

# From Turnaround to Teardown

The Balzac Gas Plant



# Plant History

- 1961 – Plant startup - Petrogas Processing (28 owners) – Jefferson Lake Petrochemicals
- 1965 – Liquefied Petroleum Gas (LPG) unit added
- 1967 – Additional Gas Treating and Sulphur Recovery added
- 1974 – Inlet Compression (250 mmscfd raw gas capacity) added
- 1975 – Sulphreen Unit added to meet regulatory requirements
- 1987 – Areas Decommissioned – South Treating Train, West Sulphur Plant (125 mmscfd)
- 2001 – 2002 – Addition of Balzac Power Plant
- 2003 – 2004 – Slating to Prilling of solid sulphur.
- 2007 – 2008 – Two stage compression, Major Sulphur Plant work
- 2009 – South Sulphur Plant Mothballing, Parkway Drilling
- 2011 – Plant Closure, Shutdown and Decommissioning Begin

# Plant History

**Balzac Gas Plant (1961)**



**Balzac Gas Plant (2011)**

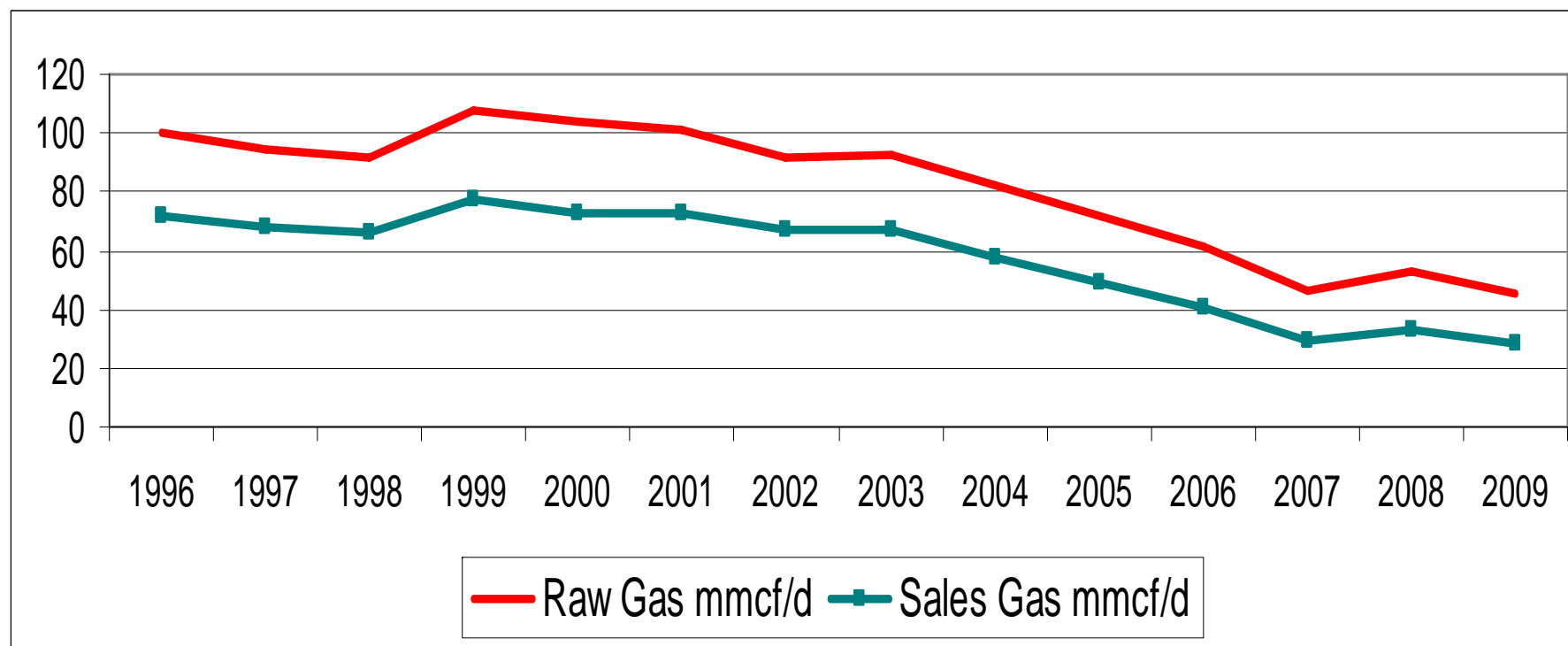


# Area Map



## Plant Production

- Plant has processed 2.4 TCF of raw gas since start-up 50 years ago
- Inlet volumes peaked in 1977 at 325 mmcfd and had declined to to 44 mmcfd



