LEAK SURVEY MANAGEMENT TOOL

PISte RSF

DIRECTION DE LA RECHERCHE

PROGRAMME DISTRIBUTION

7 juillet 2006

Gaz de France

French regulation context

- **Leak survey is mandatory for gas distribution networks**

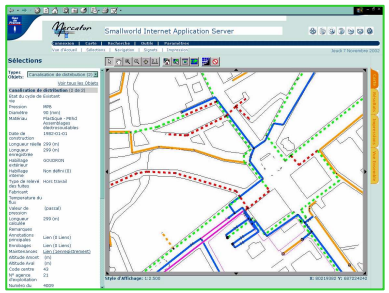
- **Each network operator has to set up a leak survey policy defining for each network section**
  - Sensitivity class (with corresponding survey frequency)
  - Survey carryin out (walking survey, vehicle, both ways,…)

- **New guidelines demands for leak survey follow-up tools**
  - For the survey traceability
  - To use the survey feedback as an input for the network maintenance and replacement policy

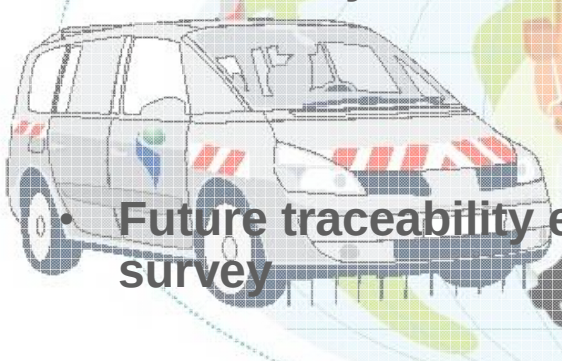
Technical context – innovative equipments

- **Gas distribution assets G.I.S. : SIG**

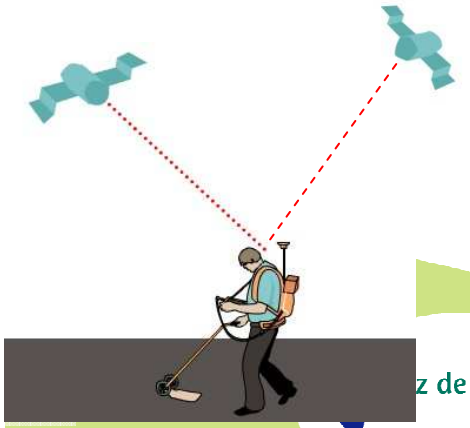
  MERCATOR



- **Leak survey equipment**
  - **2005 leak survey vehicle with GPS and traceability software Geofuite©**



  - **Future traceability equipment for walking survey**



Leak survey management tool : approach

NETWORK GIS

Asset data (material, pressure, date of installation,…)

Leak survey specific data base

Leak survey specific data (sensitivity classes, frequencies, detected leakages,…)

PISTE RSF

Cartography and leak survey route

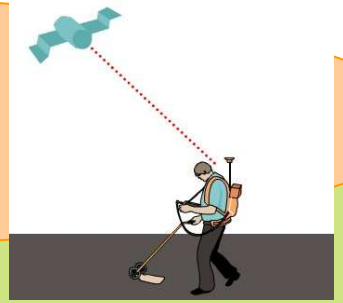
Surveyed route, detected leakages, quality control,…)

Leak Survey

GPS system

Traceability software

Onboard detector



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PISTE RSF – 1/ MANAGEMENT – Survey program definition

- **Network GIS data collection**
  - Pipe section data
    - Existing pipes, new pipe sections, forecast pipes,…
    - Leak survey specific data (sensitivity, frequencies, planning,…)
  - Cartography sources (street map, street names,…)
- **Sensitivity and frequency setting up**
  - Depending on the pipe caracteristics, area,…
- **Survey class determination**
  - Depending on vehicle accessibility, street width,..
- **Other leak survey parameters**
  - History, route number,…

PISTE RSF – 1/ MANAGEMENT – routes and map data for the traceability software Géofuite©

Routes setting up

- Network sections with similar carateristics (sensitivity, frequency, way of surveying,…) are gathered within the same group
- Each group is surveyed with an adapted route to be followed

Prepared route for survey carrying out support

- Once surveying, operators folloow the route progress with the Geofuite© onboard interface

PISTE RSF – 2/ FOLLOW UP – leak survey traceability information import

Surveyed route

- 1 GPS data recorded every second
- All events recorded (gas concentration, default, speed, …)
- Quality control traceability

Detected leaks

- GPS position
- Useful details noticed by the operator
- Leak level (ppm)
- Environment details

Quality control

- Self tests at the beginning and at the end of each survey route
- Continuous system control during the survey

PISTE RSF – 3/ FOLLOW-UP – survey program progress

- **Survey route carrying out update allows for program update**
- **Detected leak management**
  - Survey traceability to transfer leak informatio for corrective actions
  - Each leak is traced from detection up to repair
- **Surveyed network section**
  - With the traced GPS positions, PISte RSF retreaves all surveyed network sections to update its specific survey history
  - With the surey frequency, each surveyed section is put back in the survey program for the next « row »

PISTE RSF – 4/ RESTITUTION – back to the network G.I.S.

Data storage in GIS (Mercator)

- Leak survey specific data is stored in the G.I.S. atttributes
- Detected leak appear as an object attached to one network section

Follow up of the network defaults

- Leak survey feedback through PISte RSF allows for leak monitoring
- Leak monitoring = input data for network maintenance

PISTE RSF

Leak survey management follow-up

NETWORK G.I.S

Leak survey management & follow up

Sensitivity classes and frequencies

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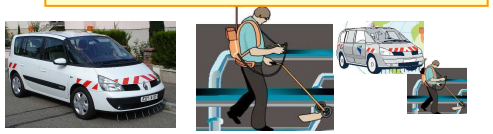
Survey type



Survey program

Leak survey route setting up

Route file
Area map

Survey program update

Surveyed route
Survey feedback information

Leak information for corrective actions
Leak monitoring within the network G.I.S.
Survey history and program update

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