



Performance Measures & Data Collection

The Program Manager's Perspective

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Performance Measure Data

Forensic DNA Backlog Reduction Programs

Convicted Offender and/or Arrestee DNA Backlog Reduction Programs

Paul Coverdell National Forensic Science Improvement Program
(Formula Grants)

Check your registration folder handouts!



Data Collection Plans FY 2009

- The Data Collection Plan is a description of the applicant's plan for the collection of the data required for performance measures.
- To assist in fulfilling the Department's responsibilities under the Government Performance and Results Act (GPRA), P.L. 103–62, applicants who receive funding under this solicitation must provide data that measure the results of their work. Additionally, applicants must discuss their data collection methods in the application.



Identify Goals and Objectives

What goals did you say your project would meet?

- Reduce your turnaround time?
- Increase the throughput of your analysts?
- Reduce your casework backlog?
- *All of the above???*

How do you plan to meet them?

- Automate a process?
- Purchase supplies?
- *Something else...?*



Develop a Data Collection Strategy

What data will you collect to measure your progress towards meeting those project goals?

How will you collect and store that data?

How will you query the stored data for reporting?

How will you show that you have met the project goals at the end of the project period?



Example Scenario: Backlog Reduction Project





Backlog Reduction Project

What goals did you say your project would meet?

Eliminate the current backlog of criminal cases that are pending DNA analysis in the State laboratory.

How do you plan to meet them?

1. Provide 1,152 overtime hours to 3 analysts
2. Purchase DNA analysis supplies to complete 100 backlogged forensic cases



Backlog Reduction Project

How do you plan to meet them?

1. Provide 1,152 overtime hours to 3 analysts
2. Purchase DNA analysis supplies to complete 100 backlogged forensic cases

Mandatory weekend overtime program = 8 overtime hours per week per analyst

4 weeks per month * 12 months

3 analysts participating

$8 * 4 * 12 * 3 = 1,152$ overtime hrs

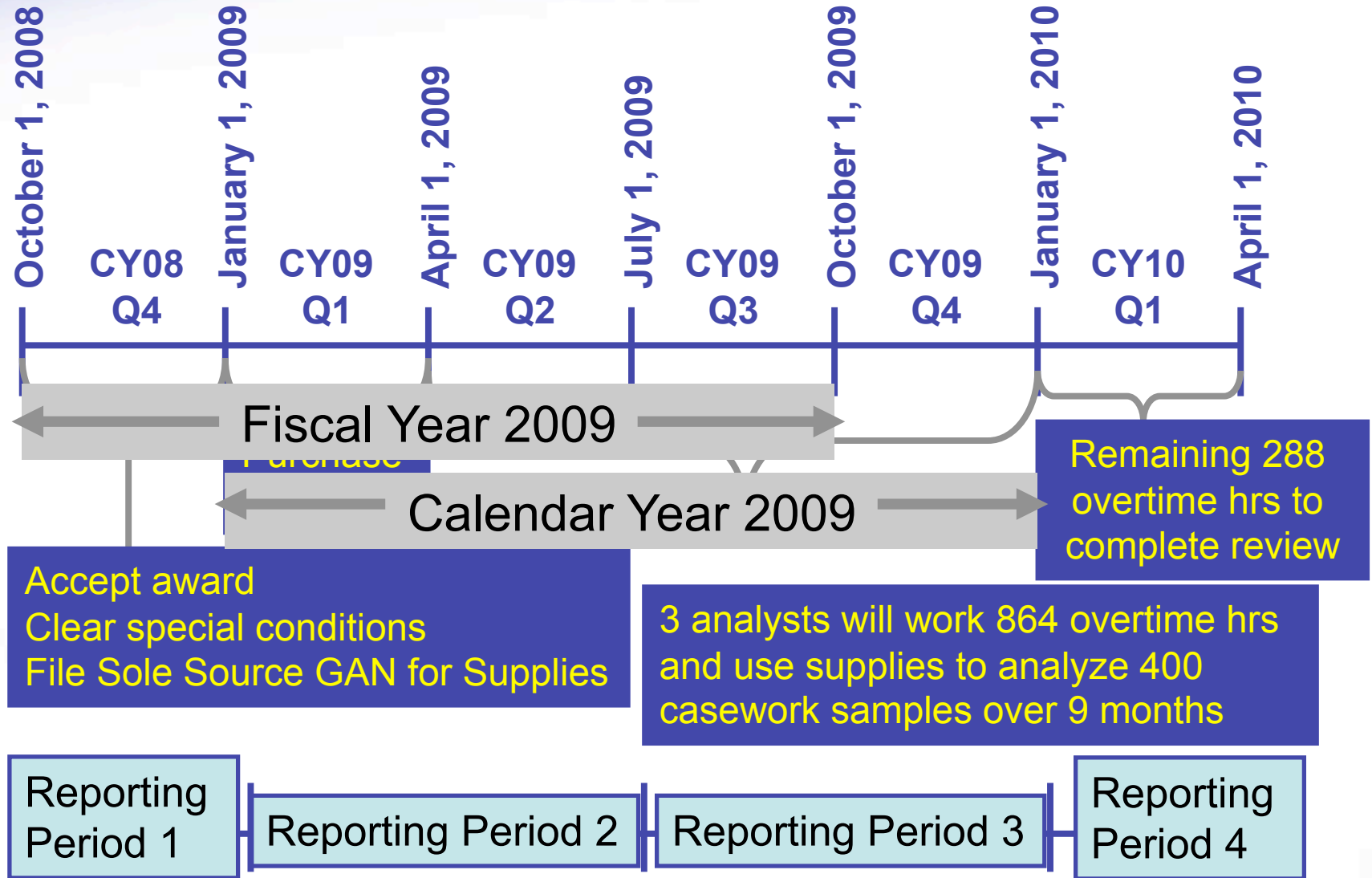
100 forensic cases
~4 samples per case
~400 samples

