Alianza Verde Automotriz

Water use efficiency

Dionisio Menchero

Mayo 2012

Agenda:

- Case review - Chihuahua Engine Plant.

- Examples of actions in Matrix.

- General.

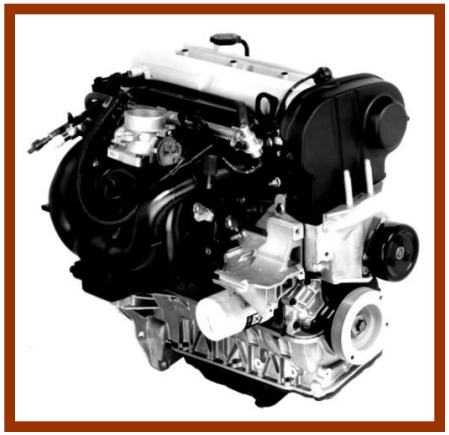
Water - Review case:
Motors plant in Chihuahua.

Engine Plant was founded in 1983 and started operations with machining and engine assembly "PENTA".

He has since undergone several changes in its assembly line to manufacture different engines

In 2007, work began and the dismantling of the ship that housed the ZETEC project and built the new plant to manufacture diesel engines under the project called Scorpion, which started production in November 2010.

Currently there are internal combustion engines and Diesel Fuel and 14 Hybrid vehicles



The Chihuahua plant is certified in ISO 14001, being a clean industry since 1998, in addition to having received several awards for environmental compliance by the Ecology Department of the State of Chihuahua.

CERTIFICATE OF REGISTR

Certificate Number: **E0003**

This is to certify that the Environmental system

FORD MOTOR COMPANY

POWERTRAIN OPERATIONS
DEARBORN, MI
UNITED STATES OF AMERICA

- ATNPC
- CHIHUAHUA ENGINE PLANT
- CLEVELAND CASTING PLANT
- CLEVELAND ENGINE PLANT 2
- ENVIRONMENTAL QUALITY OFFICE & VEHICLE ENVIRONMENTAL ENGINEERING
- LIMA ENGINE PLANT
- LIVONIA TRANSMI
- RAWSONVILLE PL
- ROMEO ENGINE P
- SHARONVILLE TR
- STERLING AXLE P Sterling 1 & 2)
- VAN DYKE TRANSI
- WINDSOR ENGINE

Is registered as complying with the requirements spec

ISO 14001:2004

Within the scope (For which VCA is accredited)

The design and manufacture of automotive engi castings, automatic transmissions and transaxles, forgings.

Signed on behalf of the VCA by authority of the Chief Executive:

Approval Date: **05 January 2004**
Certification Issue Date: **19 December 2007**
Certification Expiry Date: **18 December 2010**

PROFEPA
PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE

LA PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE, CON FUNDAMENTO EN EL ARTÍCULO 38 BIS, FRACCIÓN IV, DE LA LEY GENERAL DEL EQUILIBRIO ECOLÓGICO Y LA PROTECCIÓN AL AMBIENTE, OTORGA A:

FORD MOTOR COMPANY
S.A. DE C.V.
PLANTA DE MOTORES CHIHUAHUA

EL PRESENTE
CERTIFICADO

INDUSTRIA LIMPIA

POR HABER CUMPLIDO LOS COMPROMISOS DERIVADOS DE LA AUDITORÍA AMBIENTAL

PATRICIO JOSÉ PATRÓN LAVIADA

El Poder Ejecutivo del Estado de Chihuahua
a través de la
Secretaría de Desarrollo Urbano y Ecología y
el Instituto Tecnológico de Estudios Superiores de Monterrey
Campus Chihuahua a través del
Centro Regional de Producción Más Limpia.

Otorga el presente

Certificado de Cumplimiento

A: Ford Motor Company, S.A. de C.V.