# Balzac Gas Plant Abandonment & Reclamation Program

## Defining Success

- Ending the legacy of the Balzac Gas Plant in a responsible, safe and cost-effective manner

## Broad Scope

- Shutdown, Decommissioning, Demolition, Rerouting Projects, Base Pad Sale ....

## Long Time Horizon

- Additional Environmental Assessments will not begin at plant until 2013, remediation to follow

## Complex Regulatory Nature

- Need to coordinate and liaise with multiple regulators

## Complex Operational Nature

- Diverse activities on Balzac site and complex history to manage

# Program Challenges

## Stakeholder Complexity

- Area Residents
- Land-Owners
- Developers
- Adjacent Industry (agriculture, power stations, industrial parks, etc.)
- Regulators
- Utilities
- Contractors (present & future)
- NGOs
- Area Sulphur Producers



# Program Challenges

## Partner Alignment

- Nexen is the operator and represents a number of partners
  - Nexen owns <50%
  - There are 13 working interest owners, including Nexen
    - 5 areas sharing various ownership
- Increased complexity associated with decision making (need for mail ballots, the influence of multiple corporate cultures)



# Program Challenges

## Regulatory Complexity

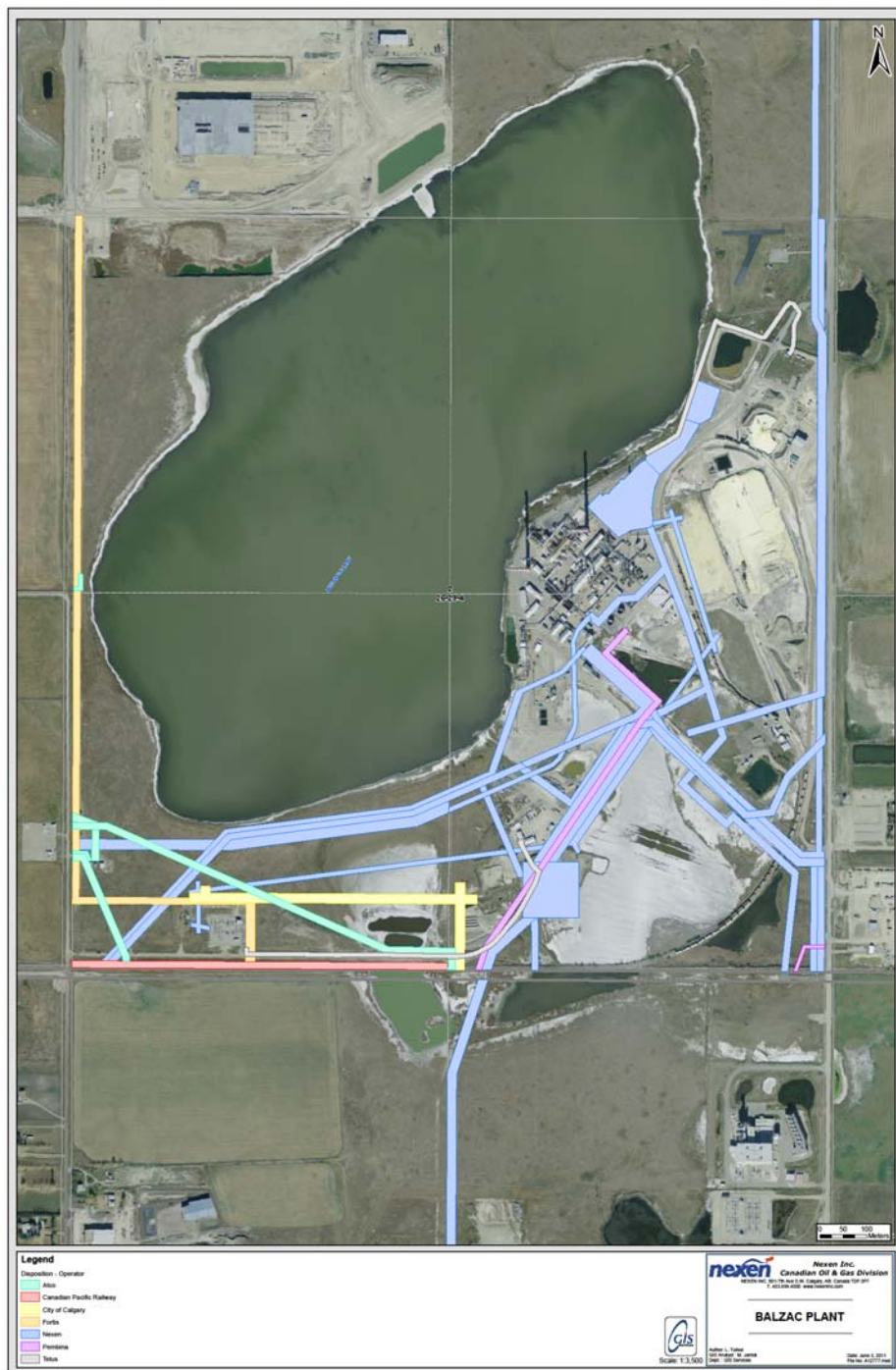
- ERCB
- Alberta Environment
- City of Calgary
- County of Rockyview
- Alberta Infrastructure
- Transport Canada
- Alberta Health Region



