

# Implementation of Ultra Low Sulfur Diesel Fuel in Brazil

Mexico City August - 2015



### **DISCLAIMER**



#### FORWARD-LOOKING STATEMENTS:

#### DISCLAIMER

The presentation may contain forward-looking statements about future events within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, that are not based on historical facts and are not assurances of future results. Such forwardlooking statements merely reflect the Company's current views and estimates of future economic circumstances, industry conditions, company performance and financial results. Such terms as "anticipate", "believe", "expect", "forecast", "intend", "plan", "project", "seek", "should", along with similar or analogous expressions, are used to identify such forward-looking statements. Readers are cautioned that these statements are only projections and may differ materially from actual future results or events. Readers are referred to the documents filed by the Company with the SEC, specifically the Company's most recent Annual Report on Form 20-F, which identify important risk factors that could cause actual results to differ from those contained in the forward-looking statements, including, among other things, risks relating to general economic and business conditions, including crude oil and other commodity prices, refining margins and prevailing exchange rates, uncertainties inherent in making estimates of our oil and gas reserves including recently discovered oil and gas reserves, international and Brazilian political, economic and social developments, receipt of governmental approvals and licenses and our ability to obtain financing.



We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information or future events or for any other reason. Figures for 2015 on are estimates or targets.

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### NON-SEC COMPLIANT OIL AND GAS RESERVES: CAUTIONARY STATEMENT FOR US INVESTORS

We present certain data in this presentation, such as oil and gas resources, that we are not permitted to present in documents filed with the United States Securities and Exchange Commission (SEC) under new Subpart 1200 to Regulation S-K because such terms do not qualify as proved, probable or possible reserves under Rule 4-10(a) of Regulation S-X.

## General view about PETROBRAS Fully integrated across the hydrocarbon chain



### Exploration and Production

- 2.6 MM boed production
- 293 production fields
- 92% of Brazilian production

#### **Downstream**

- 13 refineries (Brazil)
- 2.2 MM bpd refining capacity
- •Oil products sales in Brazil: 2,458 Kbpd

#### **Distribution**

- 7,710 service stations
- 37,7% of market share
- 21% share of service stations

#### **Gas and Power**

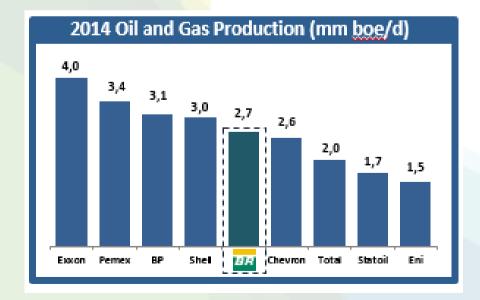
- 9,190 km of gas pipelines in Brazil
- NG Supply: 96.3 MMm<sup>3</sup>/d
- 3 LNG Regasification terminals with 41 MMm³/d capacity
- 6,885 MW of generation capacity

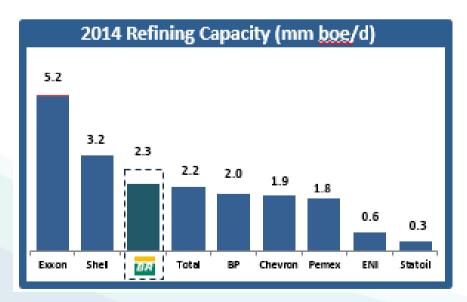
#### International

- 17 countries
- 700 MM boe of proven reserves
- 217 Kboed production
- 231 Kbpd refining capacity

#### **Biofuels**

- 4 Biodiesel Plants
- Largest domestic producer of biodiesel:
   20% of internal market
- 3<sup>rd</sup> producer of ethanol in Brazil



