Automated Meter Reading:
MAM Manual
V4.0

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Automated Meter Reading Service

1. Introduction

1.1 Overview of AMR Service

The commercial terms of our AMR service are set out in your contract. This document describes the technical processes and interfaces through which we deliver our AMR services.

For sites where AMR has not yet been installed, we ask that you send a start request (.REQ *STRT*) to initiate the installation and read management processes. Where AMR is already installed, dependent upon your contract options we can start the service automatically, or if you have not opted for 'autoelection', you may initiate the service via manual election using a start request.

The details of the five different service levels, Platinum, Copper, Gold, Silver and Bronze, are set out below. An opening read will always be provided as part of the service.

An alarms service is also available, whereby you can request that an alarm call is sent every time that gas throughput in a defined period is outside a specified tolerance. Over time, as National Grid builds up a data base of historical AMR reads, historical read data will be available on an ad hoc basis, with the proviso that you have rights to the data for the meter point for the period for which the data is requested.

1.2 Communications

The preferred option is via the IX network but you can also choose to send data to us, by e-mail. If IX is the chosen route then the files must
a) contain the standard Header and Trailer records (see Appendix 1), and
b) be a valid AMR file type, as detailed in header record.

The file extensions for the AMR service are **".AMR", ".CNS", ".REQ", ".RES", ".SVT", ".QAH".** (See Section 2)

NG will always send the data via the IX network.

1.3 Service Levels and Read Deliveries

NG offers five levels of service, Platinum, Copper, Gold, Silver and Bronze. Details of the services are as follows:

- **Platinum** – daily delivery of readings taken at 06:00 hours plus half hourly consumption data (data sent D+1)

- **Copper** - daily delivery of readings taken at 06:00 hours plus hourly consumption data (data sent D+1)

- **Gold** – four deliveries per month of daily readings taken at 06.00 hours plus hourly consumption data.

- **Silver** – two deliveries per month of daily readings taken at 06.00 hours.

- **Bronze** – two deliveries per month of two meter readings only, taken at 06.00 hours, relating to the middle and end of the month.

1.4 AMR Installation Request (new AMR)

Where a Supplier requires an AMR service at a particular MPRN where a NG AMR device is not currently in situ, the Supplier should submit a start service request (**"STRT"** record – see section 3.1.1) to NG, as specified below, including all necessary site contact information. NG will visit the site and, where possible, undertake the necessary AMR installation work. NG will then send a work completion file (**"COMLT"** record – see section 3.3.3) to the Supplier, including the relevant meter reading. Where it is not possible for NG to undertake a standard AMR installation, NG will send a Response file with a job outcome of **"ABORT"** (see section 3.3.4) to the Supplier indicating the reason for this. If the supplier still wishes NG to provide an AMR service at the MPRN, the supplier can request NG to provide a bespoke quotation for the installation (see section 1.16).

During the installation of the NG AMR device if any existing and approved connection is already made to the gas meter it will have to be removed to allow the new AMR device to be fitted. In a case where a nominated person is not present to remake the connection a letter will be left on the site for the appropriate qualified person who will remake those connections (See Appendix 4.5).

If it is found that the output of the meter is already being used without the permission of National Grid Metering under the MPU agreement, the connection will be removed and a letter will be left on the site (See Appendix 4.6).

1.5 AMR Start Service Request (existing AMR)

Where an AMR device is in situ at a particular MPRN (see section 1.12 - **"Change of Supplier"** below for details of how this will be communicated to Suppliers), the AMR service will either be started automatically on Appointment of the NG meter if the Supplier has chosen auto-election (see below), otherwise the supplier will need to manually elect to take the AMR service on a MPRN by MPRN basis, using the start service request (**"STRT"** record)

1.5.1 Automatic Election

Where the Customer has specified automatic election then, where AMR is currently installed at a MPRN, NG will automatically start the AMR service from the effective date of the appointment for that Customer, following a Change of Supplier.

To communicate the fact that automatic election has taken place at a MPRN, an unsolicited **"COMLT"** Response record will be sent by NG to the incoming supplier. This unsolicited flow will be identifiable by having the **"Job Type"** field set to **"AUTO"** (see 3.3.3.2).

The AMR service level at the MPRN will remain the same as that which applied to the outgoing supplier, unless a change is requested by the incoming supplier by sending an **"AMNA"** flow by 5 Working Days prior to the Appointment Date (see 3.1.6).

As any pre-existing alarm service will automatically be cancelled on the De-Appointment Date, if an alarm service is required by the incoming supplier, an **"AMNA"** flow should be sent by 5 Working Days prior to the Appointment Date.

If the Customer does not require an AMR service at a particular MPRN following a Change of Supplier, a **"CANA"** (see 3.1.5) record can be sent to NG to cancel the election. If the **"CANA"** record is sent to NG to arrive by the Working Day prior to the date of Appointment, this will prevent the AMR service from starting. No opening read or subsequent read data will be sent by NG to the new supplier.

If the service has been activated but the customer does not require the AMR service at the MPRN then the customer must send a **"STOP"** (see 3.1.2) request within 10 days to stop the automatically elected service and to avoid termination charges. In this event the appointing supplier will be liable for charges in respect of any AMR reads processed by NG prior to the stop service request becoming effective.

1.5.2 Manual election

Where the customer has not specified an automatic election, and an AMR service is already in operation e.g. the MPRN has been acquired through the COS process, then, if required, an effective date for the start of service can be entered. If the supplier wishes the service to start on the COS effective date (i.e. on appointment of NG), then a **"STRT"** record should be sent at least 5 Working Days prior to this date, (along with a request for an opening read in respect of the Bronze service level; opening reads will always be provided as part of the Platinum, Copper, Gold and Silver services)

1.6 AMR De-Election Request

Where a Customer wishes to stop taking the NG AMR service at a particular MPRN, and this is not linked to De-Appointment of NG, the Customer should send NG a de-election request. The **"STOP"** request will be effective one Working Day after receipt by NG if received by 17.00 hours. De-election from the NG AMR service is automatic on De-Appointment of NG.

1.7 Amendments

Where a Customer wishes to communicate a change at a specific MPRN where AMR is active, then the Customer should send NG an **"AMND"** request (see 3.1.3). In general, amendments will only be effective at the start of a calendar month, and NG requires 5 Working Days' notice prior to the date for the change to be activated. The exception to this, as noted above, is in relation to new Appointments on Change of Supplier where

auto-election of the AMR service has been chosen by the Customer. In these cases, if the Customer knows that a different service level is required from the date of Appointment, NG will implement the new service level from the Appointment Date if the Customer specifies this on an **"AMNA"** record, giving NG 5 Working Days' notice in advance of the Appointment Date.

Amendments can be made to the following fields:

- Annual Quantity
- Service Level
- Alarms
- Site Name
- Site Contact name
- Site Contact number

1.8 Alarms

NG offers an alarm service in conjunction with its AMR service. An alarm can be set to trigger when certain gas consumption criteria are breached over a predefined period of time.

To set an alarm the Customer must inform NG of the parameters for triggering the alarm, and also details of where the alarm message needs to be sent. These details should either be provided on the **"STRT"** record, the same record as the Customer uses to request the AMR service, or on a separate **"AMND"** record in the case of an existing AMR service. The parameters required are high and low gas consumption in a defined period (minimum = one hour). Should the gas consumption exceed the high value or fall below the low value for the defined period, then the alarm will be triggered.

The alarm takes the form of a text message or an e-mail sent to the designated target.

1.9 Primes and Subs

A Customer can request an AMR service at a sub-deduct meter in respect of which it has not Appointed NG, but it is that Customer's responsibility to inform the current Supplier to the sub-meter. When the request is sent to NG it must be clearly indicated that the meter is a sub-deduct meter otherwise the request will fail validation.

NG will treat the sub-deduct meter as a freestanding meter for AMR purposes.

1.10 Transaction Status

To assist with management information the Transaction Status in AMR will be used to identify the error clearly to the supplier.

The Transaction Status will be populated with a code to help identify the problem. It will consist of a 2 character "description" field followed by a 3 numeric AMR attribute number (see Appendix 2).

Error Description Codes:

MD - mandatory data missing
IF - invalid field
TP - third party meter
RC - invalid record count
NS- non standard installation
RA - refused Access
IM - invalid meter point
OT – Other
IH - invalid header
IT - invalid trailer
DF - duplicate file
NO - no access
DL - demolition
IC - invalid contact details
NA - not appointed supplier

1.11 Meter Inspection

A Meter Inspection by NG is indicated by the presence of a **"Start Meter Reading"** on a Response or a Site Visit flow.

1.12 Validation

NG will validate all AMR readings sent to Customers.

Initial Validation: A completeness test will be carried out to ensure that all the readings expected have been received, including, if applicable, convertor readings. A sense check will then be carried out to test that AMR reads are not less than the previous reading (except in the case of 'around the clock', or 'through the zeros' situations). AMR reads that fail this initial validation will not be sent to the Customer, and NG will investigate the reasons for the failure.

Consumption Validation: In the first year of operation of the AMR device at an MPRN, this validation is based on the use of an expected annual consumption (annual quantity, or AQ), provided by the customer, to which seasonal variations are applied. The consumption measured by the AMR device in each period is compared with the consumption derived from the profiled AQ for the equivalent period. The seasonal profile applied to the AQ is as follows:

Month											
Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
13.6%	13.4%	11.6%	8.5%	6%	4.5%	4.2%	4.3%	4.9%	6.7%	9.8%	12.5%

Different tolerances will then be applied to the AMR reads based on a number of consumption bands, as outlined in the table below.

Consumption (ft^3)	**Tolerance (+/-) %**
0-50,000	300
50,001- 100,000	240
100,001 – 200,000	180
200,001 – 250,000	150
250,001 – 500,000	150

500,001 – 999,999,999	75

After the first year of operation of the AMR device at an MPRN, the AMR reads will be validated by reference to the recorded consumption in the equivalent period in the previous year, using the same tolerances as in the table above.

Any AMR reads that fall out the consumption validation described above will be sent to the customer and identified with a warning flag in the read file. Such reads will constitute AMR Successful Reads as described in the contract (provided that they are delivered in the required timescale).

1.13 Quotations

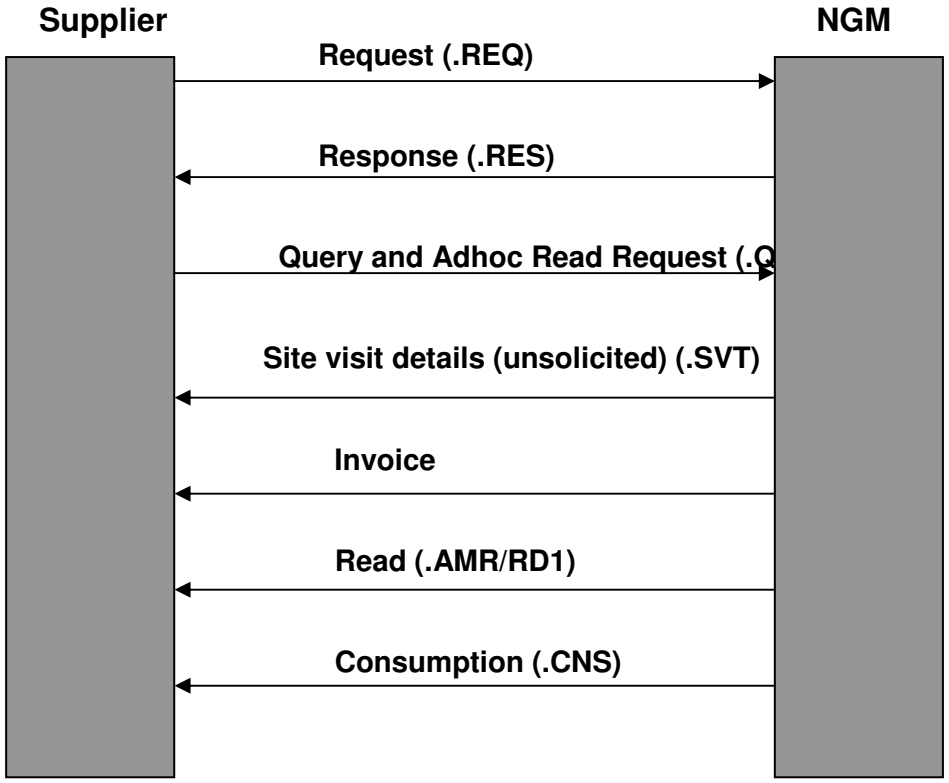
There may be occasions when an AMR installation has to be aborted because it requires a non standard installation (Transaction status = “NS000”)

The customer may still wish to install an AMR device and can request NG to provide a quotation for the installation. If the quotation is accepted NG will schedule the work and upon completion pass the details to the customer by a formatted e-mail.

This non standard work will be itemised in the invoice.

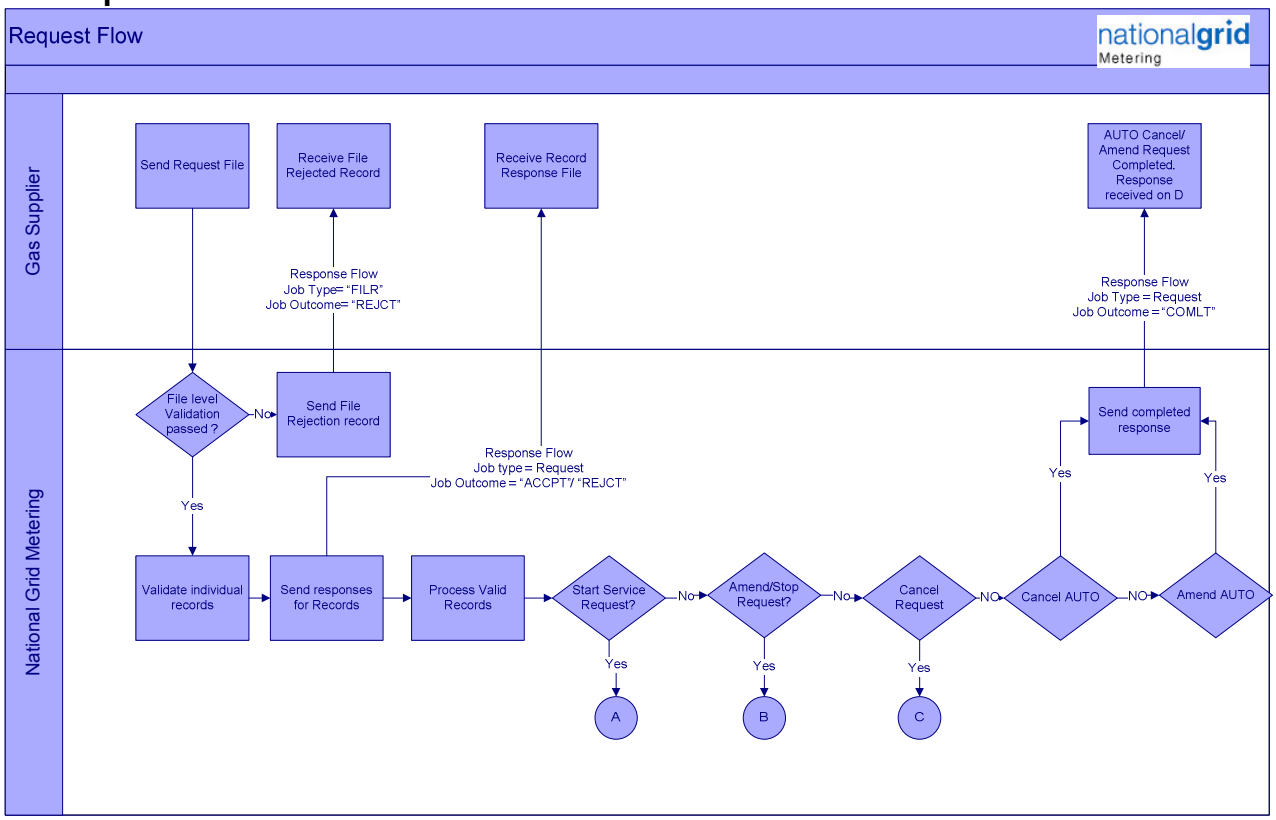
2 AMR High Level Process

The following diagram represents the full set of data flows that have been developed to enable the new AMR service to be implemented.

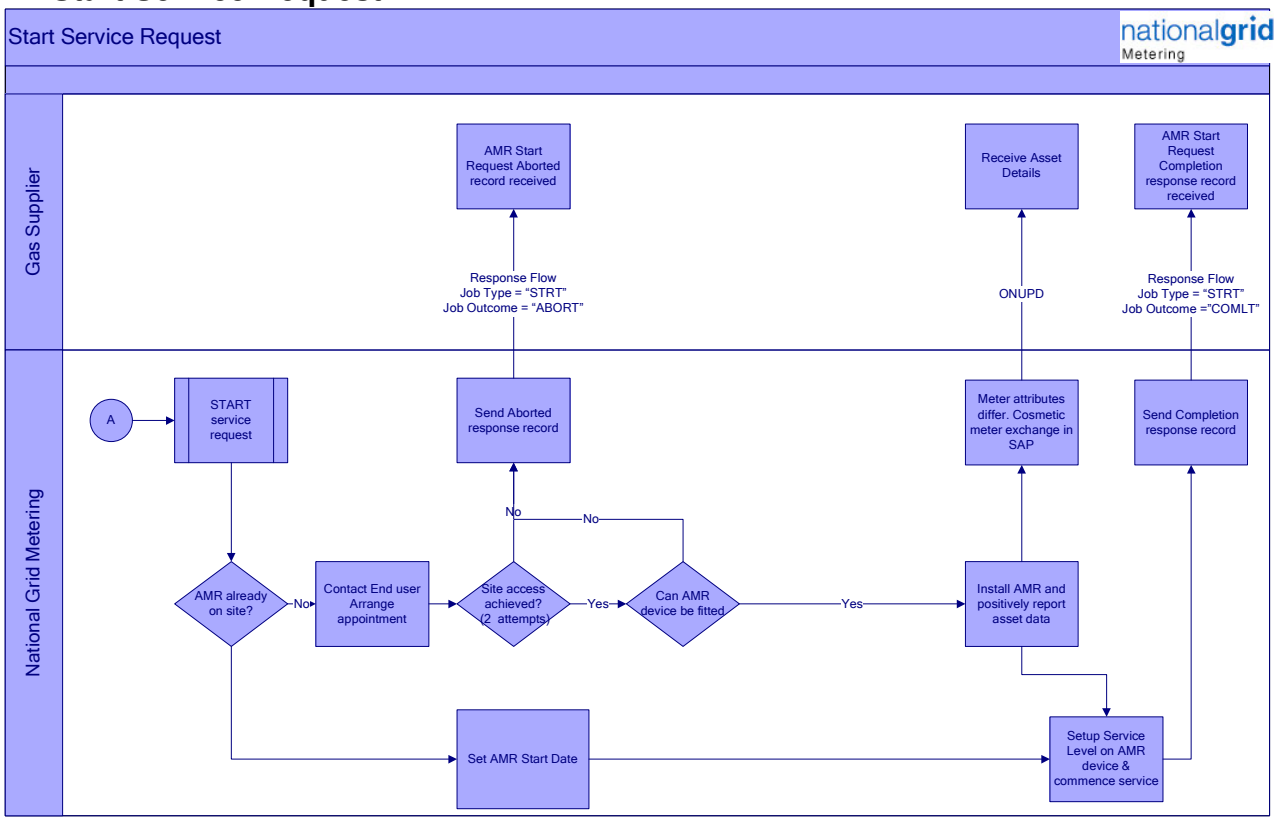


The high level process flows are detailed below.