# Program Challenges

## ROW Conflicts

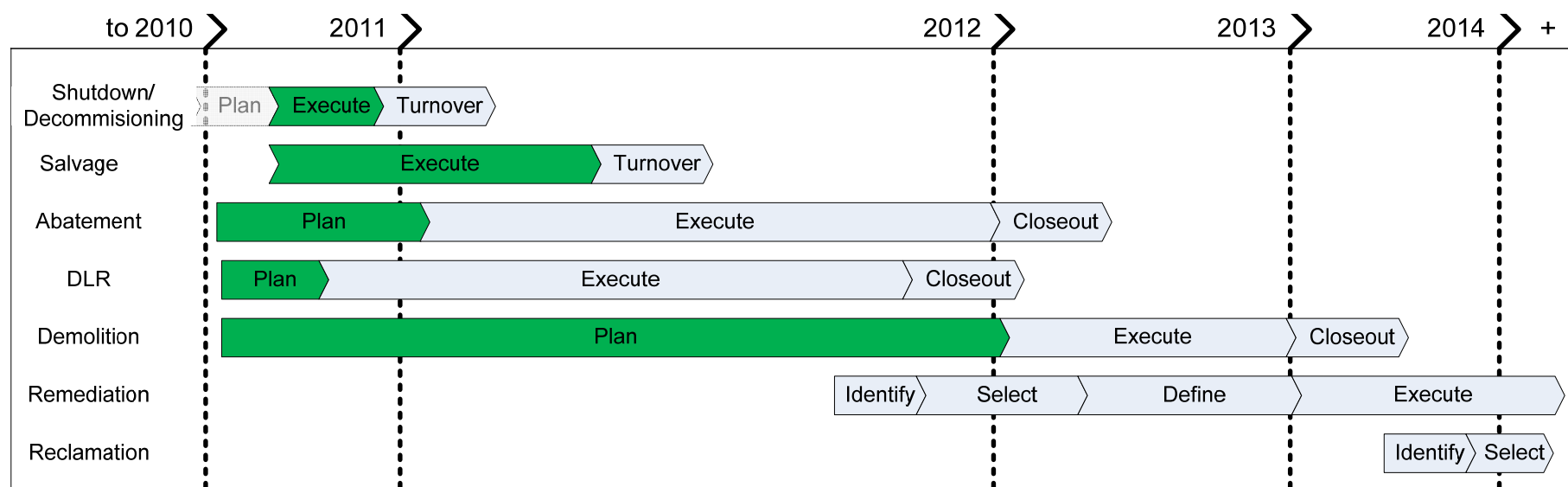
- Multiple ownership stakes involved BGS, BPS, pipeline units, third party piping & utilities
- Requires the severing and/or re-routing of some infrastructure
- Requires the renegotiation and approval of several agreements
- Impacts timing, potential land use and options available for project execution



