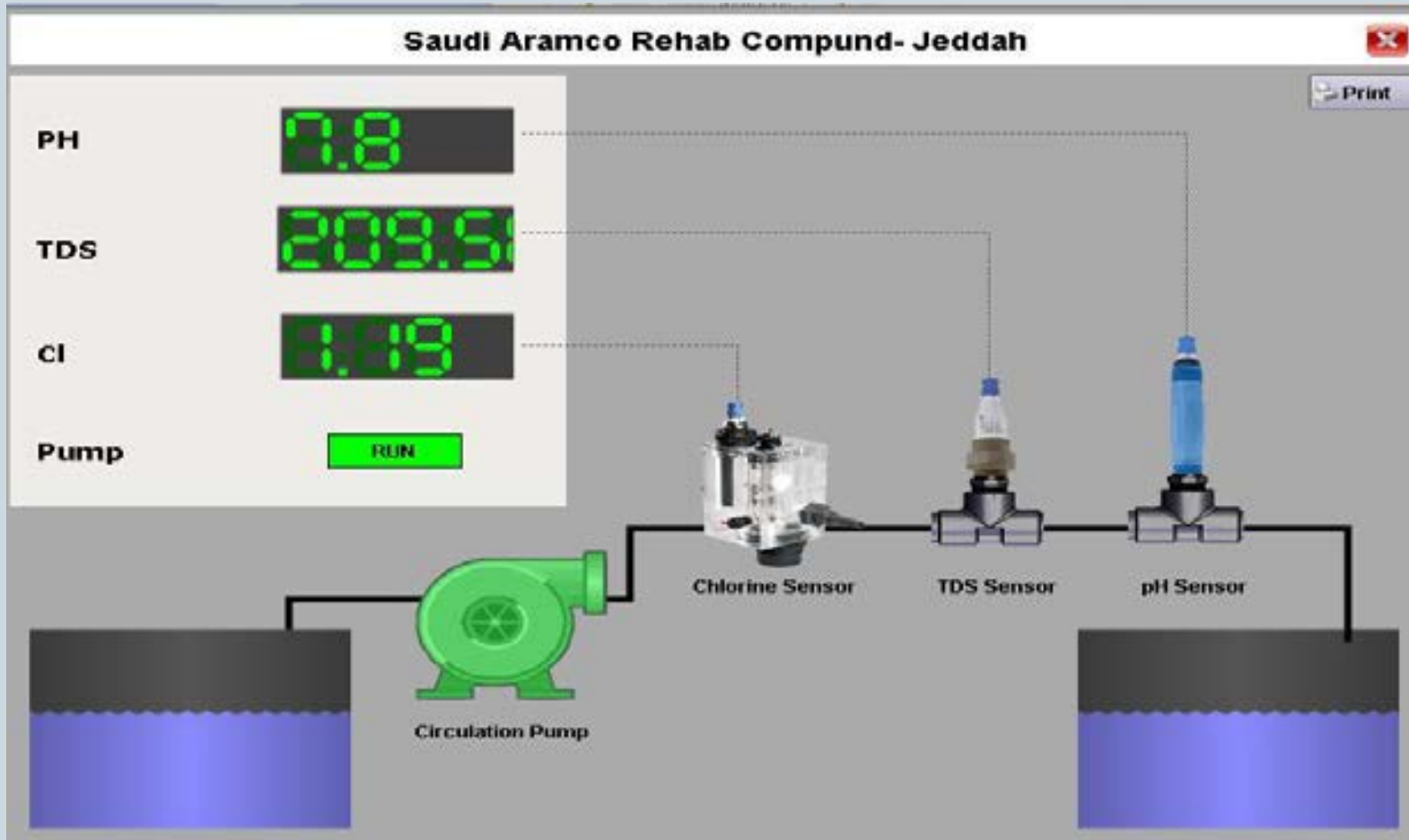
# Overview of WSPs

## Requirements

- **Management commitment**
- **Suitable WSP team (experts from catchment to point of use)**
- **Competent and trained staff**
- **“Right” organizational culture**

# Overview of WSPs

Veolink Technology - Remote Real Time Water Quality Monitoring Tool.







- Location
- Trends**
- Alarms History
- History



Current Time: 02/03/2015 11:51 AM

0 Alarms  
Logged In: aramco

EXIT  
Logout

Historical

- Rehab
- Cl2\_ppm
- TDS\_ppm
- pH



11:04 AM 11:05 AM 11:08 AM 11:10 AM 11:12 AM 11:14 AM 11:16 AM 11:18 AM 11:20 AM 11:22 AM 11:24 AM 11:26 AM 11:28 AM 11:30 AM 11:32 AM 11:34 AM 11:36 AM 11:38 AM 11:40 AM 11:42 AM 11:44 AM  
(Feb 3, 2015)

2/3/2015 11:34 AM - 2/3/2015 11:44 AM  
10:00 AM 10:05 AM 10:10 AM 10:15 AM 10:20 AM 10:25 AM 10:30 AM 10:35 AM 10:40 AM 10:45 AM 10:50 AM 10:55 AM 11:00 AM 11:05 AM 11:10 AM 11:15 AM 11:20 AM 11:25 AM 11:30 AM 11:35 AM 11:40 AM 11:45 AM 11:50 AM 11:55 AM

Apply

# Overview of WSPs

**Thank You**