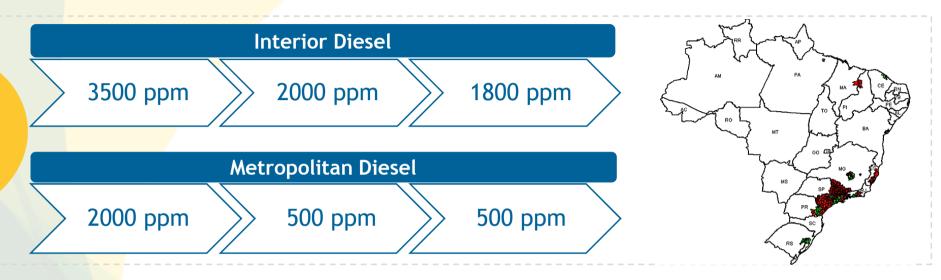




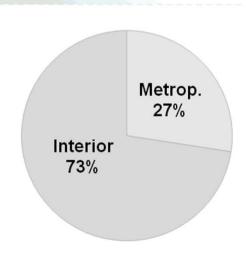
## Historically, different types of diesel were sold in Brazil according to geographical reasoning



In the past:
Regional
Municipalities
ANP
(Mandatory)



Dec. 2008 Shares

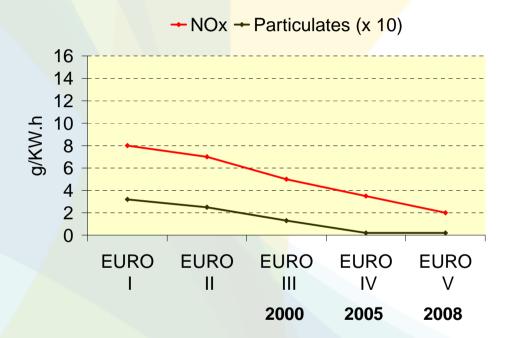


With the evolution of pollutant emissions standards, this scenario has changed ...

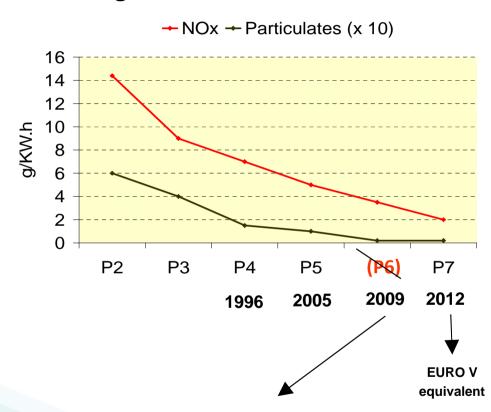
## Stringent emission standards for heavy duty vehicles were introduced in recent years



### Progression of European standards



### **Progression of Brazilian standards**



Since phase P6 (EURO IV equivalent) was not implemented in Brazil, in October 2008 PETROBRAS, ANP, IBAMA and Vehicle Producers signed an Agreement with the Federal Public Ministry



## The Agreement signed in Oct. 2008 established great challenges to the brazilian market





### Agreement Guidelines

- ✓ Replacement of 1800 ppm by 500 ppm diesel (automotive applications)
- ✓ Introduction of Ultra Low Sulfur Diesel
- ✓ Launch of Off-Road Diesel on Jan. 2014



### Regulatory Ambience

- ✓ ANP Supply Plan
- ✓ ANP Resolutions:
  - On-Road Diesel Specifications
  - Implementation Timetable
  - Off-Road Diesel Specification
- ✓ CONAMA Resolutions:
  - Disciplined requirements for P-7 phase
  - Air monitoring and selection of areas for the use of ULSD