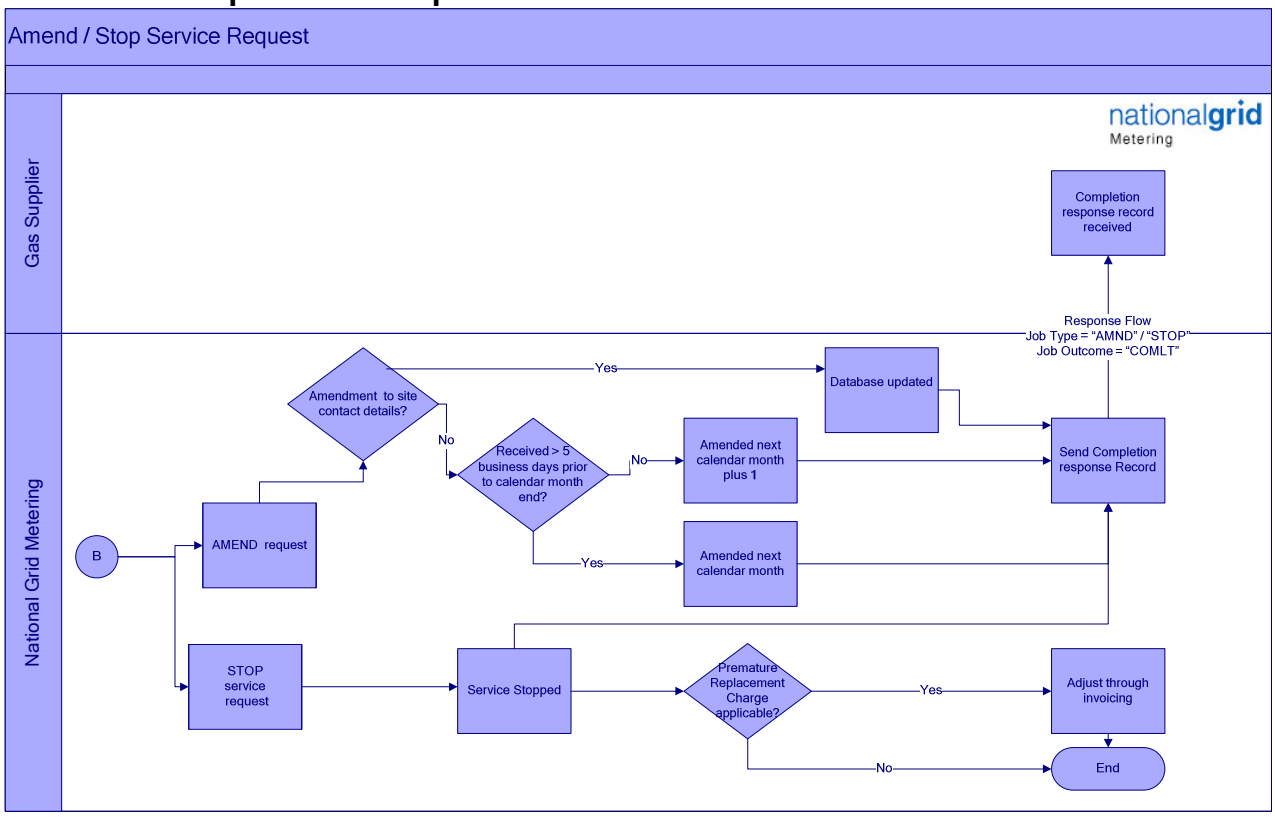
2.1 Request Flow



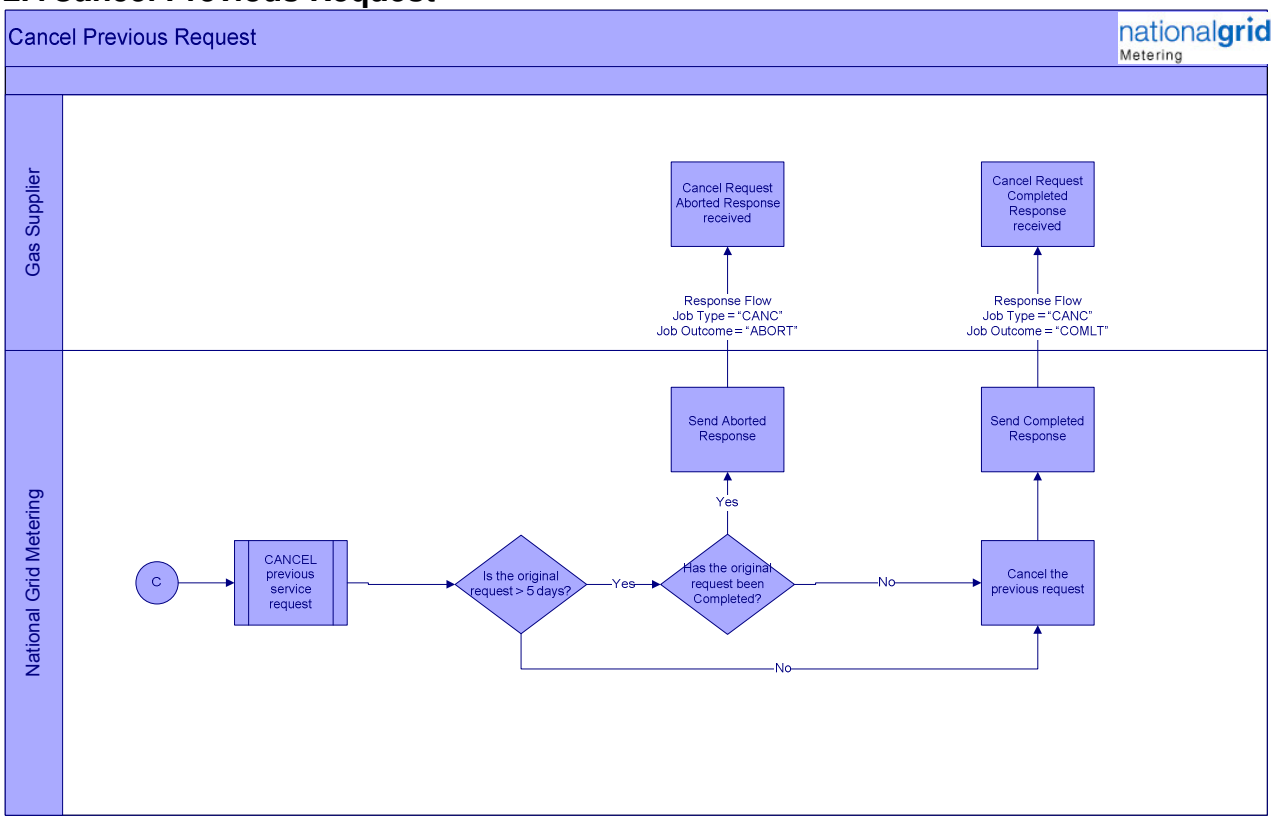
2.2 Start Service Request



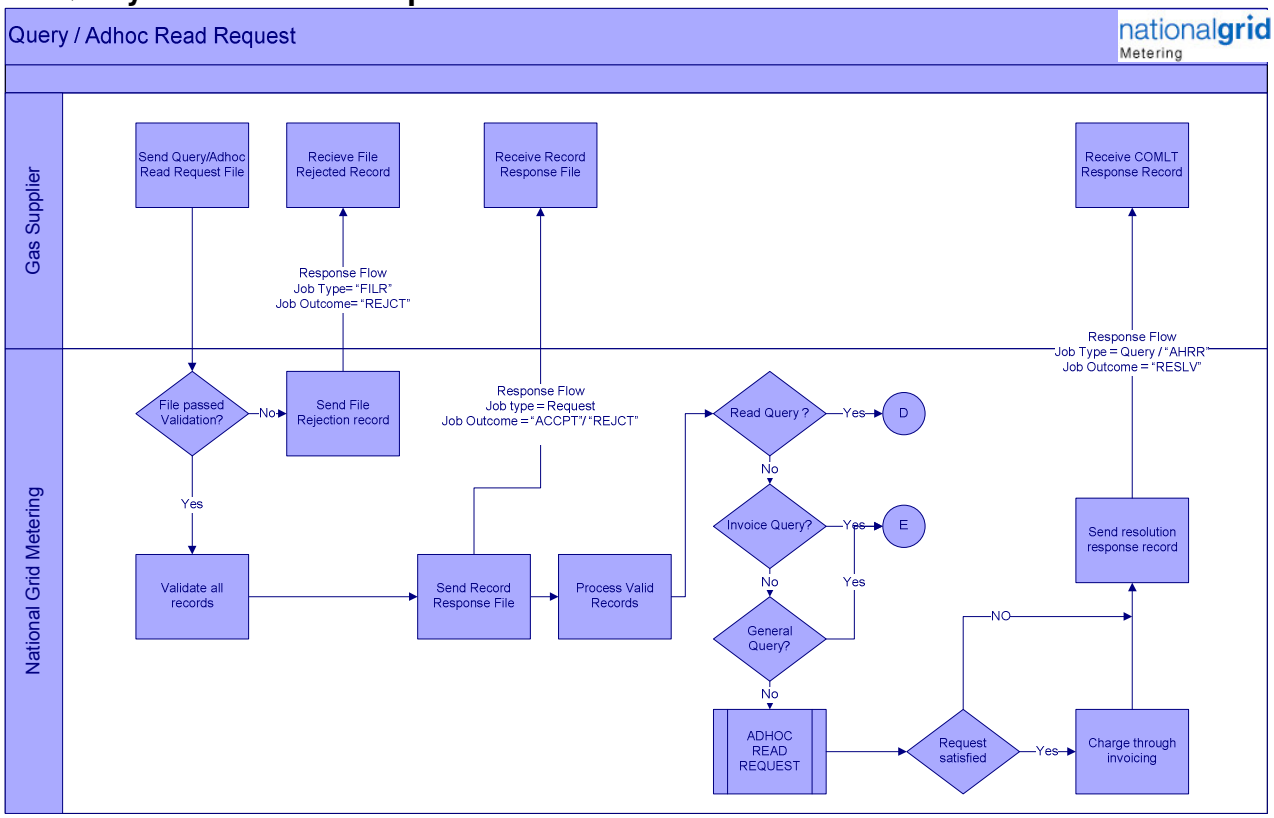
2.3 Amend/Stop Service Request



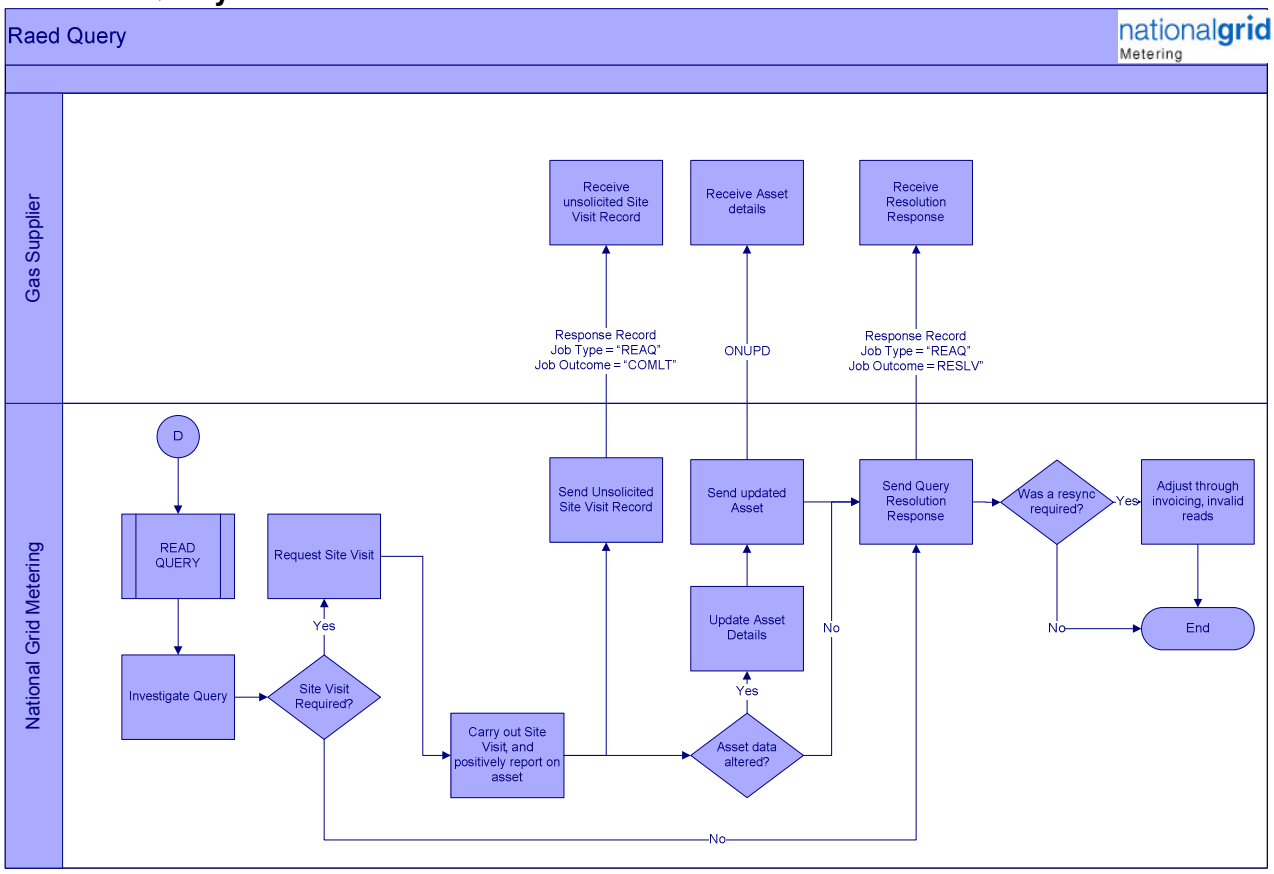
2.4 Cancel Previous Request



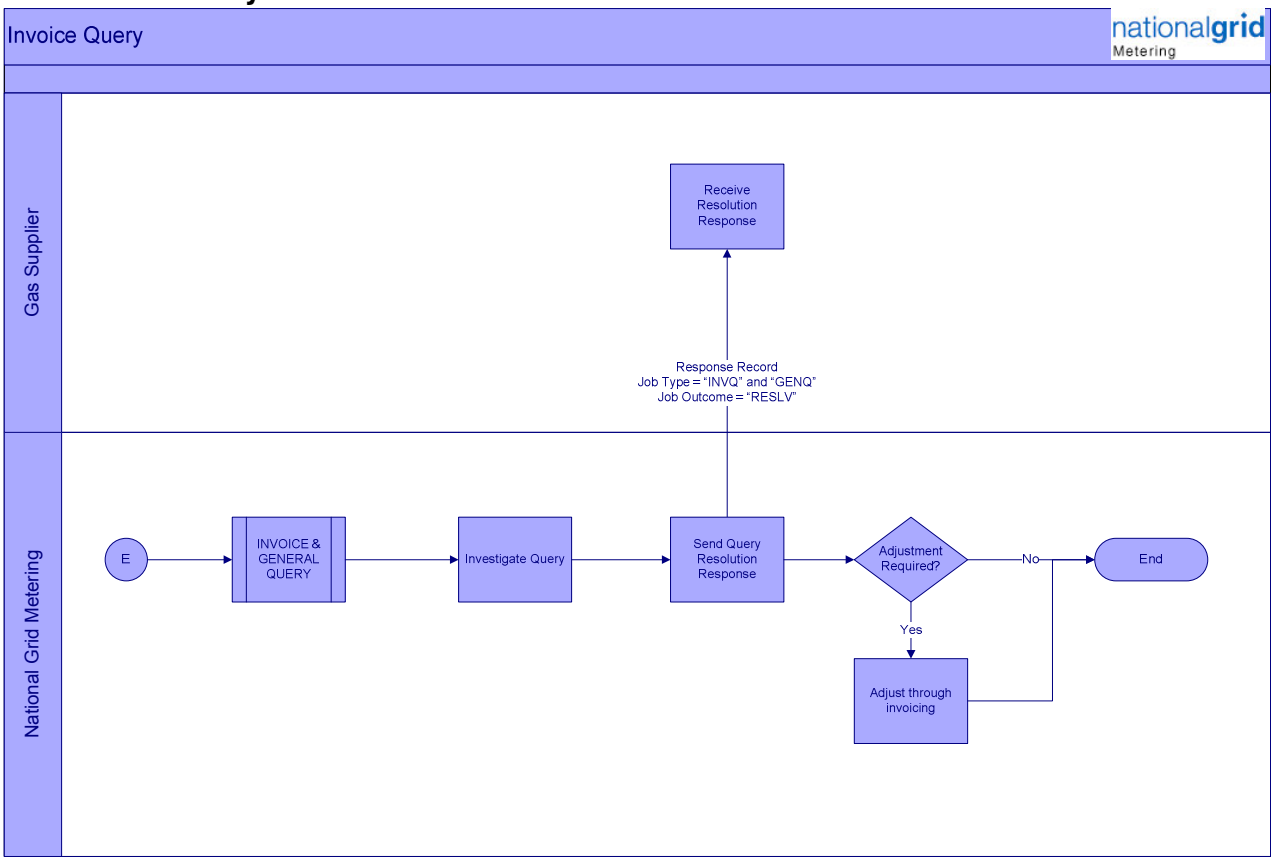
2.5 Query / Ad-hoc read request



2.6 Read Query



2.7 Invoice Query



3 Data Flows and Business Rules

3.1 Request

There are several Request record types that can be used for various AMR requests. A file can contain any combination of these Request records. They will be validated and responded to individually.

Each record will be an individual request and must contain a unique Transaction Reference in all cases (except when cancelling a previous request **(CANC),** in which case the Transaction Reference of the previous request being cancelled should be used).

Record Types

3.1.1 Start service -"STRT" record

This record will be used to start an AMR service for a supplier at a specified MPRN.

If an AMR service is already in operation at a MPRN, and the Customer is to become the gas supplier at the MPRN through the CoS (Change of Supplier) process, and auto-election does not apply, the Customer can request the NG AMR service by sending NG a "STRT" flow request. If the supplier wishes the service to start on the CoS effective date (i.e. on Appointment of NG), then the **"STRT"** record should be sent at least 5 Working Days prior to this date and the Effective Date populated, along with a request for an opening read in respect of the Bronze service level (opening reads will always be provided in the cases of the Platinum, Copper, Gold and Silver service levels). If the effective date is left blank, then the service will start within D+2.

If an opening read is requested (only relevant to the Bronze service) then this read will be provided in the read file (.AMR) and identified with an "O" in the Read Status.

Where an AMR service is not currently installed, site contact information will be required. (See Appendix 4.3, example 1).

N.B The fields marked as "Not required" will not be validated, but do have to be populated in terms of commas and quotes i.e. empty text fields should be "".

	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
062	Contract Reference	M	25	Char	0	Unique reference number for a supplier to identify AMR contract with NG.
026	Job Type	M	4	Char	0	**STRT=** Start Service
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
048	Service Level	M	1	Char	0	P=Platinum, C=Copper, G=Gold, S=Silver & B=Bronze
005	Alarm Required	M	1	Char	0	Y=Yes, N=No
001	Alarm High	C	10	Number	0	Mandatory if Alarm is required. Maximum consumption for the period specified at which an alarm is required
002	Alarm Low	C	10	Number	0	Mandatory if Alarm is required. Minimum consumption for the period specified at which an alarm is required
004	Alarm Period	C	1	Char	0	Mandatory if Alarm required. Period of time for which the High or Low values are exceeded for the Alarm to be triggered, H=Hour, D=Day, Month
003	Alarm Notification	C	50	Char	0	Mandatory if Alarm required. Where the Alarm should be sent, will be an e-mail address or telephone number
061	Upfront Payment	M	1	Char	0	Does the supplier wish to make an Upfront Payment, Y=Yes, N=No
006	Annual Quantity	M	12	Number	0	Annual take off of gas
051	Site Name	C	40	Char	0	Mandatory if an AMR device is NOT installed
050	Site Contact	C	40	Char	0	Mandatory if an AMR device is NOT installed
049	Site Contact Number	C	15	Char	0	Mandatory if an AMR device is NOT installed
013	DM Logger Indicator	C	1	Char	0	Mandatory if an AMR device is NOT installed. Does an existing DM logger exist on site, Y=Yes, N=No

035	Prime Or Sub Indicator	C	1	Char	0	Indicates if a meter is Prime or Sub/ Mandatory if AMR is not installed
007	Comments	O	210	Char	0	Additional comments relevant for the request e.g. Problems with access
014	Effective Date	C	8	Date	0	If AMR not installed should not be entered. If AMR already installed then the date can be entered. Format YYYYMMDD
032	Opening Read Required	O	1	Char	0	Values blank or "N", where blank indicates an opening read is required

3.1.2 Stop service - "STOP" record

This record will be used to stop an existing AMR service at a specified MPRN. It is not required if the reason for stopping the AMR service is due to De-Appointment for reason of CoS.

If accepted the **"STOP"** request will be effective the next Working Day after receipt, provided it is received before 1700 hours. (See Appendix 4.3, example 2)

N.B The fields marked as "Not required" will not be validated, but do have to be populated in terms of commas and quotes i.e. empty text fields should be "".

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
062	Contract Reference	M	25	Char	0	Unique reference number for a supplier to identify AMR contract with NG.
026	Job Type	M	4	Char	0	**STOP=** Stop the existing AMR Service
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
048	Service Level	O	1	Char	0	Not required
005	Alarm Required	O	1	Char	0	Not required
001	Alarm High	O	10	Number	0	Not required
002	Alarm Low	O	10	Number	0	Not required

004	Alarm Period	O	1	Char	0	Not required
003	Alarm Notification	O	50	Char	0	Not required
061	Upfront Payment	O	1	Char	0	Not required
006	Annual Quantity	O	12	Number	0	Not required
051	Site Name	O	40	Char	0	Not required
050	Site Contact	O	40	Char	0	Not required
049	Site Contact Number	O	15	Char	0	Not required
013	DM Logger Indicator	O	1	Char	0	Not required
035	Prime Or Sub Indicator	O	1	Char	0	Not required
007	Comments	O	210	Char	0	Not required
014	Effective Date	O	8	Date	0	Not required
032	Opening Read Required	O	1	Char	0	Not required
180	MAM Id	O	3	Char	0	Not required
003	Address	O	110	Char	0	Not required
011	Post Town	O	40	Char	0	Not required
013	Post Code	O	10	Char	0	Not required
074	Correction Factor	O	9	Number	6	Not required
	Meter Manufacturer	O	30	Char	0	Not required
083	Meter Model	O	20	Char	0	Not required
021	Meter YOM	O	4	Number	0	Not required
022	Meter Serial Number	O	14	Char	0	Not required
121	Meter Dials	O	2	Number	0	Not required
123	Meter Unit of Measure	O	4	Char	0	Not required
	Meter Reading Factor	O	4	Number	0	Not required

	Converter Fitted Indicator	O	1	Char	0	Not required
022	Converter Serial Number	O	14	Char	0	Not required
121	Converter Dials	O	2	Number	0	Not required
	Converter Reading Factor	O	4	Number	0	Not required

3.1.3 Amend service levels - "AMND" record

This record should be used when the service level, alarms, annual quantity, site name, site contact or site contact number need to be changed or any combination of these. It will not be used in an auto election where an **"AMNA"** record should be sent (see 3.1.6). The **"AMND"** record will contain the new details to be activated in the following month as changes will only be activated at the start of a month. Any field left blank will result in the existing value being retained.