Por haber acreditado el cumplimiento de la **Normatividad Ambiental Estatal** como parte del **Programa Voluntario de Regulación Ambiental 2008-2009**

El Gobernador Constitucional del Estado de Chihuahua

Lic. José Reyes Baeza Terrazas

CHIHUAHUA
Gobierno del Estado

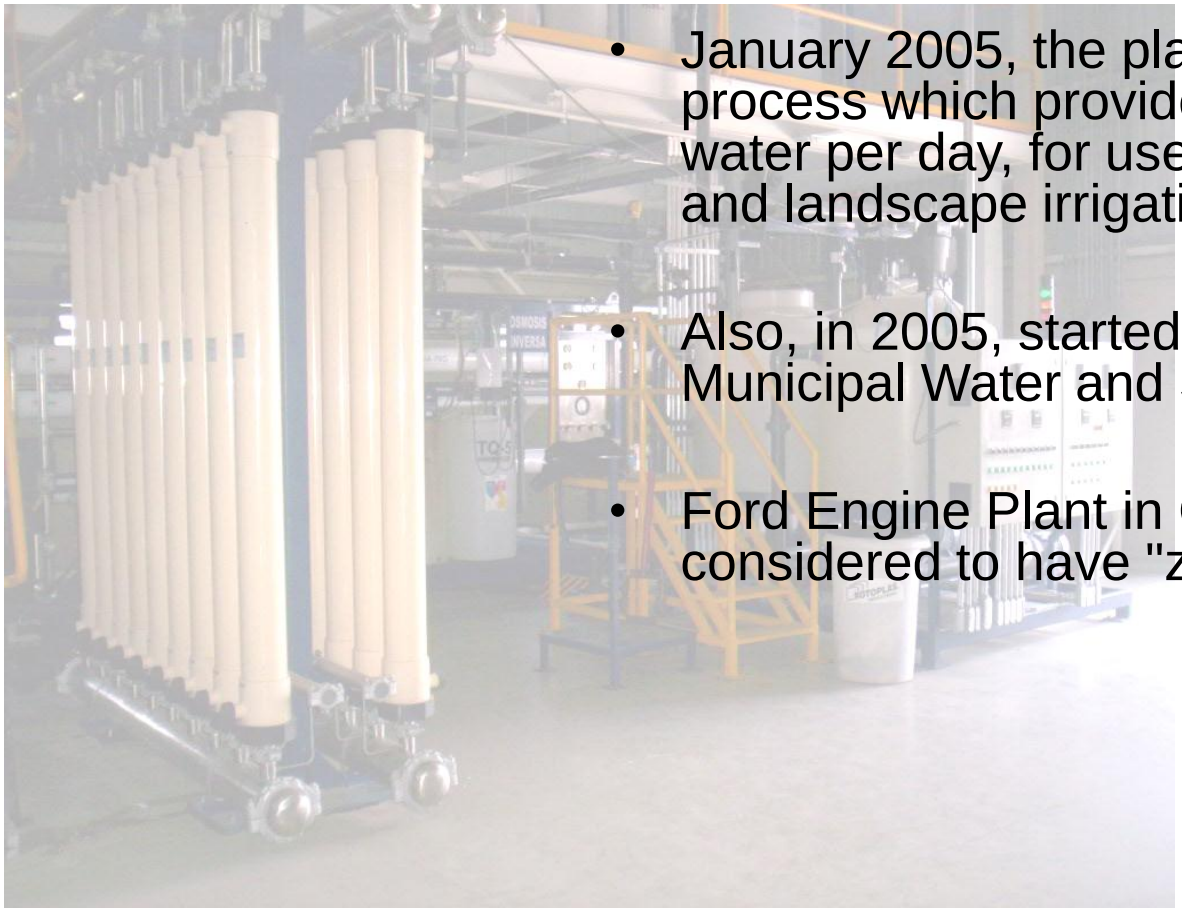
TECNOLÓGICO DE MONTERREY.

Chihuahua, Chih. Septiembre de 2009

- Ford, aware of the problems in the drinking water supply in the city of Chihuahua, decided from the start of operations of the plant to install a waste water treatment.
- The main objective was to have a plant, which was exclusively drinking water for **human consumption.**