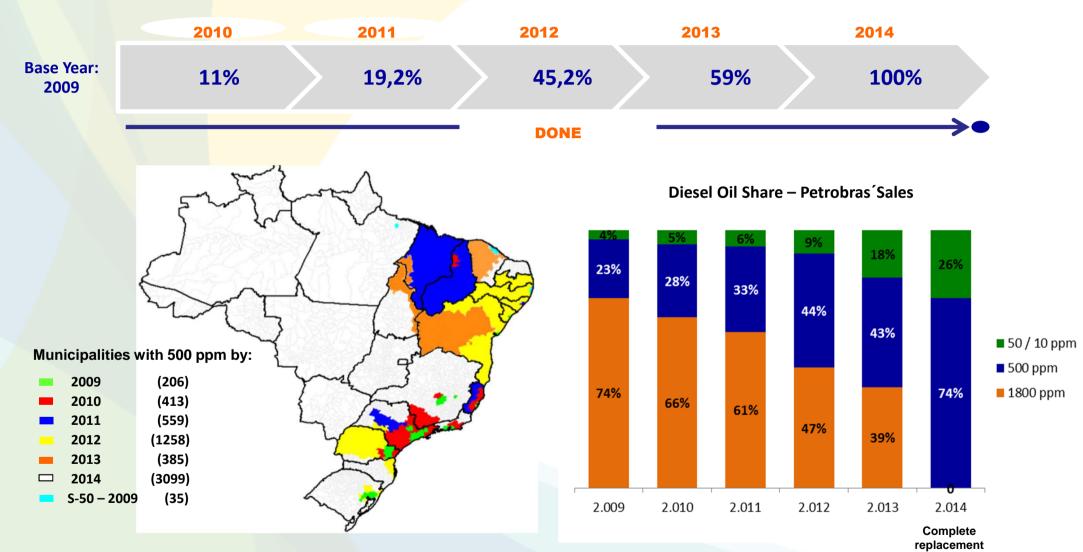


## Investment Plans

- Project portfolio associated with the accomplishment of quantity and quality
  - Refining units
  - New refinery
  - Logistics Adjustments
- Infrastructure adjustments for distributors and retailers

Regarding the replacement of 1800 ppm diesel by 500 ppm diesel, the targets set for each year were fully complied





√ We replaced at about 574 kbpd of high sulfur diesel in 5.714 municipalities



The ULSD was sold to meet the specific regions and municipalities demands between 2009 and 2011. With the implementation of phase P7, the product became available in services stations across the country



**JAN.09 MAY.09 JAN.10 JAN.11 JAN.12 JAN.13 AUG.09** Rio de Janeiro **MR** São Paulo **Nationwide Nationwide** Recife / Fortaleza / Belém (Bus) Curitiba **Belo Horizonte** (All fleet) Launch of (Bus) Salvador P-7 e L-6 **Vehicles** 10 ppm diesel **Porto Alegre** MR B.Santista MR São Paulo Campinas / S.J.Campos Service stations (Bus) Service stations and fleets Rio de Janeiro and fleets (Bus)

DONE



Euro V Motors SCR b 12 as

Catalyst SCR





Integrated
Solution for
Emissions
Reduction

Reductions of up to:

DIESEL S:10



DIESEL S-10

Maximum sulfur content: 10 ppm

**Minimum Cetane: 48** 

DIESEL S.50



Motores Euro V EGR



<sup>\*</sup> SCR = Selective Catalytic Reduction

<sup>\*\*</sup> EGR = Exhaust Gas Reciculation

## The implementation of ULSD in Brazil occurred with a high level of complexity

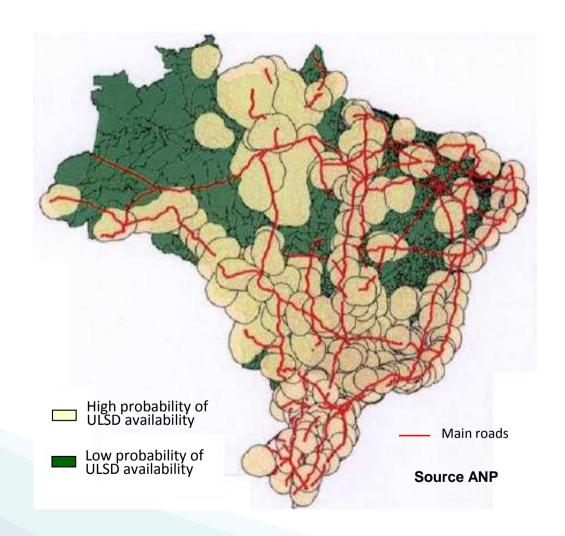




"Multigrade" transition
3 grades of Diesel (2 with
high sulfur content).
S-50 gasoline started in 2014

Production/importation with 10 ppm and PB sales with 10 ppm

Long extension pipelines / complex systems



To ensure the wide availability of the ULSD across the country, ANP promoted actions involving distributors and retailers



#### **Additional Resolutions**

- Defining criteria for mandatory offer of ULSD by service stations
  - Diesel Oil supply nozzles > Otto Cycle supply nozzles
- •Fixing colorful plastic sticker to inform the type of diesel offered in each pump

## Infrastructure Adjusments 2012

#### **PETROBRAS**



14 sale points (among a total of 37)

#### **DISTRIBUTORS**



49 bases

(among a total of 280)