The **"AMND"** record must be received at least 5 Working Days before the start of the calendar month for which the supplier intends the new service levels to be effective. (See Appendix 4.3, example 3)

N.B The fields marked as "Not required" will not be validated, but do have to be populated in terms of commas and quotes i.e. empty text fields should be "".

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
062	Contract Reference	M	25	Char	0	Unique reference number for a supplier to identify AMR contract with NG.
026	Job Type	M	4	Char	0	**AMND** = Amend the existing service level
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
048	Service Level	O	1	Char	0	P=Platinum, C=Copper, G=Gold, S=Silver & B=Bronze
005	Alarm Required	O	1	Char	0	Y=Yes, N=No
001	Alarm High	C	10	Number	0	Maximum consumption for the period specified at which an alarm is required
002	Alarm Low	C	10	Number	0	Minimum consumption for the period specified at which an alarm is required

004	Alarm Period	C	1	Char	0	Mandatory if an Alarm required. Period of time for which the High or Low values are exceeded for the Alarm to be triggered, H=Hour, D=Day, M= Month
003	Alarm Notification	C	50	Char	0	Mandatory if Alarm required. Where the Alarm should be sent, will be an e-mail address or telephone number
061	Upfront Payment	O	1	Char	0	Not required
006	Annual Quantity	O	12	Number	0	Annual take off of gas.
051	Site Name	O	40	Char	0	Name of the site.
050	Site Contact	O	40	Char	0	Name of the person at site to be contacted.
049	Site Contact Number	O	15	Char	0	Phone number of the contact
013	DM Logger Indicator	O	1	Char	0	Not required
035	Prime Or Sub Indicator	O	1	Char	0	Not required
007	Comments	O	210	Char	0	Additional comments relevant to the request
014	Effective Date	O	8	Date	0	Not required
032	Opening Read Required	O	1	Char	0	Not required
180	MAM Id	O	3	Char	0	Not required
003	Address	O	110	Char	0	Not required
011	Post Town	O	40	Char	0	Not required
013	Post Code	O	10	Char	0	Not required
074	Correction Factor	O	9	Number	6	Not required
	Meter Manufacturer	O	30	Char	0	Not required
083	Meter Model	O	20	Char	0	Not required
021	Meter YOM	O	4	Number	0	Not required
022	Meter Serial Number	O	14	Char	0	Not required
121	Meter Dials	O	2	Number	0	Not required
123	Meter Unit of Measure	O	4	Char	0	Not required

	Meter Reading Factor	O	4	Number	0	Not required
	Converter Fitted Indicator	O	1	Char	0	Not required
022	Converter Serial Number	O	14	Char	0	Not required
121	Converter Dials	O	2	Number	0	Not required
	Converter Reading Factor	O	4	Number	0	Not required

3.1.4 Cancel a previous request -"CANC" record

This record will be used to cancel a previous request which has been sent in error. The Transaction Reference on the cancel record must be the reference of the request that is to be cancelled.

If the cancel request is received within 5 Working Days of the original request then the cancel request will be completed. If the request is received after the 5 Working Day window NG will use reasonable endeavours to implement the cancellation request. (See Appendix 4.3, example 4)

N.B The fields marked as "Not required" will not be validated, but do have to be populated in terms of commas and quotes i.e. empty text fields should be "".

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	This will be the reference number used on the **original request** that is trying to be cancelled.
062	Contract Reference	M	25	Char	0	Unique reference number for a supplier to identify AMR contract with NG.
026	Job Type	M	4	Char	0	**CANC=** Cancel previous request
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
048	Service Level	O	1	Char	0	Not required
005	Alarm Required	O	1	Char	0	Not required
001	Alarm High	O	10	Number	0	Not required
002	Alarm Low	O	10	Number	0	Not required
004	Alarm Period	O	1	Char	0	Not required

003	Alarm Notification	O	50	Char	0	Not required
061	Upfront Payment	O	1	Char	0	Not required
006	Annual Quantity	O	12	Number	0	Not required
051	Site Name	O	40	Char	0	Not required
050	Site Contact	O	40	Char	0	Not required
049	Site Contact Number	O	15	Char	0	Not required
013	DM Logger Indicator	O	1	Char	0	Not required
035	Prime Or Sub Indicator	O	1	Char	0	Not required
007	Comments	O	210	Char	0	Not required
014	Effective Date	O	8	Date	0	Not required
032	Opening Read Required	O	1	Char	0	Not required
180	MAM Id	O	3	Char	0	Not required
003	Address	O	110	Char	0	Not required
011	Post Town	O	40	Char	0	Not required
013	Post Code	O	10	Char	0	Not required
074	Correction Factor	O	9	Number	6	Not required
	Meter Manufacturer	O	30	Char	0	Not required
083	Meter Model	O	20	Char	0	Not required
021	Meter YOM	O	4	Number	0	Not required
022	Meter Serial Number	O	14	Char	0	Not required
121	Meter Dials	O	2	Number	0	Not required
123	Meter Unit of Measure	O	4	Char	0	Not required
	Meter Reading Factor	O	4	Number	0	Not required
	Converter Fitted Indicator	O	1	Char	0	Not required

022	Converter Serial Number	O	14	Char	0	Not required
121	Converter Dials	O	2	Number	0	Not required
	Converter Reading Factor	O	4	Number	0	Not required

3.1.5 Cancel an "Automatic" election - "CANA" record

This record will be sent if automatic election has been requested by the supplier but it is identified that the AMR service will not be required at a particular MPRN following a CoS. The **"CANA"** flow must be sent by 17.00 hours on D-1, where D is the effective date for Automatic Election. If accepted, this will prevent the AMR service from starting, so no opening read or subsequent read data will be sent by NG. (See appendix 4.3, example 11)

If the service is activated then the supplier must send a **"STOP"** request (see 3.1.2) within 10 days to stop the automatically elected service and to avoid premature termination charges, but the appointing supplier will be liable for charges in respect of any opening or regular AMR reads processed by NG prior to the stop request becoming effective.

N.B The fields marked as "Not required" will not be validated, but do have to be populated in terms of commas and quotes i.e. empty text fields should be "".

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
062	Contract Reference	M	25	Char	0	Unique reference number for a supplier to identify AMR contract with NG.
026	Job Type	M	4	Char	0	**CANA=** Cancels an impending automatic election
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
048	Service Level	O	1	Char	0	Not required
005	Alarm Required	O	1	Char	0	Not required
001	Alarm High	O	10	Number	0	Not required
002	Alarm Low	O	10	Number	0	Not required

004	Alarm Period	O	1	Char	0	Not required
003	Alarm Notification	O	50	Char	0	Not required
061	Upfront Payment	O	1	Char	0	Not required
006	Annual Quantity	O	12	Number	0	Not required
051	Site Name	O	40	Char	0	Not required
050	Site Contact	O	40	Char	0	Not required
049	Site Contact Number	O	15	Char	0	Not required
013	Dm Logger Indicator	O	1	Char	0	Not required
035	Prime Or Sub Indicator	O	1	Char	0	Not required
007	Comments	O	210	Char	0	Not required
014	Effective Date	O	8	Date	0	Not required
032	Opening Read Required	O	1	Char	0	Not required
180	MAM Id	O	3	Char	0	Not required
003	Address	O	110	Char	0	Not required
011	Post Town	O	40	Char	0	Not required
013	Post Code	O	10	Char	0	Not required
074	Correction Factor	O	9	Number	6	Not required
	Meter Manufacturer	O	30	Char	0	Not required
083	Meter Model	O	20	Char	0	Not required
021	Meter YOM	O	4	Number	0	Not required
022	Meter Serial Number	O	14	Char	0	Not required
121	Meter Dials	O	2	Number	0	Not required
123	Meter Unit of Measure	O	4	Char	0	Not required
	Meter Reading Factor	O	4	Number	0	Not required

	Converter Fitted Indicator	O	1	Char	0	Not required
022	Converter Serial Number	O	14	Char	0	Not required
121	Converter Dials	O	2	Number	0	Not required
	Converter Reading Factor	O	4	Number	0	Not required

3.1.6 Amend service levels of an "Automatic" elected site - "AMNA" record

This record should be sent if automatic election is in operation for a supplier and it is identified by the incoming supplier that the service level at an MPRN needs to be amended from the date of Appointment. If the supplier informs NG 5 Working Days in advance of the date of Appointment, and the **AMNA** flow is accepted, this will result in the amended AMR read service being started on the Appointment Date. (See appendix 4.3, example 12)

N.B If supplier requests an amendment during the AUTO election process on a MPRN then they will not receive an AUTO COMLT response from the NG. They will be sent an AMNA COMLT response that clarifies that amendment has been made during the AUTO election of AMR.

N.B The fields marked as "Not required" will not be validated, but do have to be populated in terms of commas and quotes i.e. empty text fields should be "".

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
062	Contract Reference	M	25	Char	0	Unique reference number for a supplier to identify AMR contract with NG.
026	Job Type	M	4	Char	0	**AMNA** = Amend the existing service level
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
048	Service Level	M	1	Char	0	P=Platinum, C=Copper, G=Gold, Silver=S, B=Bronze
005	Alarm Required	M	1	Char	0	Y=Yes, N=No
001	Alarm High	C	10	Number	0	Maximum consumption for the period specified at which an alarm is required

002	Alarm Low	C	10	Number	0	Minimum consumption for the period specified at which an alarm is required
004	Alarm Period	C	1	Char	0	Mandatory if an Alarm required. Period of time for which the High or Low values are exceeded for the Alarm to be triggered, H=Hour, D=Day, Month
003	Alarm Notification	C	50	Char	0	Mandatory if Alarm required. Where the Alarm should be sent, will be an e-mail address or telephone number
061	Upfront Payment	O	1	Char	0	Not required
006	Annual Quantity	O	12	Number	0	Annual take off of gas
051	Site Name	O	40	Char	0	Not required
050	Site Contact	O	40	Char	0	Not required
049	Site Contact Number	O	15	Char	0	Not required
013	Dm Logger Indicator	O	1	Char	0	Not required
035	Prime Or Sub Indicator	O	1	Char	0	Not required
007	Comments	O	210	Char	0	Not required
014	Effective Date	M	8	Date	0	Mandatory. Must be entered for “AMNA”
032	Opening Read Required	O	1	Char	0	Not required
180	MAM Id	O	3	Char	0	Not required
003	Address	O	110	Char	0	Not required
011	Post Town	O	40	Char	0	Not required
013	Post Code	O	10	Char	0	Not required
074	Correction Factor	O	9	Number	6	Not required
	Meter Manufacturer	O	30	Char	0	Not required
083	Meter Model	O	20	Char	0	Not required
021	Meter YOM	O	4	Number	0	Not required
022	Meter Serial Number	O	14	Char	0	Not required

121	Meter Dials	O	2	Number	0	Not required
123	Meter Unit of Measure	O	4	Char	0	Not required
	Meter Reading Factor	O	4	Number	0	Not required
	Converter Fitted Indicator	O	1	Char	0	Not required
022	Converter Serial Number	O	14	Char	0	Not required
121	Converter Dials	O	2	Number	0	Not required
	Converter Reading Factor	O	4	Number	0	Not required

3.2 Query & Ad-hoc Read Request Flows

This flow can be used for two purposes;

- **Raising queries**
- **Requesting ad-hoc reads.**

Both records have the same structure but require different information.

There are four record types, three of which are for suppliers raising queries for NG to investigate and resolve.

Record Types

3.2.1 Read query - "REAQ" record

To challenge read/consumption data that has been received from NG, the supplier should raise a read query **(REAQ).** This will clearly identify the read/consumption data in question and a query contact, should further clarification be required. (See appendix 4.3, example 5.2)

3.2.2 Invoice query - "INVQ" record

To query an invoice that has been received from NG, the supplier should raise an invoice query **(INVQ).** This should clearly identify the invoice and item being queried, and a query contact, should further clarification be required. (See appendix 4.3, example 5.1)

3.2.3 General query - "GENQ" record

To raise a general query with NG, the supplier should raise a general query **(GENQ).** This should clearly identify the query and a query contact, should further clarification be required

N.B For all queries mentioned above, the comments field should be used to give as much information to fully clarify the query.

3.2.4 Ad-hoc read request - "AHRR" record

If additional read/consumption data is required then a request to NG should be made by way of the ad-hoc read request record **(AHRR)**. If the request is accepted, the reads will be sent on a subsequent read file **(.AMR/RD1**) and will be identified with an **'A'** in the read indicator. (See appendix 4.3, example 5.3)

The request should include the Reading Date. NG will provide Readings and Consumption data for the ENTIRE month defined by the Reading Date, e.g. if the Reading Date is 20130115, then all the Read and Consumption data will be sent for February 2013. If data is required for more than a single month, a separate **AHRR** will be required for each month for which data is required.

N.B Data in relation to a particular meter point will be provided only for periods for which the Customer has Appointed NG. A standard charge per month will apply, irrespective of the quantity of data provided (e.g. part-month data would be provided where the Customer requested data relating to a month during which the Customer Appointed or De-appointed NG).

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the query/request
026	Job Type	M	4	Char	0	**INVQ**=Invoice query**,** **REAQ**=Read query, **GENQ**=General query, **AHRR** =Adhoc read request
036	Query Contact Name	C	40	Char	0	Mandatory for all queries. Name of the person who can be contacted regarding the Invoice Query
037	Query Contact Number	C	15	Char	0	Mandatory for all queries. Phone number of contact
023	Invoice Reference Number	C	6	Number	0	Mandatory for an Invoice query. Unique identifier for the invoice against which the query is being raised
038	Query Reference	C	6	Char	0	Mandatory for an Invoice query. Unique identifier of the item being queried. Can be either a Summary line
028	Meter Point Reference Number	C	10	Number	0	Mandatory for REAQ and AHRR. A unique identifier as which the meter point is, has been or will be

						connected to gas networks.
041	Reading Date	C	8	Date	0	Mandatory for REAQ and AHRR. Either the date of the reading being queried or the date for which data is required, format YYYYMMDD.
042	Reading	C	12	Char	0	Mandatory for REAQ. The actual reading being queried.
007	Comments	M	210	Char	0	Mandatory for queries. Additional comments that clarify the Query and will assist in a speedy resolution, or details of the Adhoc request.

3.3 Response Flow

If a file passes the file validation, NG will respond to every individual record received (Request or Query & Ad-hoc Read). For each record some basic validation will take place to ensure that the structure and format of each field is correct.

For most Response records, the Transaction Reference/Job Type in the Response file will match the record it is responding to, the exceptions are noted below.

Files will be sent via IX with standard header and Trailer Records (See appendix 4.1)

Record Types

3.3.1 Accepted - "ACCPT" record

If a record passes the high level validation then NG will send an **"ACCPT"** record in response on the next Working Day.

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
026	Job Type	M	4	Char	0	As per the request record
028	Meter Point Reference Number	C	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network. Mandatory when responding to any request flow (not Query or Adhoc read)

030	Meter Serial Number	O	14	Char	0	Manufacturers meter serial number. Will not be sent
048	Service Level	O	1	Char	0	The service level of the read service, values P=Platinum, C=Copper, G=Gold, S=Silver or B=Bronze. Will not be sent
055	Start Meter Reading	O	12	Char	0	The meter reading on arrival on site. Will not be sent
056	Start Unconverted Reading	O	12	Char	0	The converter unconverted reading on arrival on site. Will not be sent
054	Start Converted Reading	O	12	Char	0	The actual converted reading of the converter on arrival on site. Will not be sent
025	Job Outcome	M	5	Char	0	**"ACCPT"**
024	Job Outcome Date	M	8	Date	0	Date at which the outcome occurred. Format YYYYMMDD
007	Comments	O	210	Char	0	Additional comments to clarify the job outcome. Will not be sent
060	Transaction Status	O	5	Char	0	A code indicating why a transaction has been rejected or aborted. Value XXnnn where XX is the reason and nnn = AMR attribute number. Will not be sent

3.3.2 Rejected - "REJCT" record

If a record fails the high level validation then NG will send a **"REJCT"** record in response on the next working day. The reason for the rejection will be identified in the Transaction Status and Comments field.

The record will be rejected for the first error, and any subsequent validation will not be carried out.

NB. In nearly all cases the Response record will contain the Transaction Reference/Job Type of the record that is being responded to. However in the event of a File being rejected, then a "REJCT" response will be sent but the Job Type will be changed to "FILR" (file rejection). The Transaction Status will clarify the reason for the file rejection (see Appendix 3 example 13).

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	C	3	Char	0	As per original request
059	Transaction Reference	C	15	Char	0	As per original request
026	Job Type	C	4	Char	0	As per original request except where the File has been rejected and it will be set to "FILR"

028	Meter Point Reference Number	C	10	Number	0	As per original request
030	Meter Serial Number	O	14	Char	0	Will not be sent
048	Service Level	O	1	Char	0	Will not be sent
055	Start Meter Reading	O	12	Char	0	Will not be sent
056	Start Unconverted Reading	O	12	Char	O	Will not be sent
054	Start Converted Reading	O	12	Char	0	Will not be sent
025	Job Outcome	M	5	Char	0	**"REJCT"**
024	Job Outcome Date	M	8	Date	0	Date at which the outcome occurred. Format YYYYMMDD
007	Comments	M	210	Char	0	Comments to clarify why the request has been rejected. Where Job type = "FILR" will contain the file id.
060	Transaction Status	O	5	Char	0	Where possible will contain a code identifying the reason for the rejection. Value XXnnn where XX is the reason and nnn = AMR attribute number

3.3.3 Completed - "COMLT" record

If a request is accepted and completed successfully then a **"COMLT"** record will be sent by NG to the supplier to indicate this outcome. The date of the outcome will also be communicated.

NB. As stated in nearly all cases the Response record will contain the Transaction Reference/Job Type of the record that is being responded to. However in the event where "Automatic" election has taken place the Response is an unsolicited response and no request has been sent. In this case the Job Type will contain "AUTO" and a NG generated Transaction Reference. (See appendix 4.3, example 9)

3.3.3.1 Completed – Response (where Job Type NOT = "AUTO")

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	As per original request
059	Transaction Reference	M	15	Char	0	As per original request
026	Job Type	M	4	Char	0	As per original request
028	Meter Point Reference Number	M	10	Number	0	As per original request

030	Meter Serial Number	C	14	Char	0	Mandatory, except when Job Type = “CANC”
048	Service Level	O	1	Char	0	Will not be sent
055	Start Meter Reading	C	12	Char	0	Mandatory where Job Type = “STRT” and the meter has been seen. The meter reading on arrival on site
056	Start Unconverted Reading	C	12	Char	0	Mandatory where Job Type = “STRT”, the meter has been seen and a Converter is present. The unconverted reading of the converter
054	Start Converted Reading	C	12	Char	0	Mandatory where Job Type = “STRT”, the meter has been seen and a Converter is present. The converted reading of the converter on arrival on site
025	Job Outcome	M	5	Char	0	**“COMLT”**
024	Job Outcome Date	M	8	Date	0	Date at which the outcome occurred. Format YYYYMMDD
007	Comments	O	210	Char	0	Additional comments where appropriate
060	Transaction Status	O	5	Char	0	Will not be sent

3.3.3.2 Completed – Response (where Job Type = “AUTO”)

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	**Unique reference number used by NGM**
026	Job Type	M	4	Char	0	Value “AUTO”, the flow is unsolicited, and generated when an automatic election has been initiated due to COS
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
030	Meter Serial Number	M	14	Char	0	A unique identifier for the meter
048	Service Level	M	1	Char	0	Mandatory where the Job Type is “AUTO”, the current Service Level values P=Platinum, C=Copper, G=Gold, S=Silver or B =Bronze
055	Start Meter Reading	O	12	Char	0	Will not be sent

056	Start Unconverted Reading	C	12	Char	0	Will not be sent
054	Start Converted Reading	C	12	Char	0	Will not be sent
025	Job Outcome	M	5	Char	0	**"COMLT"**
024	Job Outcome Date	M	8	Date	0	Date at which the outcome occurred. Format YYYYMMDD
007	Comments	O	210	Char	0	Will not be sent
060	Transaction Status	O	5	Char	0	Will not be sent

3.3.4 Aborted - "ABORT" record

If a request is accepted but subsequently the request can not be completed by NG, then an **"ABORT"** record will be sent to the supplier to indicate this outcome. The reason for the failure will be identified in the Transaction Status and Comments fields.