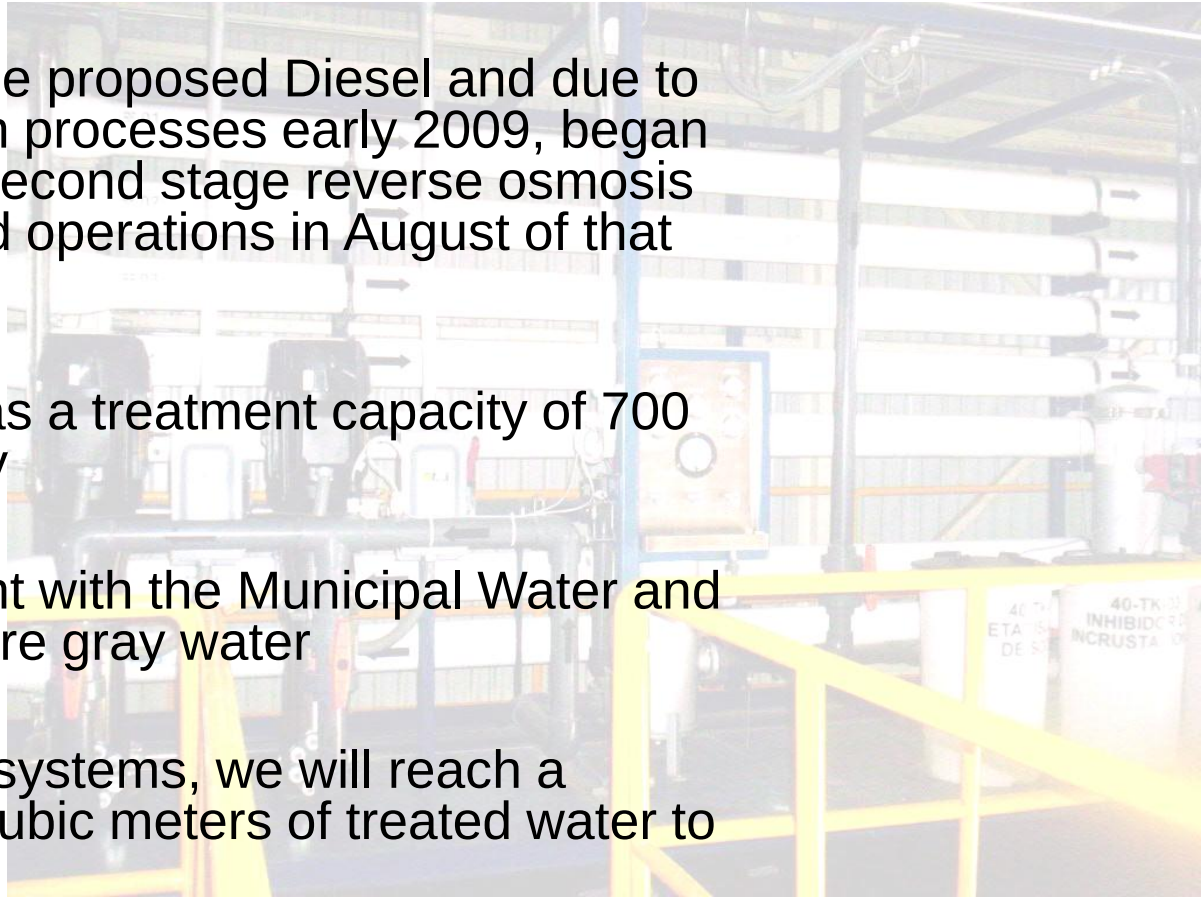
Reverse Osmosis (Phase I)

- In 2004, the installation process of micro filtration and reverse osmosis began.



- January 2005, the plant began operation of this process which provides 300 cubic meters of water per day, for use in production processes and landscape irrigation.
- Also, in 2005, started the gray water from the Municipal Water and Sanitation.
- Ford Engine Plant in Chihuahua, since 2005 is considered to have "zero discharge".

Reverse Osmosis (Phase II)



- With the advent of the proposed Diesel and due to increased production processes early 2009, began the installation of a second stage reverse osmosis system which started operations in August of that year.
- This second plant has a treatment capacity of 700 cubic meters per day
- Amending agreement with the Municipal Water and Sanitation to buy more gray water
- With both operating systems, we will reach a production of 1000 cubic meters of treated water to supply processes.

Achievements

The establishment of this project has reduced potable water consumption by 60% since 2005.