#### **RETAIL**

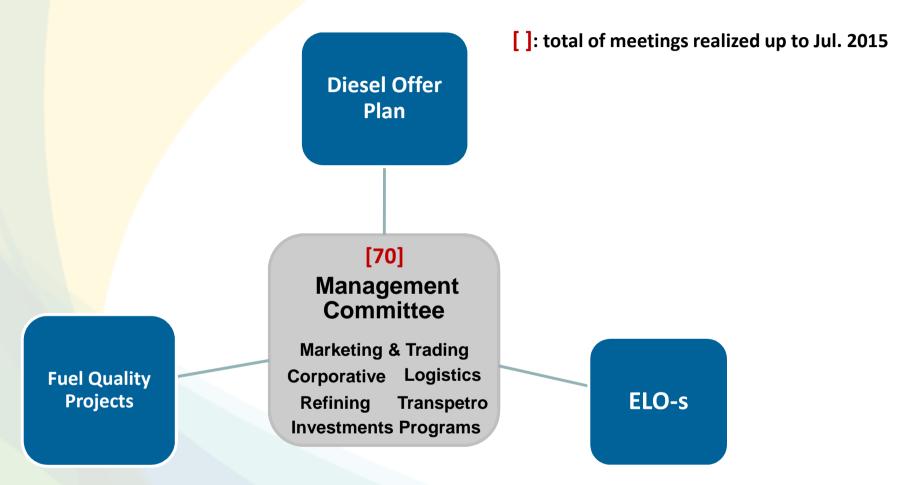


4,225 service stations

(among a total of 38 thousand)

To ensure the success of phase P7 and achieve environmental gains, Petrobras brought together a team of specialists





The Management Committee was created in Sep. 2009 with the objective to guarantee the fulfillment of the actions determined for Petrobras in the Agreement



## Diesel Offer Plan informed the distributors and retailers the path to participate in a joint partnership



1<sup>a</sup> Ed: Aug. 2010 2<sup>a</sup> Ed: May 2013

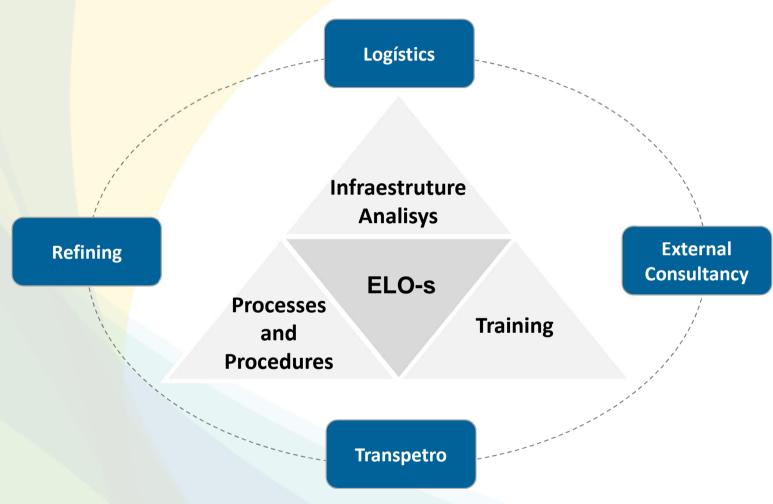


### **Content**

- Details of the offer of several grades over the years
  - Petrobras investments and schedule
  - Necessary adjustments to distributors
- Local operating conditions

The ELO-s project was implemented in order to guarantee the efficiency in logistics operations related to the ULSD