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number used in original request
026	Job Type	M	4	Char	0	As per original request
028	Meter Point Reference Number	M	10	Number	0	As per original request
030	Meter Serial Number	O	14	Char	0	Will not be sent
048	Service Level	O	1	Char	0	Will not be sent
055	Start Meter Reading	C	12	Char	0	Will be sent if access to meter was gained
056	Start Unconverted Reading	C	12	Char	0	Will be sent if access to meter was gained, and a converter is present
054	Start Converted Reading	C	12	Char	0	Will be sent if access to meter was gained and a converter is present
025	Job Outcome	M	5	Char	0	**"ABORT"**
024	Job Outcome Date	M	8	Date	0	Date at which the outcome occurred. Format YYYYMMDD
007	Comments	M	210	Char	0	Additional comments clarifying why the job had to be aborted
060	Transaction Status	O	5	Char	0	Where possible will contain a code identifying the reason for the rejection. Value XXnnn where XX is the reason and nnn

						= AMR attribute number

3.3.5 Resolved - "RESLV" record

If a query or ad-hoc read request is accepted the response to these requests will be communicated in a resolution **(RESLV)** flow. The details of the resolution will be contained in the comments field.

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	As per original request
059	Transaction Reference	M	15	Char	0	As per original request
026	Job Type	M	4	Char	0	As per original request
028	Meter Point Reference Number	O	10	Number	0	Will not be sent
030	Meter Serial Number	O	14	Char	0	Will not be sent
048	Service Level	O	1	Char	0	Will not be sent
055	Start Meter Reading	O	12	Char	0	Will not be sent
056	Start Unconverted Reading	C	12	Char	0	Will not be sent
054	Start Converted Reading	O	12	Char	0	Will not be sent
025	Job Outcome	M	5	Char	0	**"RESLV"**
024	Job Outcome Date	M	8	Date	0	Date at which resolution occurred format YYYYMMDD (will be effective date of COS)
007	Comments	M	210	Char	0	Full details of the resolution
060	Transaction Status	O	5	Char	0	Will not be sent

3.4 Site Visit Flow

3.4.1 Site Visit - Job Type = "SVST"

This record will be sent by NG to notify the supplier that NG has successfully visited the site. Most Site Visits will be a result of either a maintenance requirement or a query.

A successful Site Visit will contain all of the reads for that particular MPRN. This could be the meter reading only or, where a converter is present, the meter reading and both the converter Converted and Un-converted readings.

If it is found that the AMR device readings are different from the actual readings then the initial readings will be recorded prior to the resynchronisation of the AMR device. If a resync is required then the reason for the re-synchronisation will be communicated along with all of the start readings.

In the event of a resynchronisation taking place the AMR readings will be synchronised with the Meter and Convertor Converted reading.

The files will be sent via IX with standard Header and Trailer (See appendix 4.1)

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
057	Supplier Short Code	M	3	Char	0	Unique code identifying Gas Supplier
059	Transaction Reference	M	15	Char	0	Unique reference number to identify the request
026	Job Type	M	4	Char	0	**SVST** = Site Visit
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network
030	Meter Serial Number	M	14	Char	0	Manufacturers meter serial number
055	Start Meter Reading	M	12	Char	0	The actual meter reading on arrival at site
056	Start Unconverted Reading	C	12	Char	0	Mandatory if a converter is present. The unconverted converter reading on arrival at site.
054	Start Converted Reading	C	12	Char	0	Mandatory if a converter is present. The actual converted converter reading on arrival at site
025	Job Outcome	M	5	Char	0	COMLT = Completed

024	Job Outcome Date	M	8	Date	0	Date at which the outcome occurred e.g. for a COMLT STRT request it could be the date of installation. YYYYMMDD
007	Comments	O	210	Char	0	Additional comments
060	Transaction Status	O	5	Char	0	N/A for SVST
039	Read Flag	M	1	Char	0	Read flag to indicate what the Meter readings represent. C=Check Read or R=Resynchronisation
053	Start AMR Meter Reading	M	12	Char	0	Mandatory. The AMR meter reading on arrival at site
052	Start AMR Converted Reading	C	12	Char	0	Mandatory if converter present. The AMR converted converter reading at site
047	Resynchronisation Reason	C	2	Char	0	The code identifying why the resync was required values ME=Meter Exchange, MF=Meter Faulty, AF=AMR Faulty, CE=Corrector Exchange, CR= Corrector Removal, CF=Corrector Faulty, CI= Corrector Installed, CS= Corrector Resync

3.5 Read File – AMR

The Read file will contain valid automatic meter reads for a supplier's sites, where AMR has been installed and a service requested. The standard reads sent will depend upon the service level requested but the file can also contain additional reads e.g. Opening and Ad-hoc.

The reads sent will be in actual cubic feet/metres.

AMR
The AMR Read File will always be sent via the IX network with standard Header and Trailer records (see appendix 4.1)

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
046	Record Identifier	M	5	Char	0	Value "READS"
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network.
030	Meter Serial Number	M	14	Char	0	Manufacturers meter serial number to which an AMR device has been attached
041	Reading Date	M	8	Date	0	Gas flow day of the datalogger readings for this

						meter point. Format YYYYMMDD
055	Start Meter Reading	M	12	Char	0	The value of the start meter reading
016	End Meter Reading	M	12	Char	0	The value of the end meter reading
031	Meter Through Zeros Count	M	1	Number	0	Value 0 = Not round, 1 = Round the clock
027	Meter Consumption	M	12	Char	0	The consumption for the service level period
029	Meter Reading Units	M	5	Number	0	This contains the unit the meter reading has been provided in.
054	Start Converted Reading	C	12	Char	0	Mandatory when a corrector is fitted. The value of the Start Corrector corrected reading.
015	End Converted Reading	C	12	Char	0	Mandatory when a corrector is fitted. The value of the End Corrector corrected reading.
010	Converted Through Zeros Count	C	1	Number	0	Mandatory when a corrector is fitted. The corrected consumption for service level period.
008	Converted Consumption	C	12	Char	0	Mandatory when a corrector is fitted. The corrected consumption for the service level period
009	Converter Reading Units	C	5	Number	0	This contains the unit the converter reading has been provided in.
063	Metric / Imperial Indicator	M	1	Char	0	A flag to indicate whether meter is metric or imperial. Values I or M.
040	Read Indicator	M	1	Char	0	A flag to indicate if the read status. Values W=Warning, V=Valid, O=Opening Read, A=Ad-hoc, R=Resync

3.6 Read File - RD1

The RD1 Read File will always be sent via the IX network with a specific Header and Trailer records (see appendix 4.2)

Field No	Record/Field Name	OPT	DOM	LNG	DEC	Description	Comments
RVI01	Transaction Type	M	T	3	0	A code representing the type of transaction that this record represents. Value RVI	default to RVI for all Proteus Read Files.
RVI02	Client Unique Reference	O	T	30	0	A reference that uniquely identifies the Client and Supply Point (will hold Client Ref or Confirmation Ref depending upon Client Preference). Data must be left-aligned.	default to “” (Blank) for all Proteus Read Files.
RVI03	Meter Point Reference	M	N	10	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network.	MPRN – Same as current AMR system

Field No	Record/Field Name	OPT	DOM	LNG	DEC	Description	Comments
RVI04	Actual Visit Date	M	D	8	0	The date on which the read was taken or was attempted to be read. Format = YYYYMMDD	Actual Visit Date would be calculated as: Actual Visit Date = Reading Date + 1 So, for a particular reading, if the Reading Date is 20070414 in the REA file, it would be delivered as 20070415 in the RD1 file.
RVI05	Actual Visit Time	M	M	6	0	The time on which the read was taken or was attempted to be read. Format = HHMMSS. 24-hour clock.	Default will be 060000
RVI06	Read Reason Code	M	T	4	0	The Read Request Type. Values: CYLM = AUTO	Default to “AUTO” for all AMR Reads
RVI07	Meter Serial Number	M	T	14	0	Serial number of meter from which read was taken	Same as per current AMR system
RVI08	Meter Reading	O	T	12	0	Actual Meter Reading. All readings to be left padded with zeros corresponding to dial reading and right justified in field. Spaces if no reading was obtained	For calculating the Meter Reading, End Meter Reading will be divided by the Reading Factor and than pad the additional spaces at the front to make the field length to 12 characters long. See note below.
RVI09	Converter Serial Number	O	T	14	0	The serial number of the converter from which the supplied converter readings were taken.	Same as per current AMR system
RVI10	Converter Uncorrected Reading	O	T	12	0	Uncorrected Converter reading. All readings to be left padded with zeros corresponding to dial reading and right justified in field.	See note below.
RVI11	Converter Corrected Reading	O	T	12	0	Corrected Converter Reading. All readings to be left padded with zeros corresponding to dial reading and right justified in field.	Converter Corrected Reading = End Converter Reading / Pulse Significance and then pad the additional spaces at the front to make the field length to 12 characters long See note below.
RVI12	Read Type	O	T	1	0	Definition: The source from which the read was provided. Values: N – Normal read; C – Customer read; I – Information read; E – Estimated read.	Default to “N” for all the proteus read file
RVI13	Bypass status	O	T	1	0	(O)pen, (C)lose, (U)nchecked, (N)o Bypass Fitted. Mandatory for I&C.	default to “U” for all Proteus
RVI14	Collar Status	M	T	1	0	(I)ntact, (B)roken, (U)nchecked, (N)o Collar Fitted	default to “U” for all Proteus
RVI15	Capped Status	M	T	1	0	(C)apped, (U)nchecked, (N)ot Capped	default to “U”
RVI16	Converter Condition	M	T	1	0	The condition of a converter when the meter was read: (F)aulty, (N)one fitted, (O)kay	default to “N” if not fitted or “O” if fitted. **If Converter Fitted then = “O”** **IF Converter not Fitted then =”N”**
RVI17	Inspection Indicator	M	T	1	0	Y if the meter inspection has taken place. Default on HHT must be N	default to “N” for all Proteus Read Files
RVI18	Manually Validated	M	T	1	0	Y if the reading has had manual intervention by Metering. Default N	default to “N” for all Proteus Read Files
RVI19	PGT Reject Validation	O	T	1	0	Y if the reading has been actioned after Metering has received	default to “” for all Proteus Read Files

Field No	Record/Field Name	OPT	DOM	LNG	DEC	Description	Comments
						information relating to a PGT reject	
RVI20	Service Level	O	N	1	0	The service level for the Meter Point VALUES 1, 2 or 3 depending upon that contracted for the MPR	default to “” for all Proteus Read Files
RVI21	Send Reason Code	M	T	1	0	F - First issue of reading to Client A - Reading has been Amended since being forwarded to Client. i.e. Manually input replacement read	default to “F” for all Proteus Read Files
RVI22	Read Sequence No	O	N	1	0	Sequence number of a replacement read. Value, if replacement read 1 to 9.	default to “” for all Proteus Read Files
RVI23	Meter Location Code	O	T	2	0	Only populated if different DEFINITION: A code representing the Meter Location Description VALUES: 00 - Other, 01 – Cellar, 02 – Under Stairs, 03 - Hall, 04 - Kitchen, 05 – Bathroom, 06 - Garage, 07 - Canteen, 08 – Cloakroom, 09 - Cupboard, 10 – Domestic Science, 11 - Front Door, 12 - Hall Cupboard, 13 - Kitchen Cupboard, 14 – Kitchen Under Sink, 15 – Landing, 16 – Office, 17 – Office Cupboard, 18 - Outside WC, 19 - Pantry, 20 - Porch, 21 – Public Bar, 22 - Rear of Shop, 23 - Saloon Bar, 24 - Shed, 25 - Shop Front, 26 - Shop Window, 27 - Staff Room, 28 - Store Room, 29 - Toilet, 30 - Under Counter, 31- Waiting Room, 32 - Meter Box (Outside), 99 – Outside	default to “” for all Proteus Read Files
RVI24	Meter Location Description	O	T	40	0	Only populated if different A free format description of the location of the meter (e.g. “under the stairs”, “in the boiler room”). This should not duplicate the detail held in the Meter Location Code.	default to “” for all Proteus Read Files
RVI25	Access Instructions	O	T	100	0	Only populated if different Additional instructions necessary to support meter reading activities (e.g. key instructions, meter access information, special tools required (e.g. ladder)).	default to “” for all Proteus Read Files
RVI26	Meter Through the Zeros count	M	T	2	0	Definition: The number of times the meter has gone through the zeros VALUES: -1 to +1 Default 0	Same as current AMR system
RVI27	Converter Through the Zeros count	M	T	2	0	Definition: The number of times the converter has gone through the zeros. VALUES: -1 to +1 Default 0	Same as current AMR system
RVI28	MAN File Indicator	O	T	1	0	Set to ‘Y’ if information relating to this reading is to be sent on a subsequent MAN file.	default to “” for all Proteus Read Files
RVI29	Meter Read Request Reference	O	N	12	0	The reference number from the originating Meter Read Request; populated for Ad-Hoc read request types only.	default to “” for all Proteus Read Files

3.7 Consumption File

The Consumption file will be sent to a supplier only if a Platinum, Copper or Gold service has been requested for any of the supplier's AMR sites**.** The data will contain the half hourly/hourly (respectively) consumption data at a MPRN in actual cubic feet/metres.

The Consumption File will always be sent via the IX network with standard Header and Trailer records (see appendix 4.1)

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
046	Record Identifier	M	5	Char	0	Value "CONSU"
028	Meter Point Reference Number	M	10	Number	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network.
030	Meter Serial Number	M	14	Char	0	Manufacturers meter serial number to which an AMR device has been attached
021	Interval Date	M	8	Date	0	The date of the interval data for this meter point. Format YYYMMDD
022	Interval Time	M	4	Char	0	Interval time at which the meter consumption was taken
027	Meter Consumption	M	12	Char	0	The consumption for the hour in actual cubic feet / metres.
008	Converted Consumption	O	12	Char	0	Corrected consumption for the hour in actual cubic feet / metres.

3.8 Invoice Flow

The AMR invoice will be sent by the 12th working day of the month. It will contain a summary sheet which will be a high level breakdown of the charges. It will also have a complete list of all the MPRNs with an active AMR service and other supporting information for all of the AMR charges for the previous month.

Summary Sheet

INVOICE Invoice Ref : 000023

BILLING MONTH: **Feb-13**

SUPPLIER: **DRC**

CHARGE TYPE	DESCRIPTION	AMOUNT
STD	Standard Reading Charge	
ADJ	Adjustment for Invalid Reads	
ADH	Ad-Hoc Read charge	
PRC	Premature Removal Charge	
SVT	Site Visit Charge (unsuccessful challenge)	
NSI	Non Standard Installation	
TPD	Third Party Damage to Asset	
Grand Total		

Supplementary Data

ITEM LINE REF	CHARGE TYPE	MPRN	MON.	SERVICE LEVEL	START OF SERVICE	CHARGE_ FROM	CHARGE_ TO	QTY	UNIT RATE	AMOUNT CHARGED
1	STD	123456	Feb-13	PLATINUM	20130201	01/02/2013	28/02/2013	2	£X	£Y
2	STD	654321	Feb-13	PLATINUM	20060205	01/02/2013	28/02/2013	1	£X	£Y
3	STD	9876543	Feb-13	PLATINUM	20060203	01/02/2013	28/02/2013	2	£X	£Y
4	STD	234567	Feb-13	PLATINUM	20060204	01/02/2013	28/02/2013	31	£X	£Y
5	STD	765432	Feb-13	PLATINUM	20060207	01/02/2013	28/02/2013	15	£X	£Y
6	STD	345678	Feb-13	PLATINUM	20060210	01/02/2013	28/02/2013	31	£X	£Y
7	STD	876543	Feb-13	PLATINUM	20060107	01/02/2013	28/02/2013	28	£X	£Y
8	STD	456789	Feb-13	PLATINUM	20060107	01/02/2013	28/02/2013	2	£X	£Y
9	STD	567890	Feb-13	PLATINUM	20060107	01/02/2013	28/02/2013	31	£X	£Y
10	STD	678901	Feb-13	PLATINUM	20060107	01/02/2013	28/02/2013	31	£X	£Y
11	ADJ	123456	Feb-13	PLATINUM	20060107	01/02/2013	28/02/2013	-2	£X	£Y
12	ADJ	234567	Feb-13		20060107	01/02/2013	28/02/2013	-61	£X	£Y
13	ADJ	345678	Feb-13	COPPER	20060107	01/02/2013	28/02/2013	-31	£X	£Y
14	ADH	112233	Feb-13	COPPER	20060107	01/02/2013	28/02/2013	1	£X	£Y

15	**ADH**	**998877**	**Feb-13**	**COPPER**	**20060107**	**01/02/2013**	**28/02/2013**	**1**	**£X**	**£Y**
16	**PRC**	**223344**	**Feb-13**	**COPPER**	**20060107**	**01/02/2013**	**28/02/2013**	**1**	**£X**	**£Y**
18	**UPF**	**556677**	**Feb-13**	**BRONZE**	**20060107**	**01/02/2013**	**28/02/2013**	**1**	**£X**	**£Y**
19	**TPD**	**445566**	**Feb-13**	**SILVER**	**20060107**	**01/02/2013**	**28/02/2013**	**1**	**£X**	**£Y**
20	**SVT**	**667788**	**Feb-13**	**GOLD**	**20060107**	**01/02/2013**	**28/02/2013**	**1**	**£X**	**£Y**
21	**NSI**	**2127676**	**Feb-13**	**GOLD**	**20060107**	**01/02/2013**	**28/02/2013**		**£X**	**£Y**
										£Z

4 APPENDIX

4.1 Header and Trailer Records – ALL AMR Flows except RD1 File Format

N.B Header and trailer record are mandatory when sending files via IX.

Header

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description
	Record Identifier	M	5	Char	0	Value “HEADR”
	File Type	M	5	Char	0	Value “AMR”,”CNS”, “REQ” “RES”, “SVT”, “QAH”.
	Originator Organisation Code	M	3	Char	0	Value “GTM”
	Originator Role Code	M	5	Char	0	Value “MAM”
	Recipient Organisation Code	M	3	Char	0	Three character code identifying the organisation
	Recipient Role Code	M	5	Char	0	Value “SUP”
	Creation Date	M	8	Date	0	The date on which the file was generated. Format, YYYYMMDD
	Creation Time	M	6	Char	0	The time at which the file was generated. Format, “HHMMSS”
	File Identifier	M	8	Char	0	Identifies a unique file reference. e.g. “PN123456”
	File Usage	M	5	Char	0	Identifies the environment the file is being used for e.g.”PRDCT”
	Record Count	M	10	Number	0	Number of records contained within a file, not including the Header and Trailer.
	Transaction Count	M	10	Number	0	Will be the same as record count

Attribute Number	Record/ Field name *Occur Max 1*	Optional, Mandatory or Conditional	Field Length	DOM	Decimal Point	Description

	Record Identifier	M	5	Char	0	Value “TRAIL”

Trailer

4.2 Header and Trailer Records for RD1 file format only

4.2.1 A01 – Standard Header

Field No	Record/Field Name	OPT	DOM	LNG	DEC	Description	Comments for AMR
HDR01	Transaction Type	M	T	3	0	A code representing the type of transaction that this record represents. Value A01	default to “A01” for all Proteus
HDR02	Organisation Code	M	T	3	0	A reference that uniquely identifies a Client Organisation.	3 character short code eg BGT, BSA
HDR03	File Type	M	T	3	0	An application specific code used to identify the structure and usage of the file	default to “RD1” for all Proteus
HDR04	Creation Date	M	D	8	0	The date on which the file was generated YYYYMMDD	Same as in current .AMR Header
HDR05	Creation Time	M	M	6	0	The time at which the file was generated (within the Creation Date) HHMMSS.	Same as in current .AMR Header
HDR06	Generation Number	M	N	6	0	A sequence number that represents an issue of a file from the organisation (indicated by the Organisation Id) and of the file type (indicated by File Type). Each file within one type must have a unique number.	PN Number as per the current AMR File.