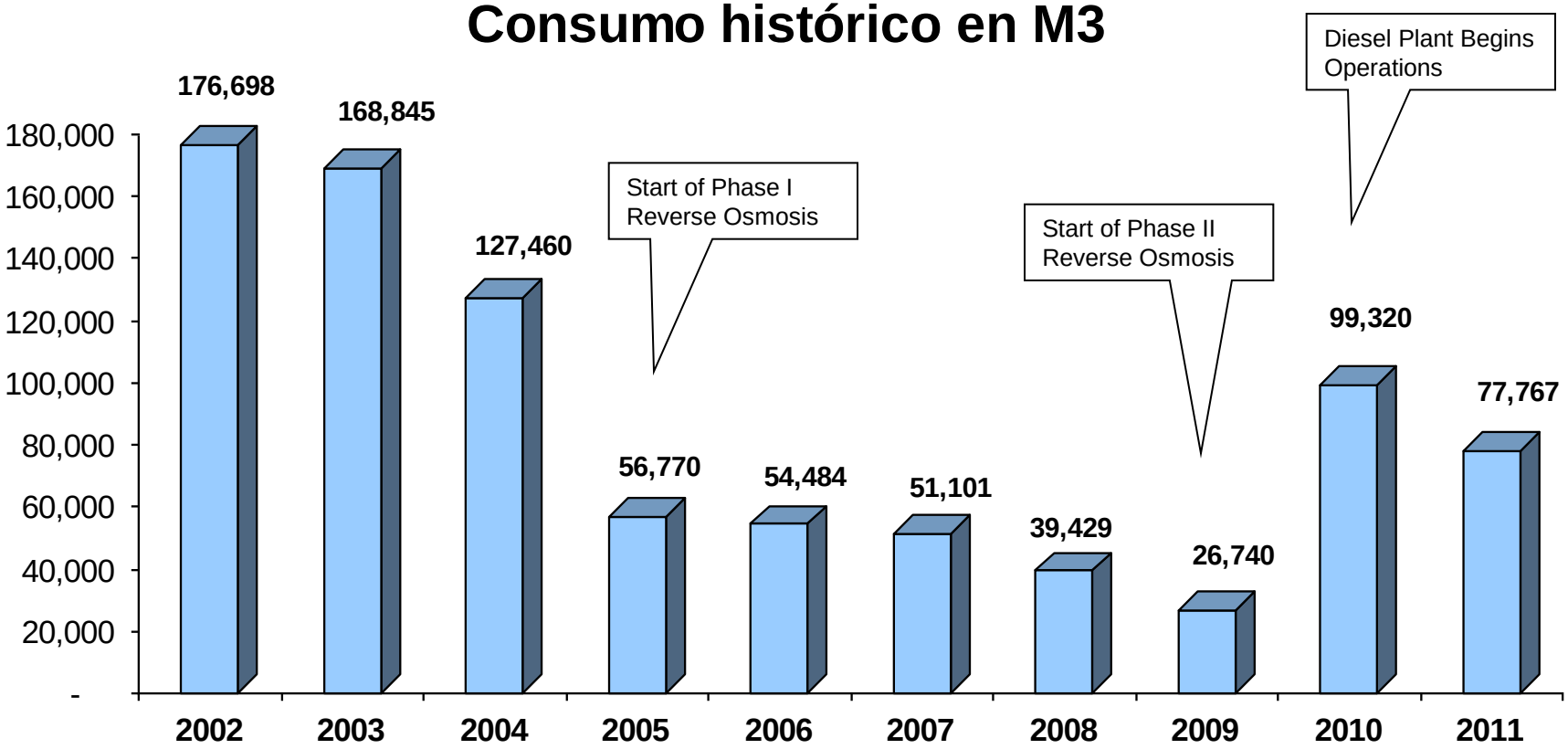
The production processes operate satisfactorily with the type and quality of water provided by this type of treatment.