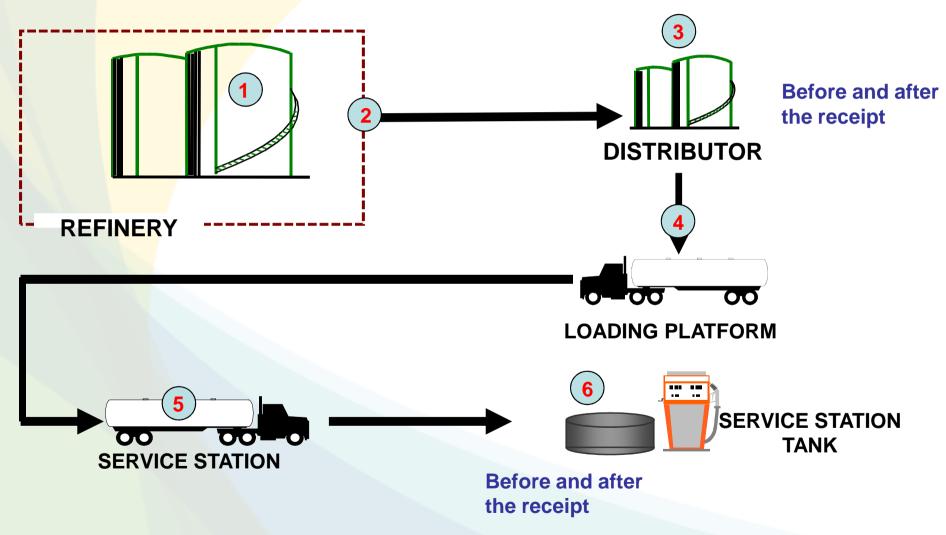
Successful introduction of ULSD across the country



## Tests were performed to evaluate the evolution of the ULSD sulfur content along the supply chain



### **Sampling Points**



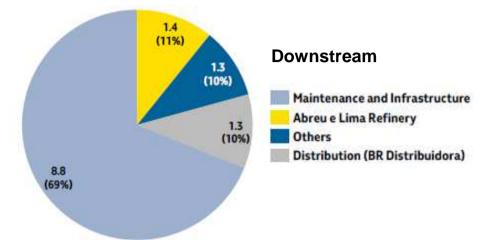
## Significant investments were done in production and logistics in order to ensure market supply

FIRIBRAS

Between 2005 and 2014, more than US\$ 34 bi were invested in logistics and refining adjustments.

We estimate an additional US\$ 12,8 bi thru 2019.

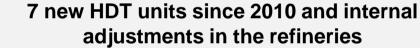
Source: 2015-2019 Business and Management Plan

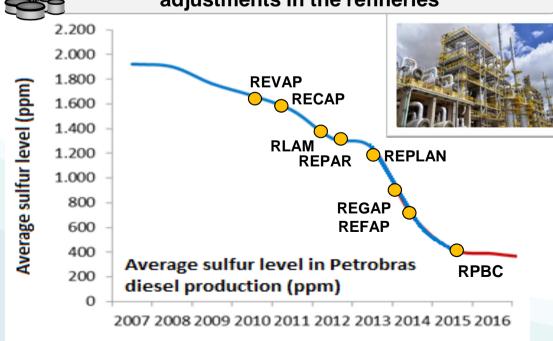




Logistics: Segregation adjustments in 25 terminals and installation of 235 valves