## Program Strategy

- Detailed Planning
- Shutdown / Decommissioning
- Decommissioning and Land Reclamation Amendment
- Asbestos Abatement
- Demolition Program
- Environmental Assessment
- Remediation / Reclamation

# Program Timeline



Represents Current Stage in Program

# Shutdown and Decommissioning Program

## PROJECT SCOPE

### Shutdown

- Shut in raw feeds and product outputs to / from plant
- Isolating, depressurizing, draining, cleaning and opening process systems

### Decommissioning

- Isolation from all sources (gas, power, water, etc.)
- Catalog and selective removal of hazardous wastes
- Protecting equipment for salvage
- Bring all systems to zero energy state



## Shutdown and Decommissioning Program



## Shutdown and Decommissioning Program



## Shutdown and Decommissioning Program



## Shutdown and Decommissioning Program



# Shutdown and Decommissioning

## Equipment Salvage

- Salvage coordinator at the Balzac Gas Plant coordinating sale of equipment
- Very little interest in most items where there was perceived value
- To date, only major transaction is for the sale of LPG Bullets



# Decommissioning and Land Reclamation Plan

## DETAILS

- Our existing approval requires an amendment application to be submitted to Alberta Environment no later than 6 months following plant closure
- Ongoing regulatory engagement critical to timely receipt
- Full-Scale demolition activities restricted until approval amendment is approved
- Nexen is working with Alberta Environment to separate demolition from the remediation and reclamation activities



# Asbestos Abatement Program

## PROJECT SCOPE

- Abatement of all Asbestos and Synthetic Vitreous Fiber Insulation
  - Estimated 5000 m<sup>3</sup> of Asbestos waste
  - Out of scope: internals of process equipment, towers or any other portion of the facility that requires demolition for access
- Transportation of materials to an approved landfill facility
- 3<sup>rd</sup> Party Environmental Contractor to monitor exposure, site waste management and work practices

**Expected Start Date: 2013**



# Asbestos Abatement Program

## MAJOR CONTRACT DEVELOPMENT

- Selected 3<sup>rd</sup> Party Environmental Consultants to complete survey of hazardous materials / insulation in plant and develop job specification
- Plot plans provided to ensure Contractor will be aware of what utilities are available and where they are located on site
- Comprehensive Lump Sum
  - Contractor Temporary Facilities
  - Asbestos Removal
  - Hazardous Waste Management
  - Transportation to Landfill

# Plant Demolition

## PROJECT SCOPE

- Structural removal of all buildings, vessels, piping, equipment, etc.
- Removal of any remaining HazMat
- Scrap Metal Recycling
- Proper disposal of waste materials
- Out of Scope: Foundations, Buried Pipe and Vessels, Power Station Equipment

**Expected Start Date: 2013**



# Plant Remediation and Reclamation

## PROJECT SCOPE

- A Detailed site assessment will be completed following the demolition of the gas plant
  - Characterize known waste streams
  - Develop efficient waste strategy
- Potential to combine contaminated soil volumes from field
- Pre-Shutdown remediation activities will be aligned with an overall site remediation and waste management strategy