4.2.2 Z99 - Standard Trailer

Field No	Record/Field Name	OPT	DOM	LNG	DEC	Description	
TRL01	Transaction Type	M	T	3	0	A code representing the type of transaction that this record represents. Value Z99	Default value “Z99”
TRL02	Record Count	M	N	10	0	The number of detail records contained within the file. This should not include the Standard Header and Standard Trailer but should include any file specific trailers if specified for this file.	count of records as on AMR trailer

4.3 Data Catalogue

ATTRIB	RECORD/FIELD NAME	DOM	LNG	DEC	DESCRIPTION
001	ALARM HIGH	N	10	0	Maximum consumption for the period specified at which an alarm is required.
002	ALARM LOW	N	10	0	Minimum consumption for the period specified at which an alarm is required.
003	ALARM NOTIFICATION	T	50	0	Where the Alarm should be sent, will be an e-mail address or telephone number.
004	ALARM PERIOD	T	1	0	Period of time for which the High or Low values are exceeded for the Alarm to be triggered, H=Hour, D=Day, M=Month
005	ALARM REQUIRED	T	1	0	Y=Yes, N=No
006	ANNUAL QUANTITY	N	12	0	Annual take off of gas.
007	COMMENTS	T	210	0	Additional comments relevant for the request
062	CONTRACT REFERENCE NUMBER identify	T	25	0	Unique reference number for a supplier to AMR contract with NG. Will be allocated by NG.
008	CONVERTED CONSUMPTION	T	12	0	Corrected consumption for the hour in actual cubic feet / metres.
009	CONVERTOR READING UNITS	N	5	0	This contains the unit the convertor reading has been provided in.
010	CONVERTED THROUGH ZEROS COUNT	N	1	0	Indicates if the convertor index has gone round the clock
011	CREATION DATE	D	8	0	The date on which the file was generated. Format, YYYYMMDD
012	CREATION TIME	T	6	0	The time at which the file was generated. Format, “HHMMSS”.
013	DM LOGGER INDICATOR	T	1	0	Does an existing DM logger exist on site, Y=Yes, N=No
014	EFFECTIVE DATE	D	8	0	Date at which supplier wishes to start the AMR service.
015	END CONVERTED READING	T	12	0	The value of the End Corrector corrected reading.
016	END METER READING	T	12	0	The value of the end meter reading.
017	END UNCONVERTED READING	T	12	0	The unconverted converter reading on departure.
018	FILE IDENTIFIER	T	8	0	Identifies a unique file reference

019	FILE TYPE	T	5	0	Identifies AMR files
020	FILE USAGE	T	5	0	Identifies the environment the file is being used for
021	INTERVAL DATE	D	8	0	The date of the interval data for the meter point.
022	INTERVAL TIME	T	4	0	Interval time at which the consumption reading was taken.
023	INVOICE REFERENCE NUMBER	N	6	0	Unique identifier for the Invoice against which the Query is being raised
024	JOB OUTCOME DATE	D	8	0	Date at which the outcome occurred. Format YYYYMMDD
025	JOB OUTCOME	T	5	0	A response code for the outcome of the request
026	JOB TYPE	T	4	0	Description of the request being submitted
027	METER CONSUMPTION	T	12	0	Meter consumption for the hour in actual cubic feet / metres
028	METER POINT REFERENCE NUMBER	N	10	0	A unique identifier for the point at which a meter is, has been or will be connected to the gas network.
029	METER READING UNITS	N	5	0	This contains the unit the meter reading has been provided in.
030	METER SERIAL NUMBER	T	14	0	Manufacturers meter serial number.
031	METER THROUGH ZEROS COUNT round	N	1	0	Indicates if the convertor index has gone the clock
063	METRIC / IMPREIAL INDICATOR	T	1	0	A flag to indicate whether meter is Metric or Imperial. Values I or M
032	OPENING READ REQUIRED	T	1	0	Values “Blank” or “N”. Blank indicate an opening read is required.
033	ORIGINATOR ORGANISATION CODE	T	3	0	The three character code identifying the organisation
034	ORIGINATOR ROLE CODE	T	5	0	Three character code identifying the role of the organisation.
035	PRIME OR SUB INDICATOR	T	1	0	Indicates if a meter is Prime or Sub. Values P or S. Default value blank = freestanding
036	QUERY CONTACT NAME	T	40	0	Name of the person who can be contacted Regarding the Query
037	QUERY CONTACT NUMBER contacted	T	15	0	Phone number of contact who can be Regarding the invoice query
038	QUERY REFERENCE	T	6	0	Unique identifier of the item being queried. Can be either a Summary line.
039	READ FLAG	T	1	0	Read flag to indicate what the Meter readings Represent.

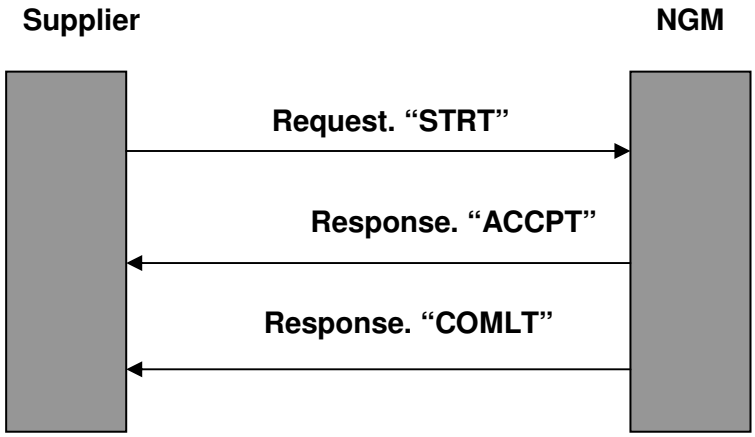
040	READ INDICATOR	T	1	0	A flag to indicate the read status.
041	READING DATE	D	8	0	The date of the reading being queried. YYYYMMDD
042	READING	T	12	0	The actual reading being queried.
043	RECIPIENT ORGANISATION CODE	T	3	0	Three character code identifying the organisation
044	RECIPIENT ROLE CODE	T	5	0	Three character code identifying the role of the recipient organisation
045	RECORD COUNT	N	10	0	Number of records contained within a file, not including the Header and Trailer
046	RECORD IDENTIFIER	T	5	0	Identifies the type of record
047	RESYNCHRONISATION REASON	T	2	0	The code identifying why the resync was required
048	SERVICE LEVEL	T	1	0	Level of service required. P=Platinum, G=Gold, S=Silver, B=Bronze, C=Copper
049	SITE CONTACT NUMBER	T	15	0	Phone number of contact
050	SITE CONTACT	T	40	0	Name of the person at site to be contacted
051	SITE NAME	T	40	0	Name of the site.
052	START AMR CONVERTED READING	T	12	0	The AMR converted converter reading at site.
053	START AMR METER READING	T	12	0	The AMR meter reading on arrival at site.
054	START CONVERTED READING	T	12	0	The converted converter reading on arrival at site.
055	START METER READING	T	12	0	The meter reading on arrival at site
056	START UNCONVERTED READING at	T	12	0	The unconverted converter reading on arrival site.
057	SUPPLIER SHORT CODE	T	3	0	Unique code identifying Gas Supplier
058	TRANSACTION COUNT	N	10	0	Number of records contained within a file, not including the Header and Trailer.
059	TRANSACTION REFERENCE	T	15	0	Unique reference number to identify the request.
060	TRANSACTION STATUS	T	5	0	A code indicating why a transaction has been rejected or aborted. Value XXnnn where XX is the reason and nnn = AMR attribute number

4.4 AMR Process Flows

The following scenarios have been developed to clarify what data the individual data items on each proposed flow should contain. To simplify the examples the data values for the following fields has been used in all cases:-

Supplier: ABC
Contract Reference: ABC000001
MPRN: 2127676
Meter serial number: IC7949AMR

1. Request to start a new AMR service where AMR is not currently installed (where all flows are valid)



1.1 Supplier sends a Request record to NGM to start AMR service on 9th Feb.

"ABC","AMR12345","ABC123","ABC000001","STRT",2127676,"G","Y",100,20,"H","02476111111","Y",98765,"COVENTRY SCHOOL","SAM JONES","02476000000","N","","SCHOOL SHUTS AT 4.00 PM",,"N"

1.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent from NGM to the supplier.

- **When Accepted**
  "ABC","AMR12345","STRT",2127676,"","","","","","","ACCPT",20060209,"",""

1.3 After request is satisfied NGM will send a Complete (COMLT) response to supplier.

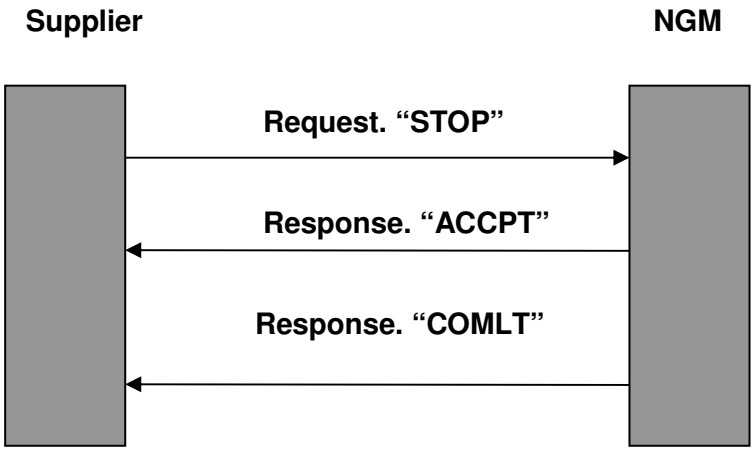
- **When Completed**
  "ABC","AMR12345","STRT",2127676,"IC7949AMR","","11111","22222","22223",

“COMLT”,20060225,””,““

1.4 As the AMR device was installed on 25th Feb, NGM will send the Read Files (.AMR) on the next scheduled delivery date, in this example by 17:00hrs on the second working day of the following month. If a Gold service was requested the AMR file will contain the reads for February 25th, 26th, 27th, 28th Feb.

1.5 If a Gold service was requested a Consumption File (.CNS) will also be sent and contain the Hourly consumption data from the time the device was commissioned.

2. Request to stop AMR service (where all flows are valid)



2.1 Supplier sends a Request record to NGM to stop AMR service by 17:00 on Feb 9th.

“ABC”,“AMR98765”,”ABC123”,”ABC000001”,“STOP”,2127676,““,““,,,““,““,““,,””,““,““,““,““,““,““,,””

2.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent by NGM to the supplier.

- **When Accepted**
  “ABC”,“AMR98765”,“STOP”,2127676,““,““,““,““,””,“ACCPT ”,20060209,““,““

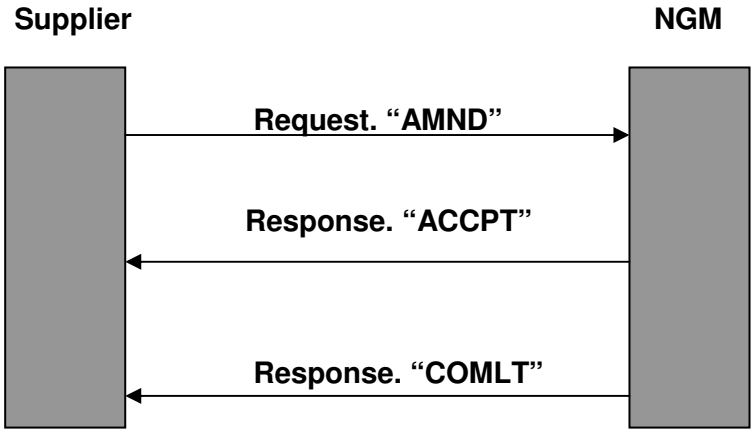
2.3 After request is processed NGM will send a Complete (COMLT) response to supplier.

- **When completed**
  “ABC”,“AMR98765”,“STOP”,2127676,“IC7949AMR“,““,““,““,””,“COMLT”,20060210,””,““

2.4 NGM will deliver Read Files (.AMR), in this example, on the 16th February. Assuming that a Gold service was in operation then the .AMR file will contain the reads up to February 9th, as the service will cease at 6:00am (start of gas day) on the 10th Feb.

2.5 Assuming a Gold service was in operation a Consumption File (.CNS) will also be sent and contain the Hourly consumption data for the Feb 9th up until 06:00hrs on the Feb 10th.

3. Request to Amend a Service (where all flows are valid)



3.1 Supplier sends a Request record to NGM to amend a service.

"ABC","AMR13579","ABC123","ABC000001","AMND",2127676,"S","N",,,"","","","",,"","","","","","","","",,
""""

(Changing service level to Silver and no alarm required)

3.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent by NGM to the supplier.

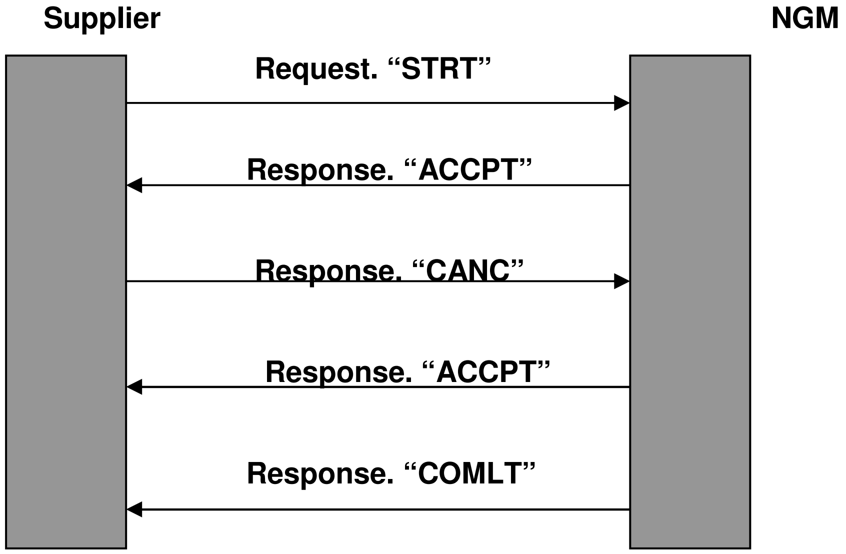
- **When Accepted**
  "ABC","AMR13579","AMND",2127676,"","","","","","","ACCPT ",20060209,"","""

3.3 After request is processed, NGM will send a Complete (COMLT) response to supplier when change has been satisfied.

- **When Completed**
  "ABC","AMR13579","AMND",2127676,"IC4979AMR","","","","","","COMLT",20060301,"","""

NB. As the request was received 5 days before the end of the month (Feb 9th), the new service level will take effect on the following month, in this case 1st March.

4. Request to cancel a previous “STRT” request where no AMR service exists (where all flows are valid)



4.1 Supplier sends a Request record to NGM to start AMR service.

“ABC”,“AMR12345”,”ABC123”,”ABC000001”,“STRT”,2127676,“G”,“Y”,100,20,“H”,“02476111 111”,“Y”,98765,“COVENTRY SCHOOL”,“SAM JONES”,“02476000000”,“N”,“”,”SCHOOL SHUTS AT 4.00 PM“,,””

4.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent by NGM to the supplier.

- **When Accepted**
  “ABC”,“AMR12345”,“STRT”,2127676,““,““,““,““,””,“ACCPT”,20060209,”“,““

4.3 Supplier sends a Request record to NGM to cancel the previous “STRT” service request.

“ABC”,“AMR12345”,“CANC”,2127676,““,”“,,,““,““,““,,““,““,““,““,““,““,,””

(Cancelling the original STRT request sent in 4.1. N.B Transaction reference is as per original request)

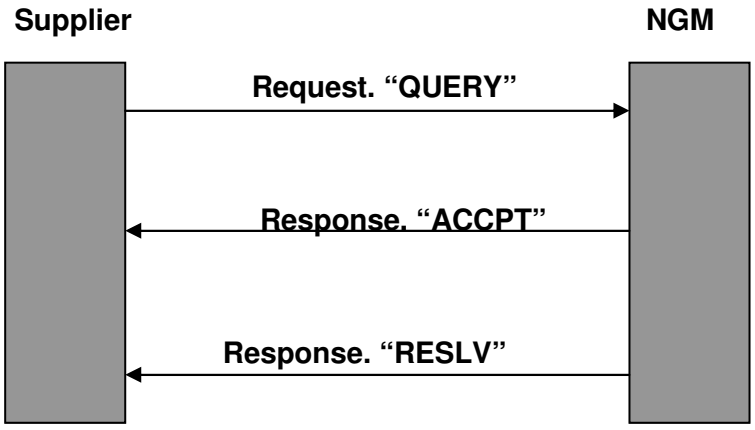
4.4 Once the details are received from supplier they are checked and validated and an accepted Response record is sent by NGM to the supplier.

- **When Accepted**
  "ABC","AMR12345","CANC",2127676,"","","","","","","ACCPT",20060213,"","""

4.5 After request is accepted, NGM will send a Complete (COMLT) response to supplier.

"ABC","AMR13579","CSRT",2127676,"","","","","","","COMLT",20060215,"","""

5. Invoice Query



5.1 Supplier sends an invoice query to NGM regarding the invoice sent to them for a specific month.

"ABC","AMR11111","INVQ","SAM JONES","02476111111",000023,"STD",,,"",

"INVOICE SENT FOR THE STANDARD READING WAS £530 AND WE BELIEVE THAT THIS SHOULD BE £510 CAN YOU PLEASE INVESTIGATE"

5.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent to supplier.

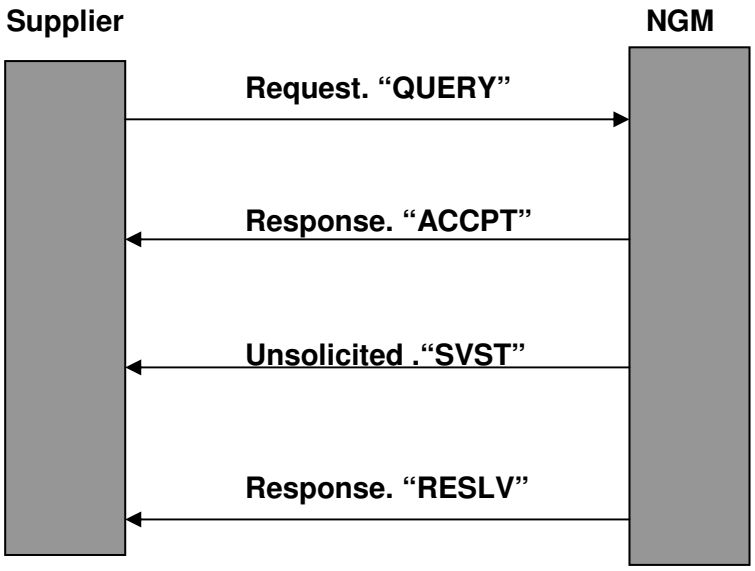
- **When Accepted, NGM will send a Response record**
  "ABC","AMR11111","INVQ",,"","","","","","","ACCPT",20060209,"","""

5.3 After request is accepted, NGM will send a Resolve (RSLV) Response record to supplier.

- **When Resolved**

"ABC","AMR11111","INVQ",,"","","","","","RESLV",20060215,"CONFIRMED- ORIGINAL INVOICE IN ERROR, ADJUSTMENT WILL BE MADE ON YOUR APRIL INVOICE ","""

6. Read Query (where all flows are valid)



6.1 Supplier sends a query to NGM regarding the AMR reading

"ABC","AMR22222","READ","SAM JONES","02476111111",,"",2127676,20060108, "62483", "AMR READING FOR 8TH JAN IS HIGHER THAN THE CUSTOMERS OWN READ"

6.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent to supplier.

- **When Accepted, NGM will send a Response record.**
  "ABC","AMR22222","READ",,"","","","","","ACCPT",20060210,"","""

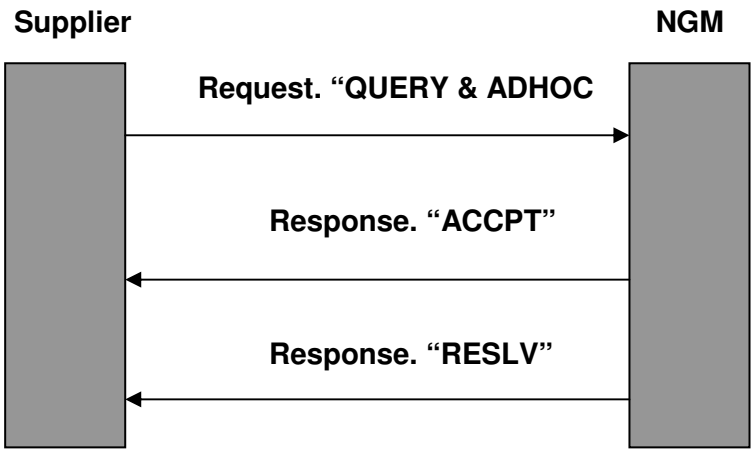
6.3 After request is accepted and investigated, NGM will send a Resolution response (RESLV)

- **When analysis is complete, NGM will send a resolution Response record**
  "ABC","AMR22222","READ",,"","","","","","RESLV",20060225,"INVALID CHALLENGE – SEE SVST DETAILS","""

6.4 Where a site visit was required an Unsolicited Site visit record (SVST) will also be sent.

"ABC","AMR22222","SVST",2127676,"IC7949AMR","101010","","","COMLT", 20060225,"READINGS CONFIRMED AS ACCURATE – NO RESYNC REQUIRED SEE ASSOCIATED SITE VISIT DATED 20060225 ","","C","","","","",

7. ADHOC Read Request (where all flows are valid)



7.1 Supplier sends an ad-hoc read request flow to NGM regarding the AMR reading

"ABC","AMR33333","AHRR","","",,"",2127676,20060126,"","",""

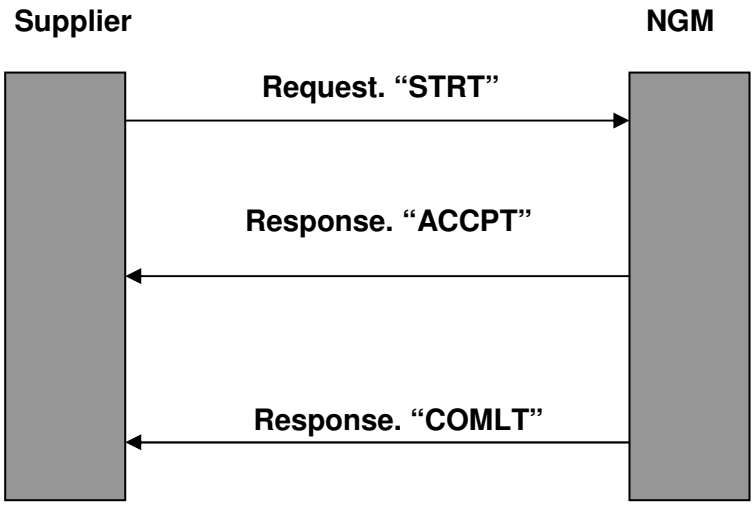
7.2 Once the details are received from supplier they are checked and validated and an accepted Response record is sent to supplier.

