

Network Innovation Allowance Progress Report

Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form.

Network Licensees must publish the required Project Progress information on the Smarter Networks Portal by 31st July 2014 and each year thereafter. The Network Licensee(s) must publish Project Progress information for each NIA Project that has developed new learning in the preceding relevant year.

Project Progress

Project Title

Project Reference

Advanced Gas Detection

NIA_SGN_0064

Project Licensee(s)

Project Start Date

Project Duration

SGN

Jan 2015

2 Years

Nominated Project Contact(s)

Sam Wilson (Innovation Project Manager)

Scope

The Project will be broken down into the following sub-sections:

- 1 GS700 Expansion – this will involve tasks such as; natural gas identification, bump testing, Bluetooth communication and trials/evaluation
- 1 Compliance management package (cloud IMS) – customised reports, guided decision making, trend analysis and security
- 1 Mobile application and development of associated software
- 1 Analysis of calibration options
- 1 Impact of the new technology on the site investigation procedures
- 1 Manage off site field trials and testing, quantifying and controlling risks identified

Objective(s)

The objectives of the project are to produce a portable gas detection device to detect methane and CO gases, and determine if readings detected on site are from a natural gas leak. Development of digital capture of site investigation data and inventory management will also be developed as part of the project.

Summary of Work Required

1. Develop a working prototype of the gas detection device to meet relevant industry standards and specifications.
2. Develop work procedures for using the product
3. Trial the solution across SGN's regional networks
4. Commercial appraisal for the overall use of the product and potential efficiency savings resulting from the success of the field trial.

Success Criteria

The success criteria for the project are:

- 1 Carry out design and development of a conceptual gas detection device

- 1 Complete the manufacture of 20 prototypes of the solution to meet the relevant industry and SGN standards and specifications.
- 1 Development of in-vehicle calibration devices
- 1 Development of an associated training package for field trial
- 1 Undertake field trials across SGNs regional networks
- 1 Produce operator guidelines detailing the correct operating procedure of the equipment
- 1 Produce and disseminate learning based on final project report

Performance Compared to the Original Project Aims, Objectives and Success Criteria

To date the project has been productive, running in line with the project plan and budget. The performance against each success criteria is detailed below. At the time of writing there are no delays expected to scheduled milestones or changes to the success criteria listed above:

Carry out design and development of a conceptual gas detection device

At the time of writing this report the design and specification of all elements of this project has been completed on time and on budget. A description of each element is stated below:

Gas Detection Unit

The instrument is able to detect flammable gases (using infrared technology), toxic gases, oxygen, measure odorant levels and will differentiate between pipeline and non-pipeline gas leakages.

The instrument has data logging capabilities and the user interface will automate existing SGN field procedures. All data recorded on the instrument, together with bump/calibration data, can be transferred to the Cloud, via a Tablet, and will be accessible to authorised personnel to enhance information management and drive operational efficiency savings.

Demonstrations of all these features and the transfer of data has been provided to the project team.

Tablet Application

The detection instrument has communicated with the Tablet using Bluetooth. The instrument has transferred logged data together with bump/calibration results to the Tablet. Geographic detail can then be manipulated on the table to ensure that risk scores are calculated accurately. This data can be used either directly (e.g. to generate an electronic Leak Inspection Sheet) or it will be further transmitted, utilising the Tablet's mobile data connection, to The Cloud or similar. Data stored on the cloud can be accessed and used to assist with both leak and instrument fleet management.

Cloud Database

The cloud data base has been set up as a method for storing the job information collected from the units. This includes old LIS and GRR forms along with the calibration data for the unit, providing an easier audit trail and transfer of information between multiple operatives on site. This will enable the historic data that was collected for a single job to be shared to other onsite engineers as a method of information transfer.

In-vehicle calibration

See section below for further details

Complete the manufacture of 20 prototypes of the solution to meet the relevant industry and SGN standards and specifications.

20 systems have successfully been manufactured for the field trial for all elements of the project. All of the instruments have been individually calibrated with the correct correlation data required and benchmarked against existing standards for the current equipment in use in the field.

Development of in-vehicle calibration devices

The design and specification of the in-vehicle calibration station has been completed including the internal controller PCBs, electrical connections and mechanical design. Consideration has been taken to location within specified vehicles, risk mitigation for transporting bottled gases and total weight of the hardware.

Testing has been carried out to ensure that all the systems respond as expected. Following the field trial, feedback will be provided to GMI and the project team for further development.

Development of an associated training package for field trial

Prior to deployment of the units for the field trial, a provisional training plan was compiled by GMI. A combination of the following training methods were used to present the information to the field operatives:

- 1 An introductory presentation to define aims of the field trial including procedural requirements
- 1 A quick reference card for operation of the gas detection unit
- 1 A tablet application simulator for detailed operation of the gas detection unit
- 1 Presentations for full operation of each element including video clips.

Undertake field trials across SGNs regional networks

Field trials began in May 2016 with training carried out in three locations across SGN's network. The following items were completed in preparation for the trial:

- 1 Independent benchmark testing of the gas detection unit has been carried out in accordance to industry specifications and has been verified as 'fit for purpose' replacement of the current SGN equipment
- 1 An SGN/PM/G/23 field trial procedure has been approved by SGNs policy department
- 1 15 units have been rolled out across the Scottish and Southern Network to FCO's (First Call Operatives)
- 1 2 units have been supplied to maintenance crews
- 1 Training has been delivered to all recipients of the equipment in accordance to DNV GL's and SGN's training team guidance

Produce operator guidelines detailing the correct operating procedure of the equipment

Guideline task cards and interactive virtual guide have been issued to all operatives taking part in the trial. Following feedback further work will be carried out prior to the start of the second field trial and completion of the project.

Produce and disseminate learning based on final project report

Interim reports have been submitted by GMI and DNV GL.

Prior to the end of the project a second LCNI conference will take place providing further opportunities for stakeholder engagement, as well as updates through the Gas Innovation Governance Group meetings

Required Modifications to the Planned Approach During the Course of the Project

No modifications to the project plan have been made. The project is progressing as planned.

Lessons Learnt for Future Projects

The project is currently progressing as planned in relation to time and budget. This reflects the benefit in properly scoping out a

project and engaging with potential project partners and appropriate SGN departments prior to registering the project, ensuring that the timescales and deliverables are realistic and achievable.