# Plant Remediation and Reclamation

**Sulphur & sulphates**

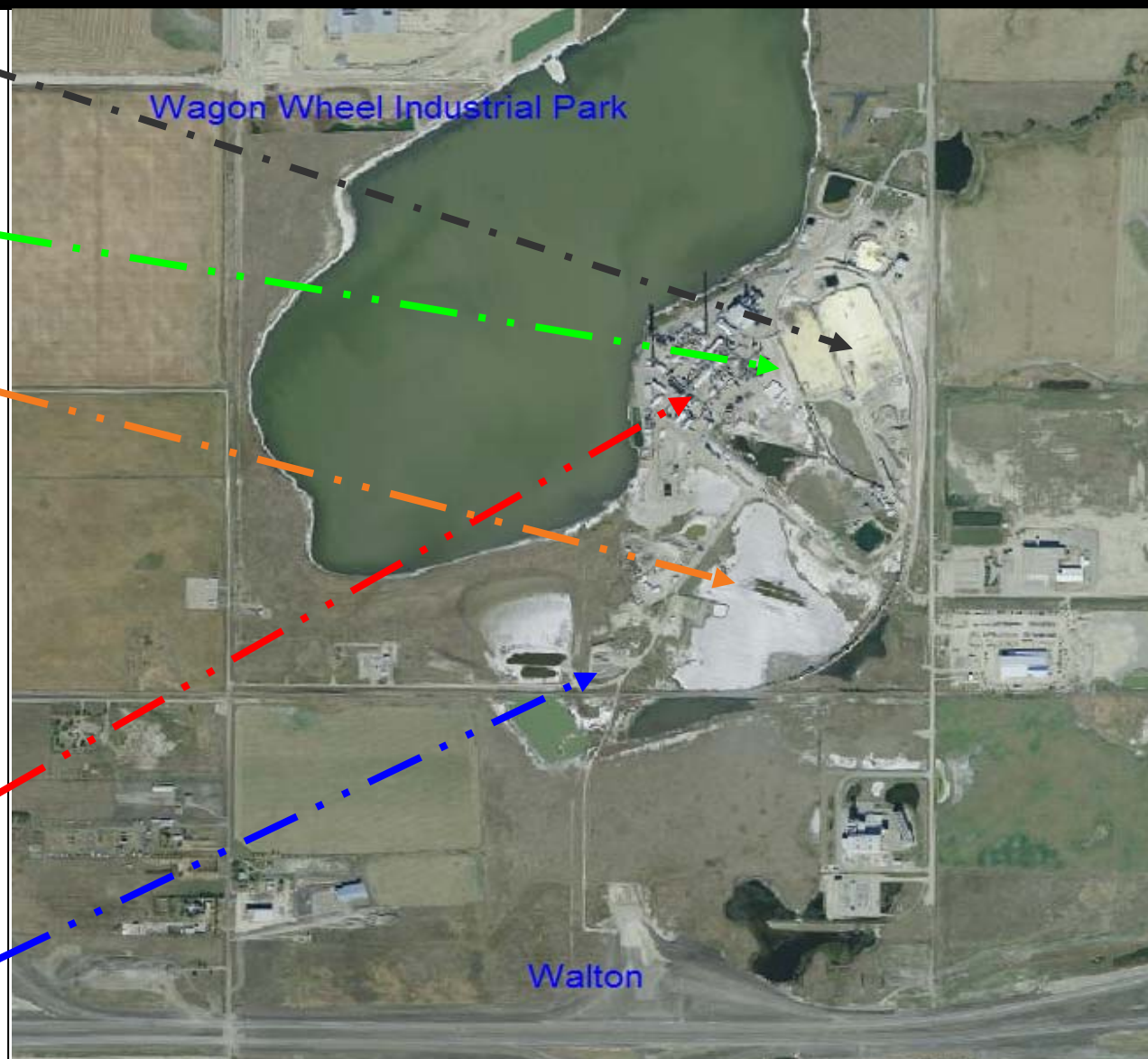
**Acidification, soluble  
metals and salts in  
groundwater**

**Salts from produced  
water & fluids**

**Heavy metals (catalysts)?  
Asbestos? Glycol?  
Amines? PCBs?**

**Hydrocarbons  
(condensate, lean oil,  
engine oil, solvents)**

**Landfill with construction  
& operating wastes**



# Plant Remediation and Reclamation

## SULPHUR BASEPAD REMOVAL

Estimated 90,000 tonnes of marketable off-spec sulphur

Off-Spec material to be bagged

Higher purity material (99%+) to be bagged or sent for re-melt

**Goal: To Minimize Volumes that have to be sent to landfill**



## Balzac Gas Plant ..... Next Steps

- Completion of Decommissioning and project handover
- Tender Evaluation and Award for Abatement Program
- Continued Scope Development for Demolition Program