- **When Accepted, NGM will send a Response record.**
  "ABC","AMR33333","AHRR",,"","","","","","","ACCPT",20060210,"","""

7.3 After request is actioned, NGM will send a "RESLV" Response record.

- **When Complete, NGM will send a Response record**
  "ABC","AMR22222","AHRR",2127676,"","","","","","","RESLV",20060225,"READING DETAILS WILL BE SENT IN YOUR NEXT AMR FILE","""

8. Start of service request where AMR is already installed (where all flows are valid)



8.1 Supplier sends a request to NGM to start AMR service.

"ABC","AMR12345","ABC123","ABC000001","STRT",2127676,"G","Y",100,20,"H","02476111111","N",98765, "", "", "","N","","",20060211

8.2 Once the details are received from supplier they are checked and validated and an accepted response is sent to supplier.

- **When Accepted**

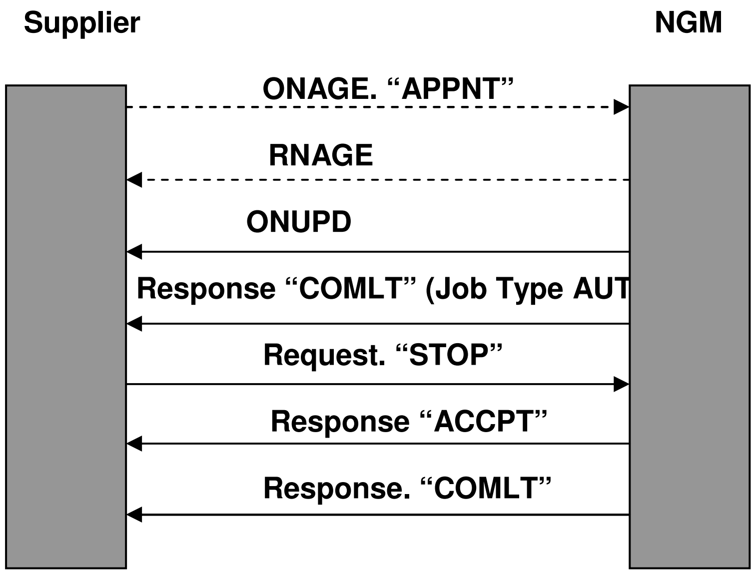
"ABC","AMR12345","STRT",2127676,"","","","","","","ACCPT",20060209,"","""

8.3 After the request is satisfied NGM will send a Complete (COMLT) response to supplier.

- **When Completed**

"ABC","AMR12345","STRT",2127676,"IC7949AMR","","","","","","COMLT", 20060211,"","""

9. COS – Start of AMR service for new supplier who has agreed to Automatic election, but subsequently decides not to take up service (where all flows are valid).



NGM receive an appointment flow (ONAGE) for a MPRN where AMR is currently installed and the incoming supplier has requested automatic election. The effective date of the appointment is 5th Feb.

NGM send an unsolicited Response flow.

“ABC”,“AMR21436”,“AUTO”,2127676,“IC7949AMR“,“G“,““,““,””,“COMLT”, “20060205”,” AUTO ELECTION EXECUTED“,““

(N.B: Service level will be inherited from the outgoing supplier agreement, opening read will be provided and any existing alarms will be turned off. Amended request required turning on the alarm service.)

9.1 Supplier sends a request to NGM to stop AMR service

“ABC”,“AMR99999”,”ABC123”,”ABC000001”,“STOP”,2127676,““,““,,,““,““,““,,”“,““,““,““,““,““,,””

(N.B: If stop request is received within 10 working days of the effective date of the AUTO election then Premature Termination Charges will not apply).

9.2 Once the details are received from supplier they are checked and validated and an accepted response is sent to supplier.

- **When Accepted**
  "ABC","AMR99999","STOP",2127676,"","","","","","ACCPT ",20060208,"","""

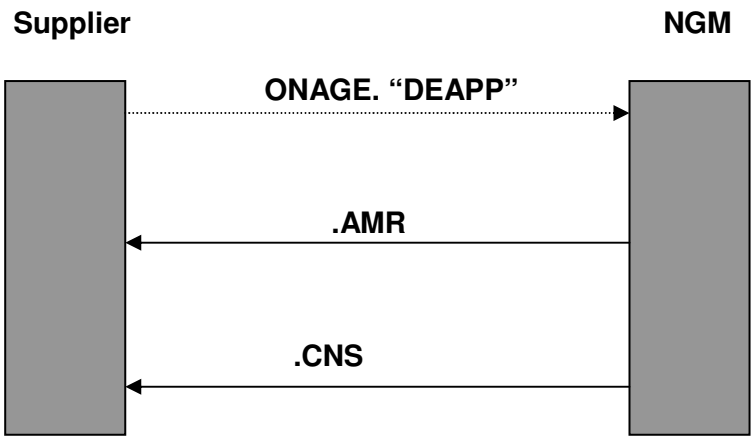
9.3 After request is accepted NGM will send a Complete (COMLT) response to supplier.

- **When completed**
  "ABC","AMR99999","STOP",2127676,"IC7949AMR","","","","","COMLT",20060209,"","""

9.4 NGM will deliver Read Files (.AMR) by 5pm on the 9th February for the period 1st – 8th Feb. Assuming that a Gold service was in operation then the AMR file will contain the reads for gas days February 5th , 6th,7th and 8th, as this is when the service became effective. Opening read will be denoted by "O" in the read indicator.

9.5 As Gold service was requested a Consumption File (.CNS) will also be sent and contain the Hourly consumption data for the gas days Feb 5th, 6th, 7th and 8th.

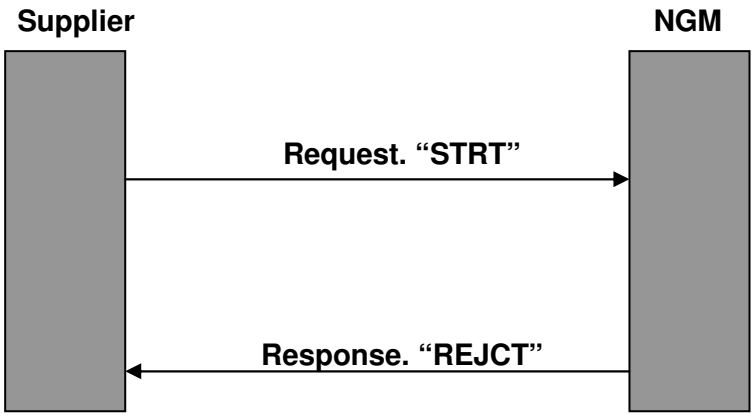
10. COS – Automatic stopping of the AMR service instigated when supplier sends in a De-appointment.



In the case where the supplier loses the ownership of a site with an effective date, for example, 6th Feb 2006, automatic AMR service termination will take place. Assuming that

Gold service was in operation, then NGM will send the outgoing supplier the reads for 1st, 2nd, 3rd, 4th and 5th in the .AMR and a .CNS file, in the next schedule read delivery cycle, in this example, the 9th Feb 2006.

11. New AMR service request rejected, where mandatory fields are missing



11.1 Supplier sends a request to NGM to start AMR service.

"ABC","AMR02476","ABC123","ABC000001","STRT",2127676,"G",,,,"","","Y",98765,"COV ENTRY SCHOOL", "SAM JONES","02476000000","N","","SCHOOL SHUTS AT 4.00 PM",,""

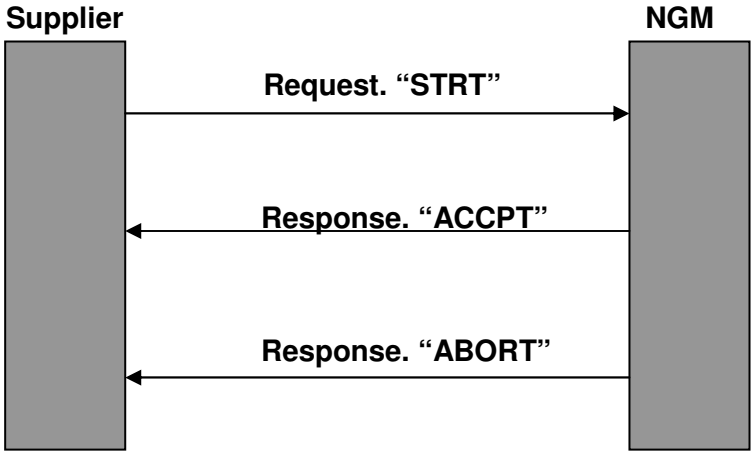
11.2 Once the details are received from supplier they are checked and validated and based on that rejection note is sent to supplier.

- **When Rejected ("Alarm Required" missing)**

  "ABC","","FILR",2127676,"","","","","","","REJCT",20060209,"MANDATORY FIELD MISSING – ALARM REQUIRED","MD005"

  NB. MD005 – MD=Mandatory Data missing 005=AMR attribute number, full description to follow.

12. New AMR service request aborted when meter is third party



12.1 Supplier sends a request to NGM to start AMR service.

"ABC","AMR67420","ABC123","ABC000001","STRT",2127676,"G","Y",100,20,"H","02476111111","Y",98765,"COVENTRY SCHOOL","SAM JONES","02476000000","N","","SCHOOL SHUTS AT 4.00 PM",,""

12.2 Once the details are received from supplier they are checked and validated and an accepted note is sent to supplier.

- **When Accepted**

"ABC","AMR67420","STRT",2127676,"","","","","","","ACCPT",20060209,"",""

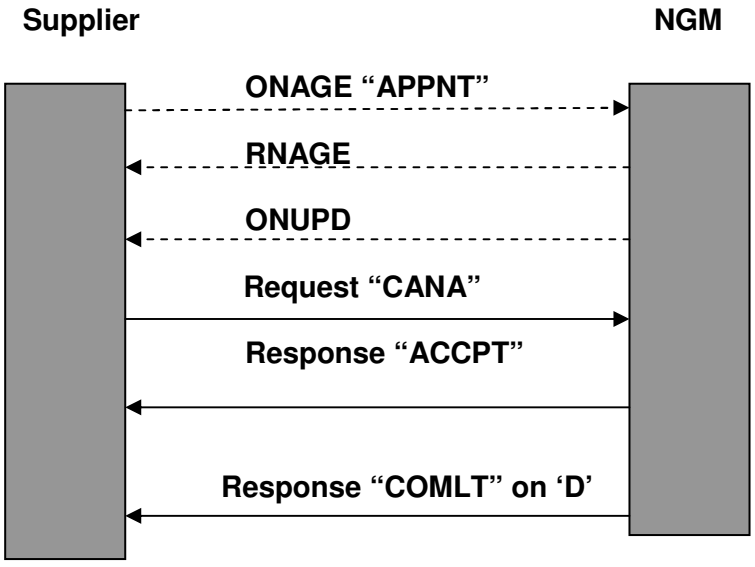
(High level validation, i.e. file format, mandatory data will be checked initially)

12.3 After request is accepted NGM will send an Abort (ABORT) response to supplier.

- **When processed**

"ABC","AMR67420","STRT",2127676,"","","","","","","ABORT",20060211,"THIRD PARTY METER","TP000"

13. <u>COS – Cancellation of AMR service for new supplier who has agreed to Automatic election, but subsequently decides not to take up service at a specific site (where all flows are valid).</u>



NGM receive an appointment flow (ONAGE) for a MPRN where AMR is currently installed and the incoming supplier has agreed automatic election. The effective date of the appointment is 5th March. But the supplier wishes not to take the AMR service on the site they will inherit. In turn supplier will send a Cancel request for AUTO election (CANA) that will be received 5 working days prior to the date they will take over the site to avoid charges for the Opening read.

13.1 Supplier sends a request to NGM to Cancel the AUTO election on a site.

"ABC","AMR0161","ABC123","ABC000001","CANA",2127676,"","",,,"","","","","","","","","","","","",,""

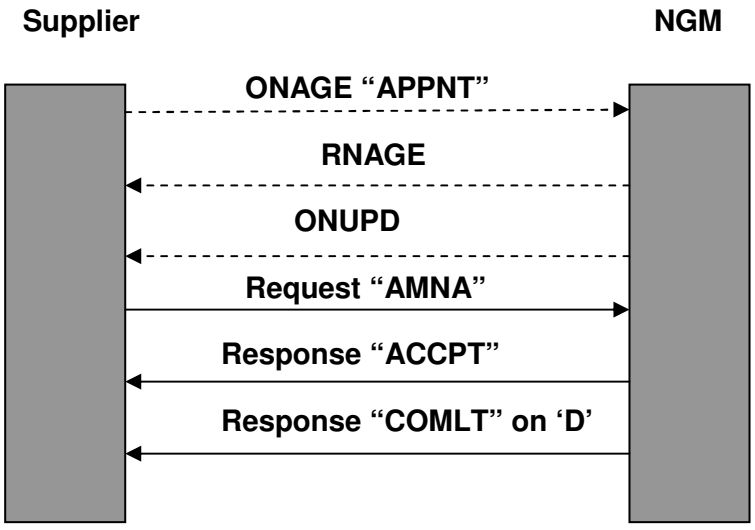
13.2 Once the details are received from supplier they are checked and validated and an accepted note is sent to supplier.

"ABC","AMR0161","CANA",2127676,"","","","","","","ACCPT",20060228,"",""

13.3 After request is accepted NGM will send a Complete (COMLT) response to supplier on the day 'D' when they will inherit the site.

"ABC","AMR0161","CANA",2127676,"","","","","","","COMLT",20060305,"",""

14. Request to amend the AMR service level or Alarm service where the supplier will inherit a site (where all flows are valid).



NGM receives an appointment flow (ONAGE) for a MPRN where AMR is currently installed and the incoming supplier has agreed automatic election. The effective date of the

appointment is 5th March. But the supplier wishes to change the AMR service level on the site they will inherit. Supplier will send an Amend request (AMNA) for AUTO election that will be received 5 working days prior to the date they will take over the site. If the supplier sends the request in less than 5 days or after the service is installed then the change of service level will be made on the first day of the following month.

14.1 Supplier sends a request to NGM to change the service level for the AUTO election on a site.

“ABC”,”AMR0183”,”ABC123”,”ABC000001”,”AMNA”2127676,”S”,”N”,””,””,””,””,””,,””,””,””,
””,””,””,20060305,””

14.2 Once the details are received from supplier they are checked and validated and an accepted note is sent to supplier.

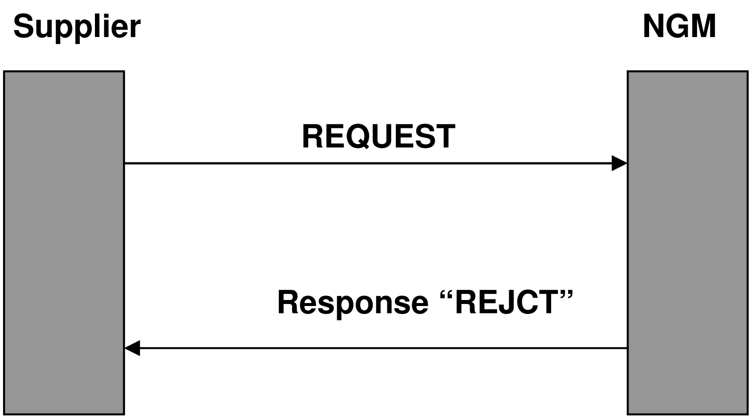
“ABC”,”AMR0183”,”AMNA”,2127676,””,””,””,””,””,”ACCPT”,20060228,””,””

14.3 After request is accepted NGM will send a Complete (COMLT) response to supplier on the day ‘D’ when they will inherit the site.

“ABC”,”AMR0183”,”AMNA”,2127676,”IC7949AMR”,”S”,””,””,””,”COMLT”,20060305,
””,””

N.B Supplier will NOT receive a “COMLT” response with job type “AUTO” as the above flow will confirm AMR service has been inherited.

15. <u>Supplier file is received that is subsequently rejected.</u>



Request file received from Supplier with mandatory date field missing in Header File

“HEADR”,”REQ”,”ABC”,”SUP”,”GTM”,”MAM”,,”194628”,”PN012345”,”PRDCT”,1,1
“ABC”,“AMR12345”,”ABC000001”,“STRT”,2127676,“G”,“Y”,100,20,“H”,“02476111111”,“Y”,98765,
“COVENTRY SCHOOL”,“SAM JONES”,“02476000000”,“N”,“”,”SCHOOL SHUTS AT 4.00 PM“,,”N”
“TRAIL”

NGM will reject the file stating that date record is missing

“HEADR”,”RES”,”GTM”,”MAM”,”ABC”,”SUP”,20060302,”194628”,”PN014542”,”PRDCT”,1,1
“ABC”,“”,“FILR”,2127676,“”,“”,“”,“”,“”,“REJCT”,20060209,”PN012345 - MANDATORY FIELD MISSING – DATE REQUIRED“,“MD011“
“TRAIL”

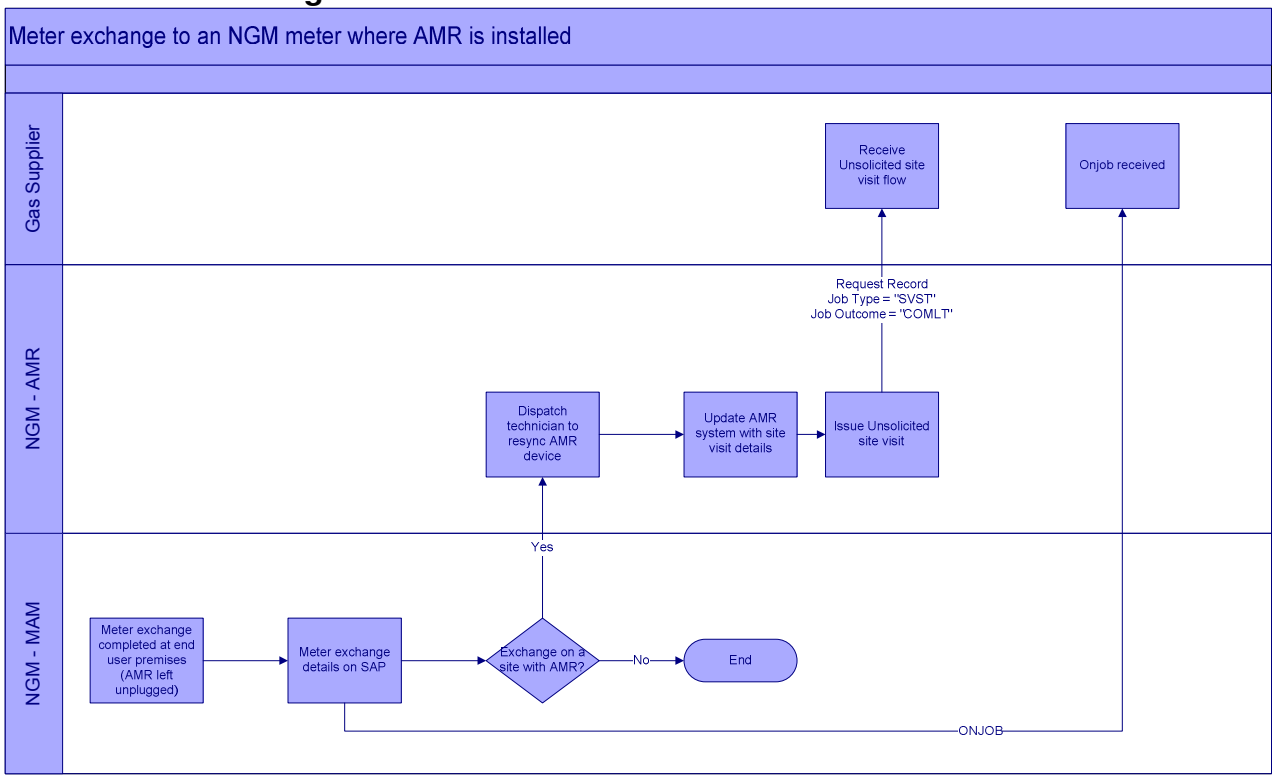
N.B Header and trailer record are mandatory when sending files via IX.