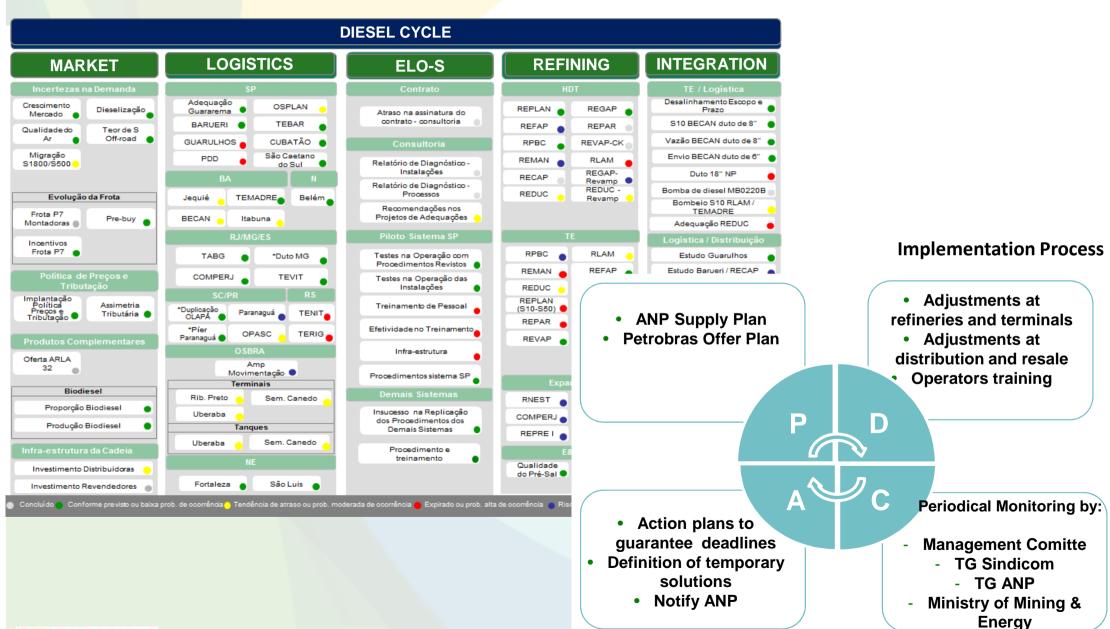




The Management Committee adapted a road map method of analysing the risks related to the fulfillment of the projects

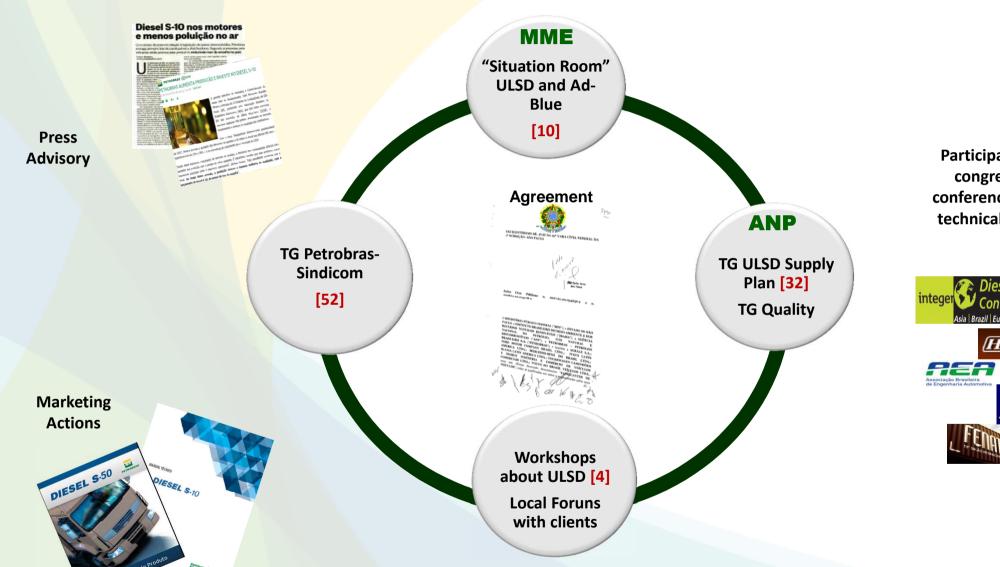
PETROBRAS





### It was dedicated effort by all players in a continuous communication process





Participation in congresses, conferences, and technical events





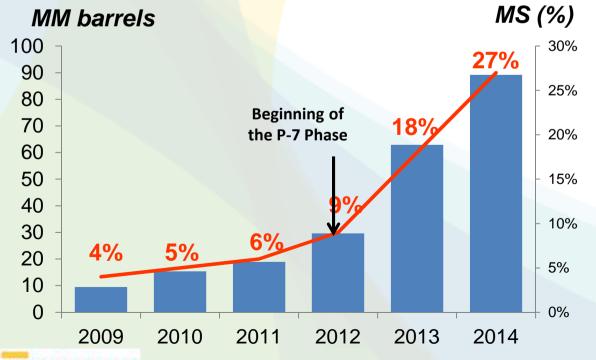




### The success in the implemented strategy led to the outstanding results...

- √ 27 Petrobras points of sales
  - 2012 2013

- 2014 **2015 2016** (expected)
- **Expansion of the retail network:** 
  - 4.225 stations in 2012 vs. 18,900 in 2014
  - 850 in 2012 vs. 4.600 in 2014
- Continued demand and market share growth:



√2,7% of non-conformities in regard to diesel quality (Basis: 2014)

- Over 80,000 samples/year
- Over 34,000 inspected service stations

Source: ANP





At Petrobras, environmental responsibility is part of our mission, and it is deeply connected to our business. We work to ensure a sustainable future for the next generations and performing with social responsibility in all of our activities is a challenge we are proud to overcome everyday.

Thank You!

Gracias!

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