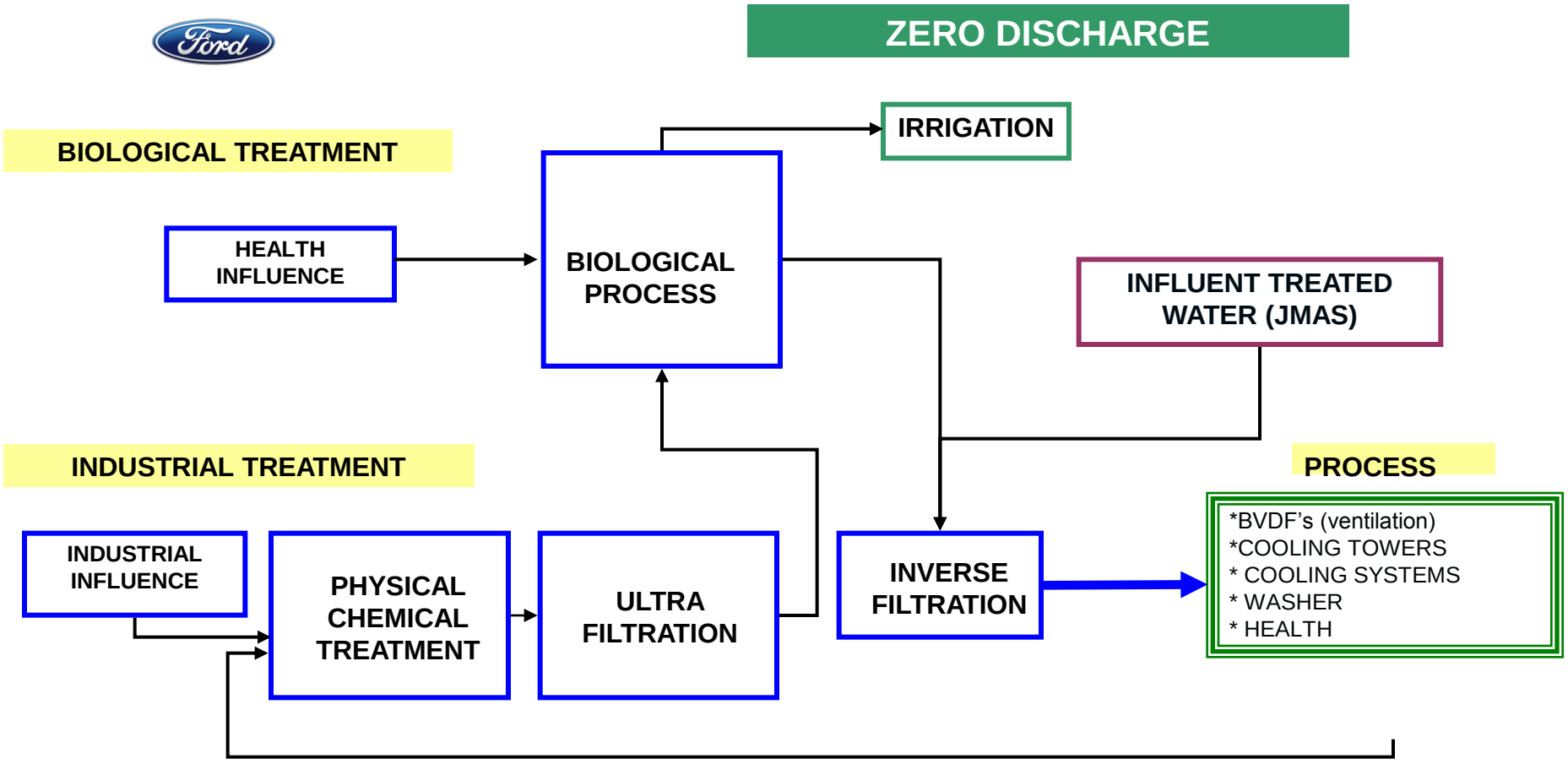
Thus, there is a direct contribution in the care of the aquifers of the entity, which now have a greater volume to supply the community.

In the year 2009, we reached the goal of drinking water being only for human consumption.

POTABLE WATER

Consumo histórico en M3




ZERO DISCHARGE
BIOLOGICAL TREATMENT
IRRIGATION
HEALTH INFLUENCE
BIOLOGICAL PROCESS
INFLUENT TREATED WATER (JMAS)
INDUSTRIAL TREATMENT
PROCESS
INDUSTRIAL INFLUENCE
PHYSICAL CHEMICAL TREATMENT
ULTRA FILTRATION
INVERSE FILTRATION
*BVDF's (ventilation)
*COOLING TOWERS
* COOLING SYSTEMS
* WASHER
* HEALTH

Examples of actions- Initial interaction with participants

Visual Aids of water in internal communication boards and bathrooms

Balance of Plant Water - Audit

Scheduling preventive maintenance for hydraulic systems: including pumps, wells, meters, pipelines, storage tanks, to prevent leakage

Purchase and installation of flow meters in areas of increased consumption, including cooling towers

Proposed change of toilets and urinals for eco-friendly ones

Replacing manual mixing valves for toilet savings

Proposed purchase of treated water for production use

Reuse of treated water for irrigation of green areas

Next Steps