16. Example of Read (.AMR) File after a Resynchronisation.

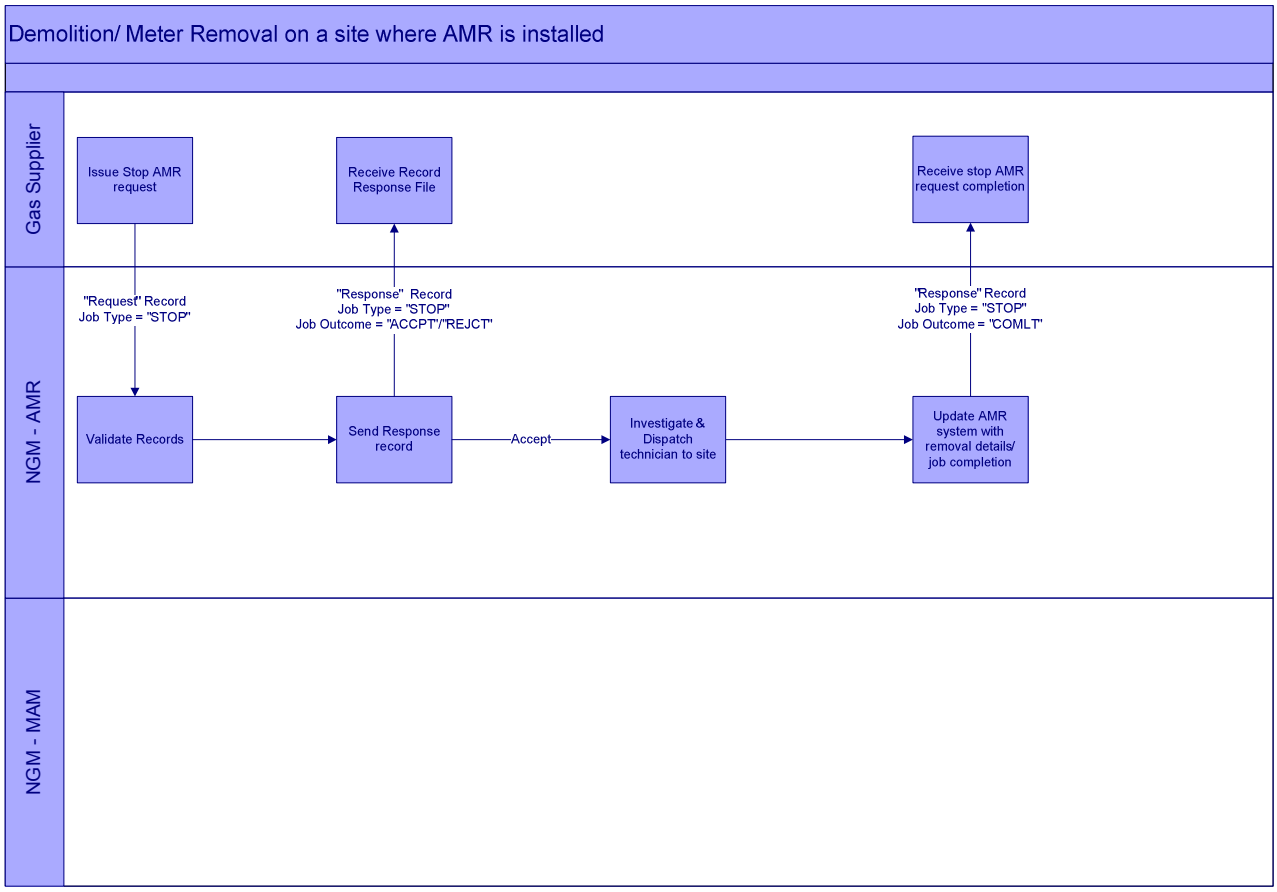
Date	Start reading	End Reading	Read Indicator
10.03.06	**1009**	**1015**	**“V”**
11.03.06	**1015**	**1049**	**“W”**
12.03.06			**Resync is done**
13.03.06	**1025**	**1031**	**“S”**

4.5 Process flow examples

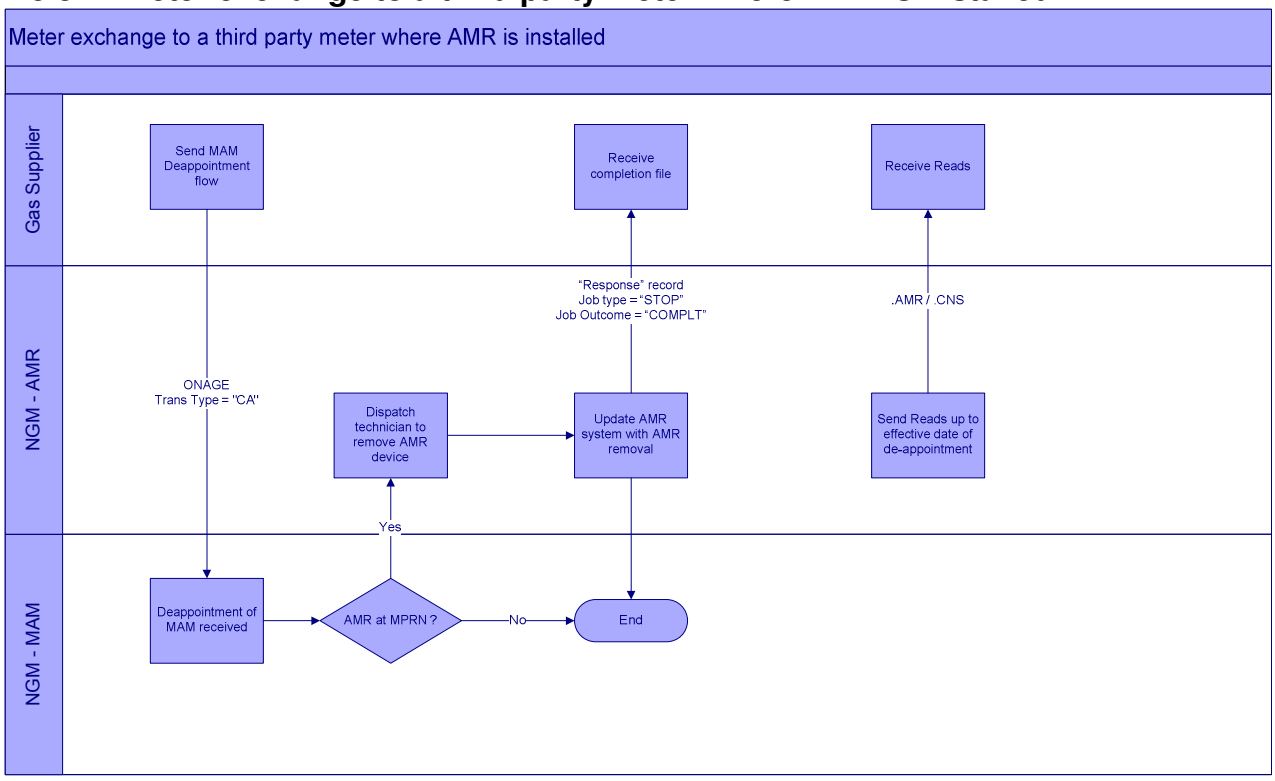
4.5.1 Meter exchange to an NGM meter where AMR is installed.



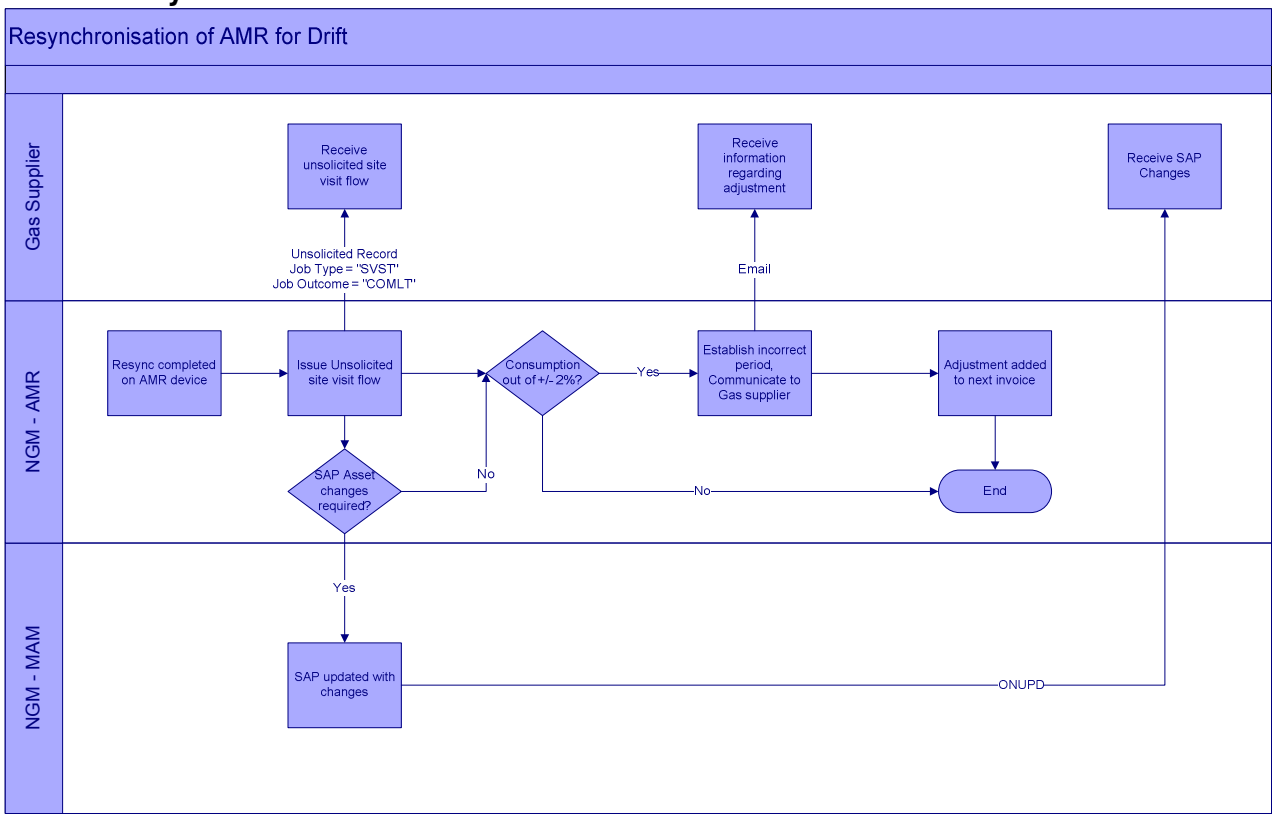
4.5.2 Demolition/ Meter Removal on a site where AMR is installed



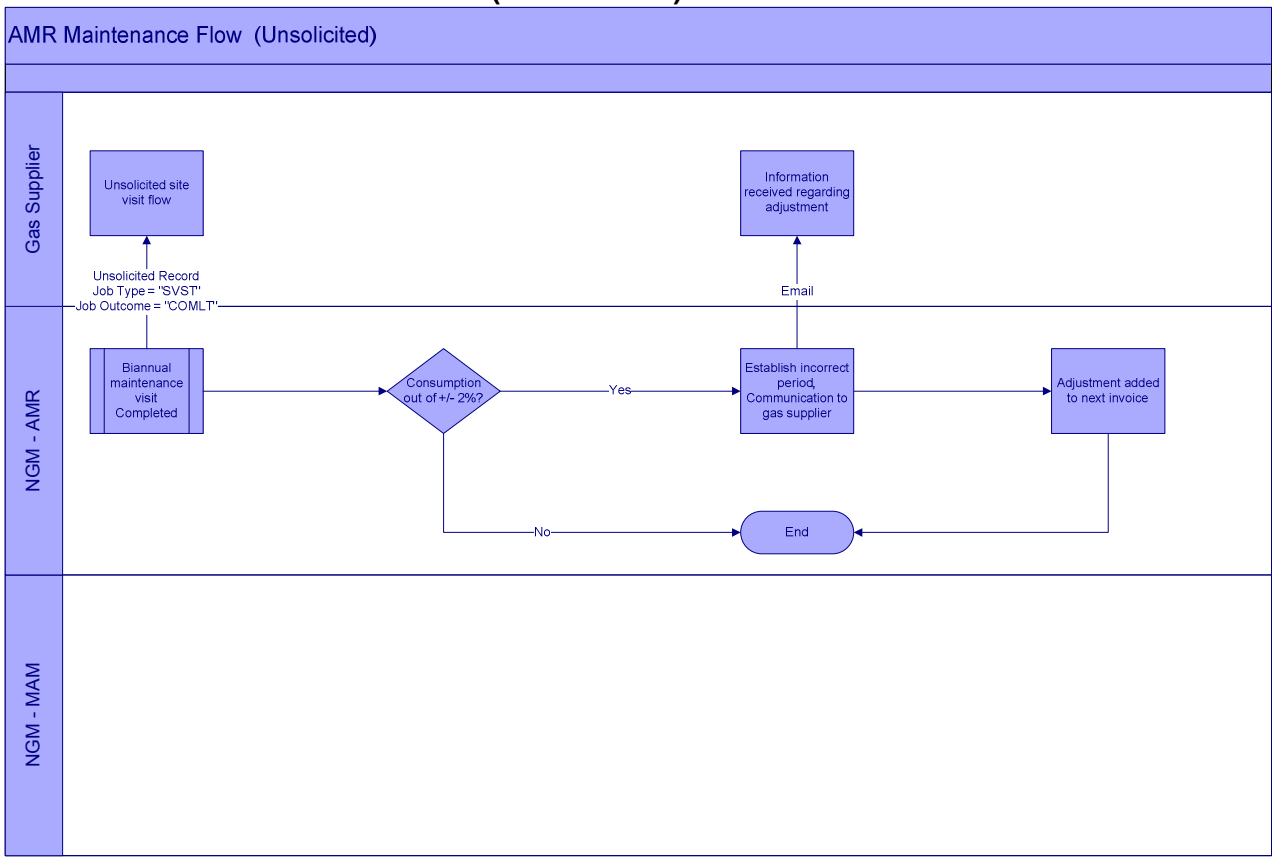
4.5.3 Meter exchange to a third party meter where AMR is installed.



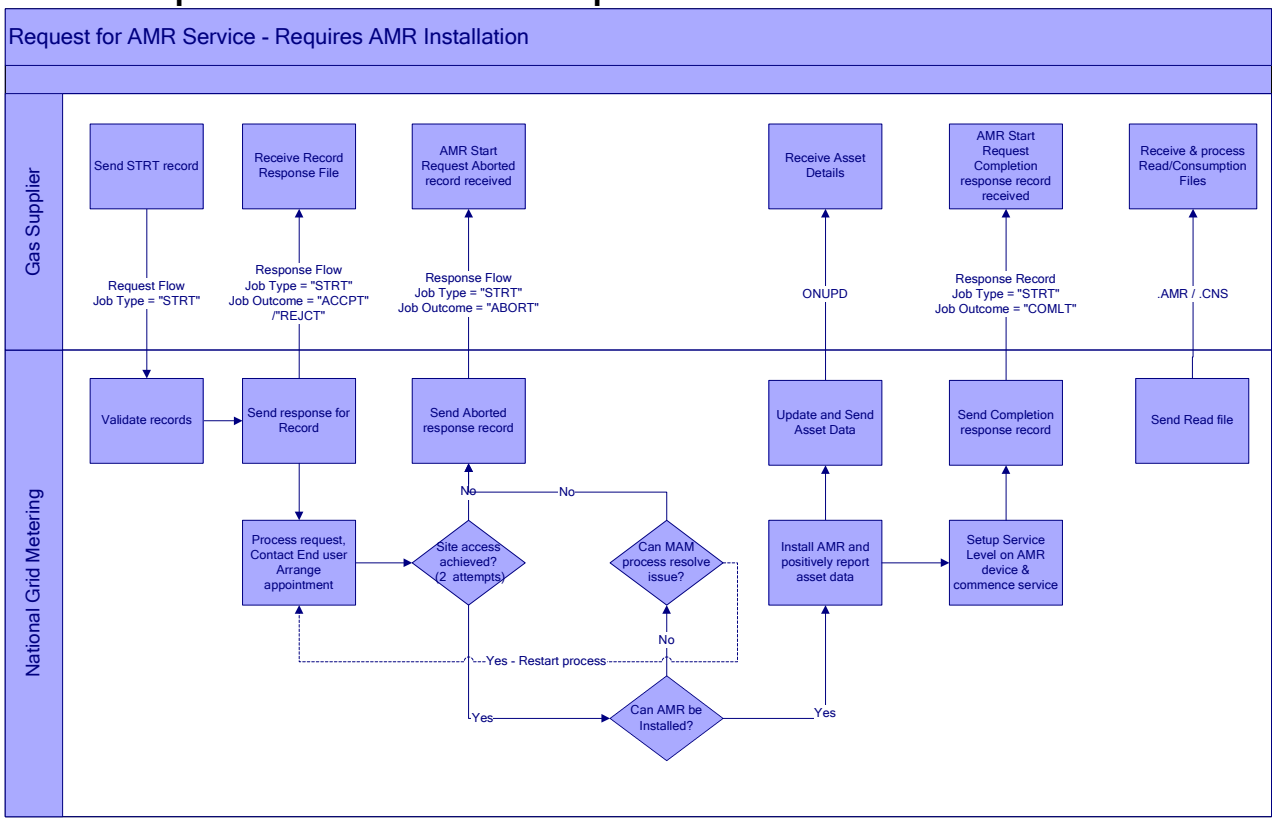
4.5.4 Resynchronisation of AMR for Drift



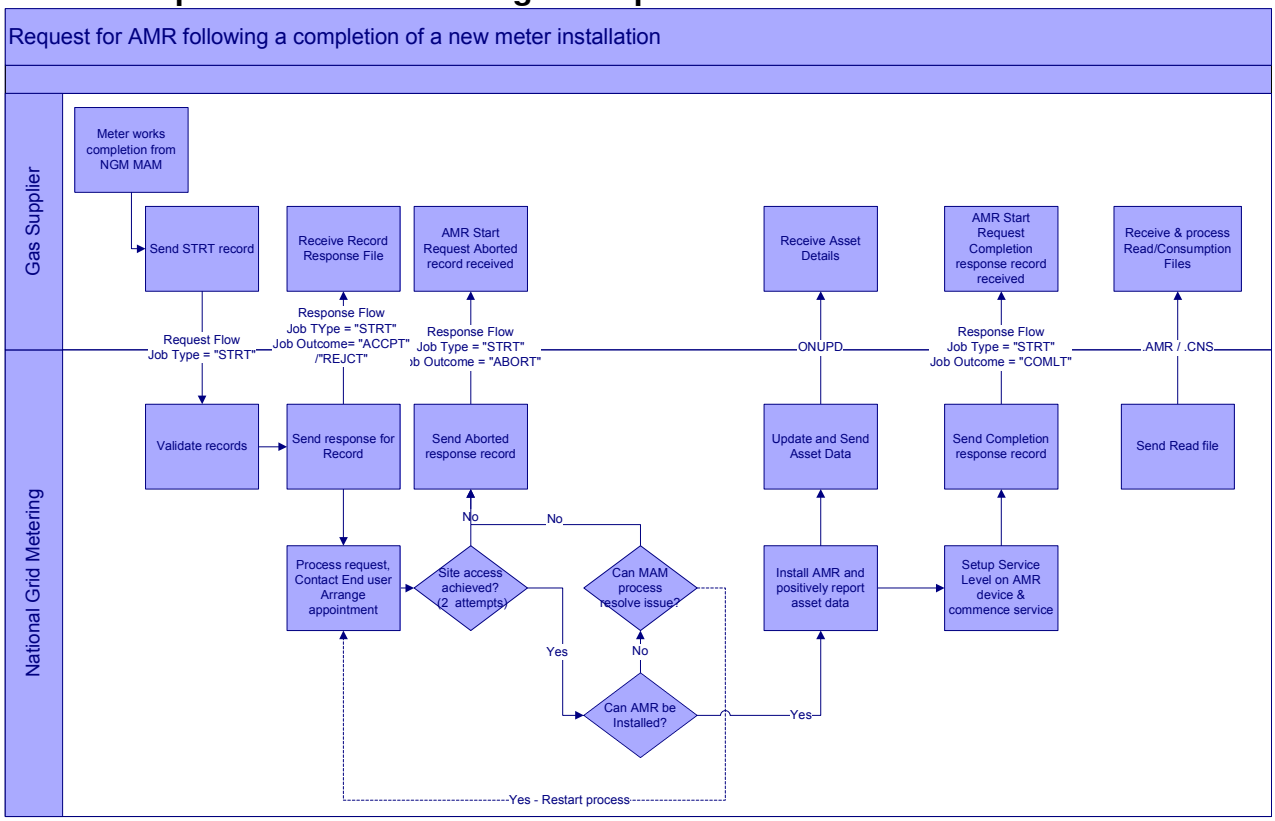
4.5.5 AMR Maintenance Flow (Unsolicited)



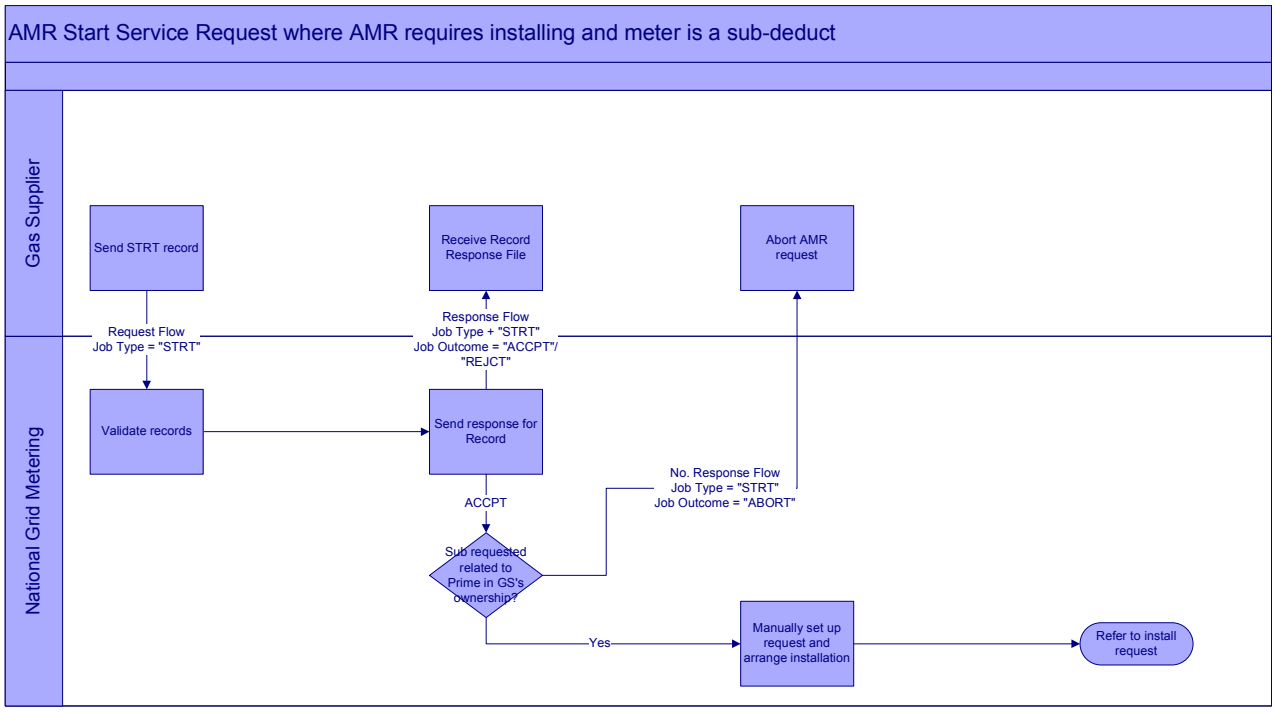
4.5.6 Request for AMR Service – Requires AMR Installation



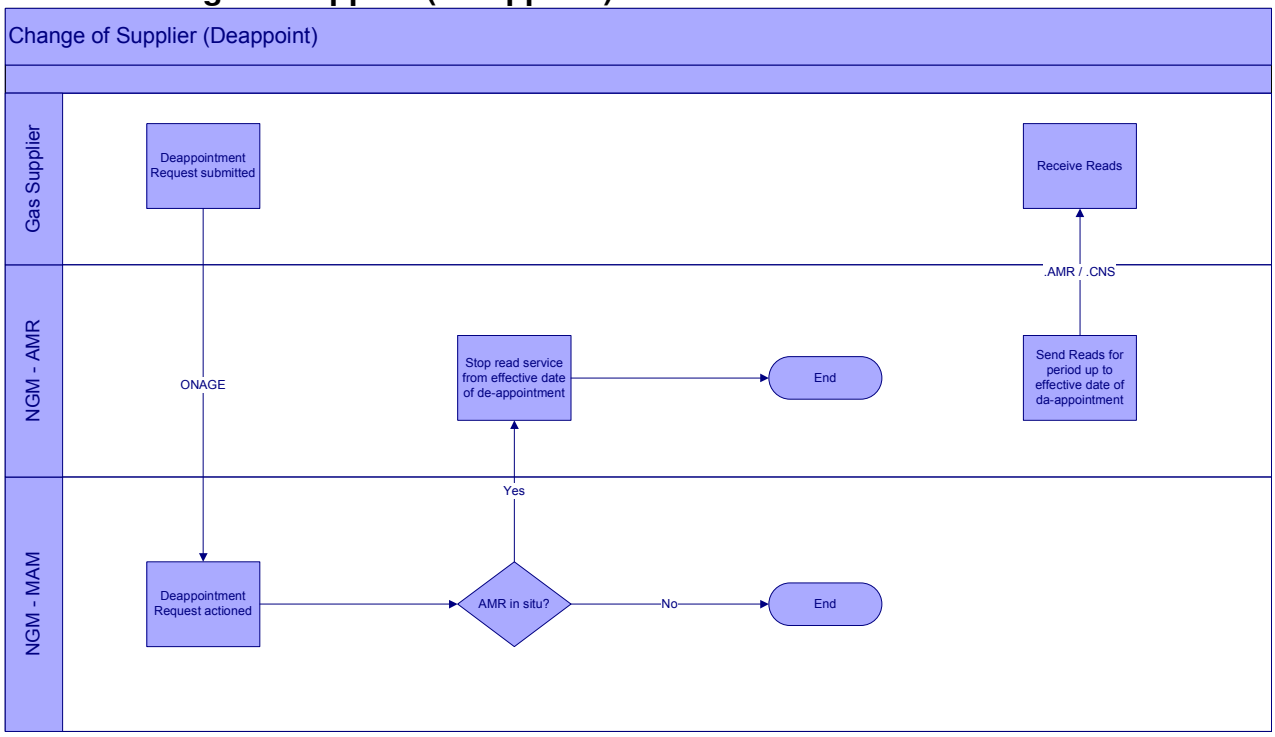
4.5.7 Request for AMR following a completion of a new meter installation



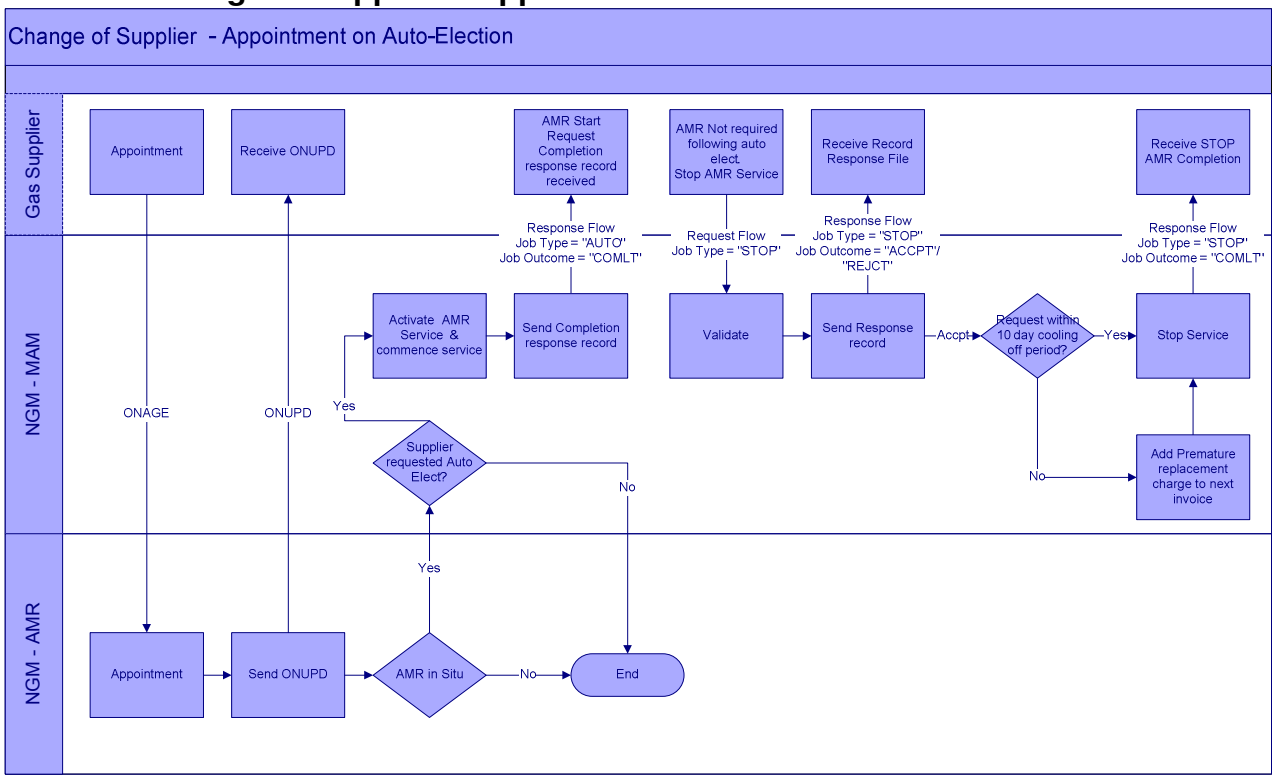
4.5.8 AMR Start Service Request where AMR requires installing and meter is sub-deduct



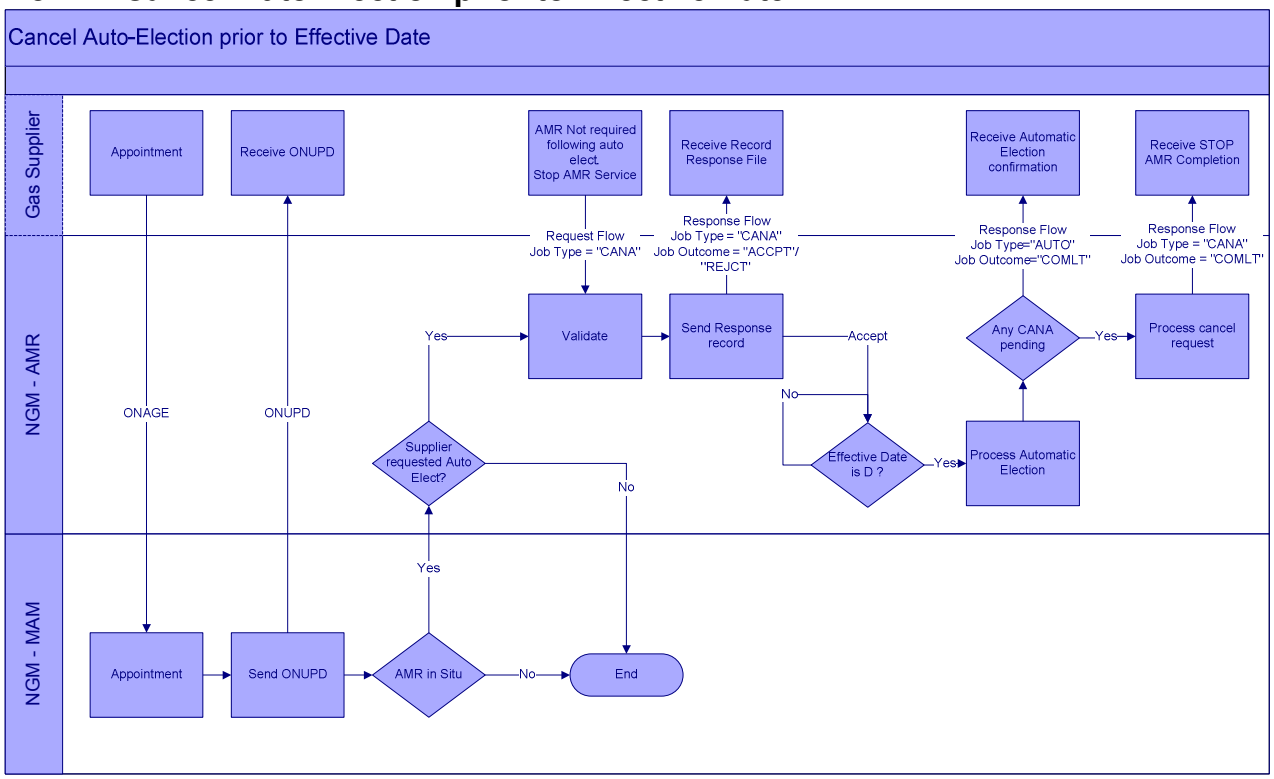
4.5.9 Change of Supplier (De-appoint)



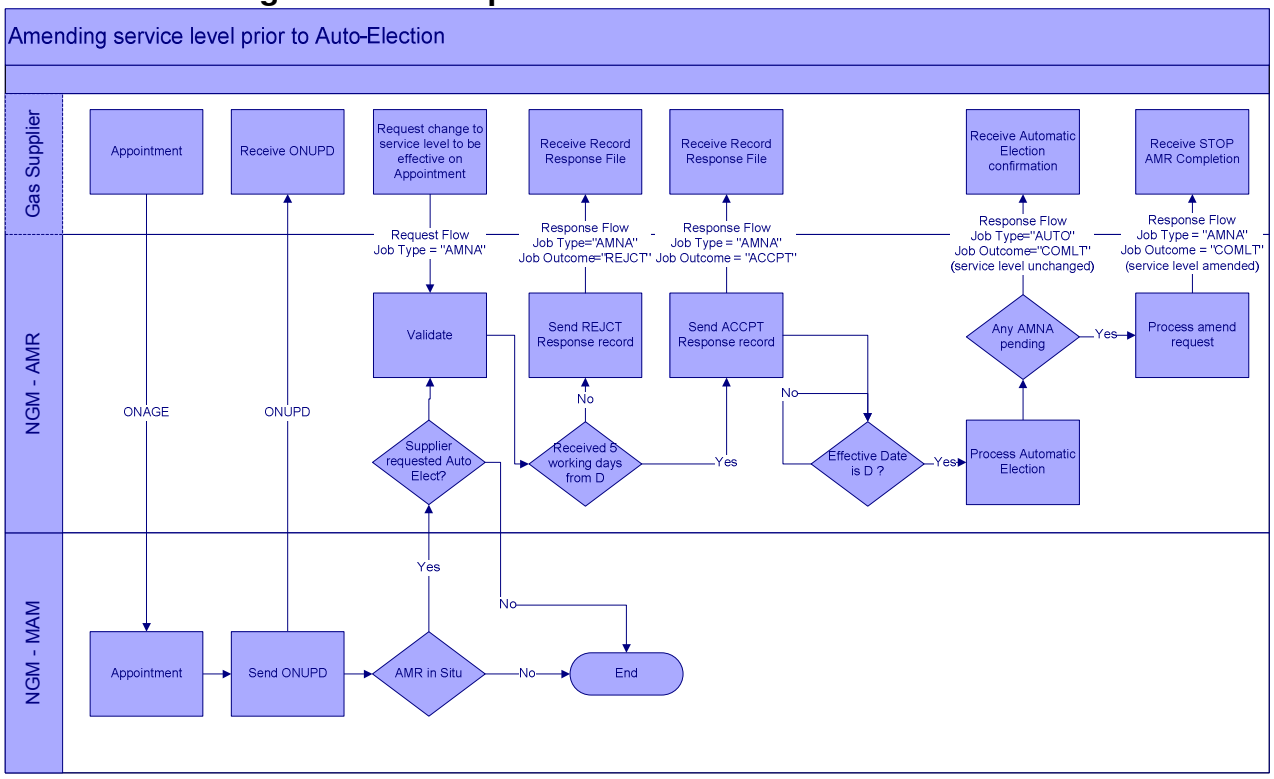
4.5.10 Change of Supplier – Appointment on Auto-Election



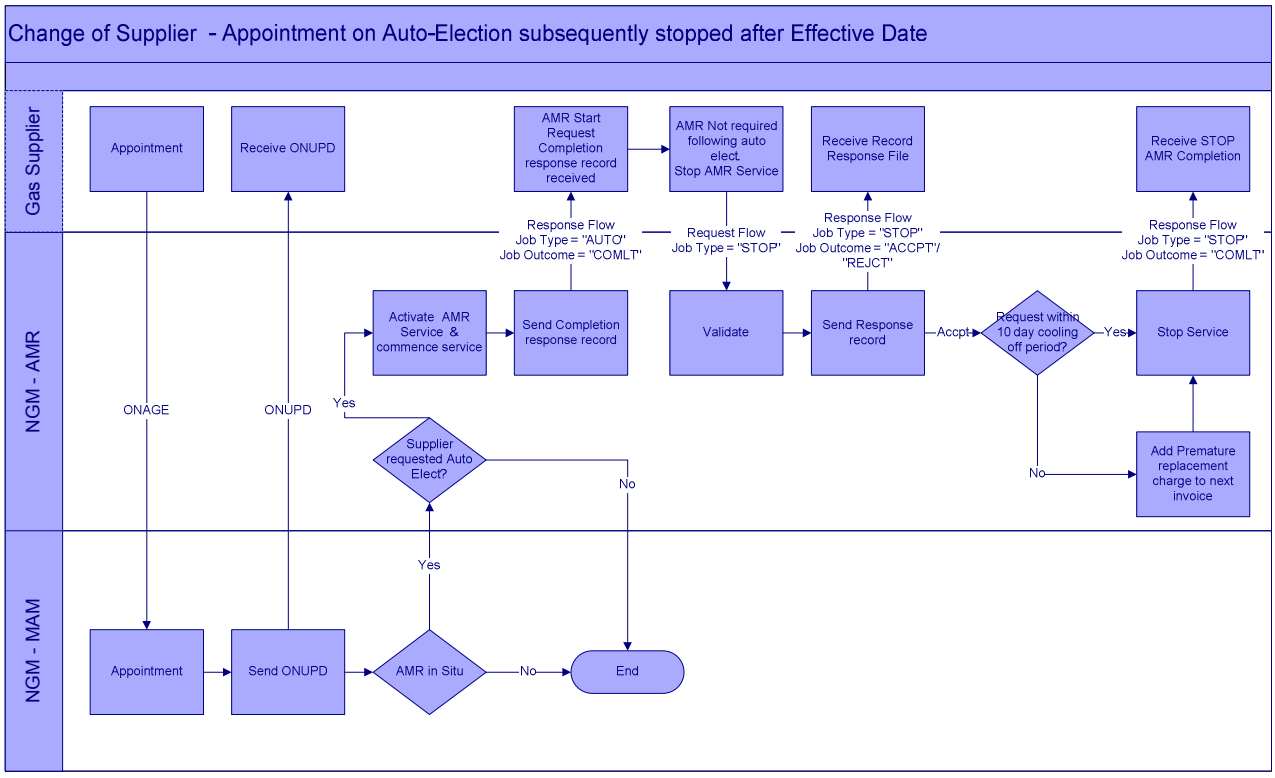
4.5.11 Cancel Auto-Election prior to Effective Date



4.5.12 Amending service level prior to Auto-Election



4.5.13 Change of Supplier – Appointment on Auto-Election subsequently stopped after Effective Date



4.5 Letter for legal Connection – No Attendance

nationalgrid
Metering

National Grid Metering
35 Homer Road
Solihull
B91 3QJ

Dear Sir or Madam,

One of our approved installers fitted and commissioned an AMR device on to your gas meter serial No. SERIAL NO at NAME & ADDRESS OF SITE.

This was at the request of your gas supplier.

As previously notified, any existing and approved connection made to the gas meter has to be removed to allow the new AMR device to be fitted. The National Grid Installer cannot remake this connection and thus we always request that a person nominated by yourselves must be present to remake the connection to your equipment. Unfortunately, at the time the installation took place no such person was present. Accordingly, the connection has been removed and has been replaced by cabling to the new AMR device. The existing cabling has been made safe and is ready for an appropriately qualified person to remake the connection into the AMR device. Please note the colour for reconnection is:

Meter Only Connection

- Black = Channel 1 Ground
- Red = Channel 1 Signal +ve

Converter Connection

Metered
- Black = Channel 1 Ground
- Red = Channel 1 Signal +ve

Converted
- Green = Channel 2 Ground
- White = Channel 2 Signal +ve

Only approved equipment may be fitted to gas meters and ancillary equipment such as the new AMR device. This must only be undertaken by qualified staff that are conversant with the policies and procedures relating to the electrical connections to gas meters.
Should you have any queries with regards to the action taken, please contact National Grid Metering, Telephone No:

Yours faithfully,

4.6 Letter for Illegal Connection

nationalgrid
Metering

National Grid Metering
35 Homer Road
Solihull
B91 3QJ

Dear Sir or Madam

One of our approved installers fitted and commissioned an AMR device on to your gas meter serial No. *SERIAL NO* at *NAME & ADDRESS OF SITE*.

This was at the request of your gas supplier.

Unfortunately, the meter installation already had a device connected to the pulse output of the meter. This output seems to have been used without the permission of National Grid Metering under the MPU agreement. Accordingly, the connection has been removed and has been replaced by cabling to the new AMR device.

Only approved equipment may be fitted to gas meters and ancillary equipment such as the new AMR device. This must only be undertaken by qualified staff that are conversant with the policies and procedures relating to the electrical connections to gas meters. This is in accordance with the MPU agreement.

Should you have any queries with regards to the action taken, please contact National Grid Metering, Telephone No: *nnnn-nnnnn*

Yours faithfully,

5 Version Control

Amendments

Issue	Date	Change Details
Version 1.0	03.03.06	Initial Draft External Review
Version 2.0	15.03.06	• Corrected text and diagrams (Minor changes) • Added new statuses to Read Status • Effective Date made mandatory in AMNA and STRT request where AMR is already installed. • Added Notification of AMR Asset (Section 1.10). • Added Contract Reference for Request Flow. • Added Appendix 4.5, 4.6. • Various fields in Amend flow have been made optional to allow suppliers to inform NG of changes to Service levels, alarms, AQ, site name, site contact and site contact number. • Metric / Imperial indicator added. • ADHRR will result in a complete month worth of consumption and read data. • File extensions for Reads and Consumption files has been changed. .DAT has been changed to .AMR and .HRD has been changed to .CNS • Quotations section (1.16) has been added for the non standard AMR installations.
Version 3.0	14.06.07	• Further clarification added for Metric/Imperial meters, Values I and M • Corrected sample flows that were in error • Converted consumption has been made optional in Consumption flow (.CNS) • Minor format changes have been made in the flow tables. • Alarm high and low value conditions have been changed. Both fields are not mandatory if Alarm required=Yes. But one of the value is required if alarm service is activated. • Additional Transaction Status codes added for further clarification • Platinum Service Level
Version 3.1	06.11.12	Final Version as per NGM Requirements.
Version 3.2	29.11.12	Further changes to align with AMR data services as described in Mod 51
Version 3.3	27.03.13	Inclusion of the RD1 file format and Header and Trailer plus Cosmetic Changes.
Version 4.0	05.04.13	Final Version