10 extraction kits \approx 400 samples

3 amplification kits \approx 400 samples



Project Timeline *(calendar year quarters)*





Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

What data will you collect to measure your progress towards meeting those project goals?

How will you collect and store that data?

How will you query the stored data for reporting?

How will you show that you have met the project goals at the end of the project period?



Data Collection Strategy

Goals:

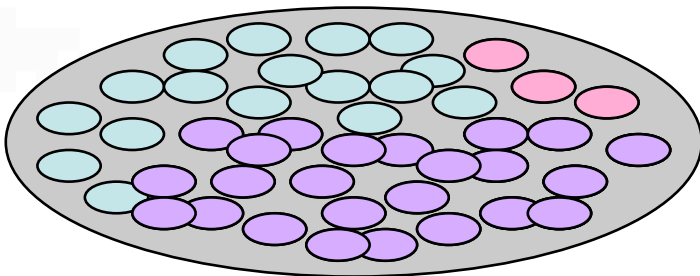
Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

What data will you collect to measure your progress towards meeting those project goals?

The number of cases that were completed as a result of the overtime hours and/or supplies purchased using award funds.



44 cases completed in Q4

10 cases affected by grant funded overtime

24 cases with grant funded supplies

27 total cases completed using grant \$



Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

What data will you collect to measure your progress towards meeting those project goals?

How will you collect and store that data?

How will you query the stored data for reporting?

How will you show that you have met the project goals at the end of the project period?



Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

How will you collect and store that data?

Grant funded overtime: Time & attendance records

Grant funded supplies: Kit/reagent lot numbers, financial purchasing files, LIMS or laboratory worksheets



Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

What data will you collect to measure your progress towards meeting those project goals?

How will you collect and store that data?

How will you query the stored data for reporting?

How will you show that you have met the project goals at the end of the project period?



Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

How will you query the stored data for reporting?

Are your time & attendance records electronic?

Do you have a central database that can associate kit/reagent lot numbers to invoice numbers to award number to case numbers?

Are your databases easily queried?



Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

What data will you collect to measure your progress towards meeting those project goals?

How will you collect and store that data?

How will you query the stored data for reporting?

How will you show that you have met the project goals at the end of the project period?



Data Collection Strategy

Goals:

Eliminate the backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

How will you show that you have met the project goals at the end of the project period?

Can you show the number of cases affected by grant funded overtime and supplies equaled or exceeded the project goal?

If not, can you explain why?



Reporting Period 1: Baseline

Goals:

Reduce backlog

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

Performance Measure Data: (Baseline)

What was your backlog at the beginning of the project period: 100 cases

Performance Measure Data: (Dynamic)

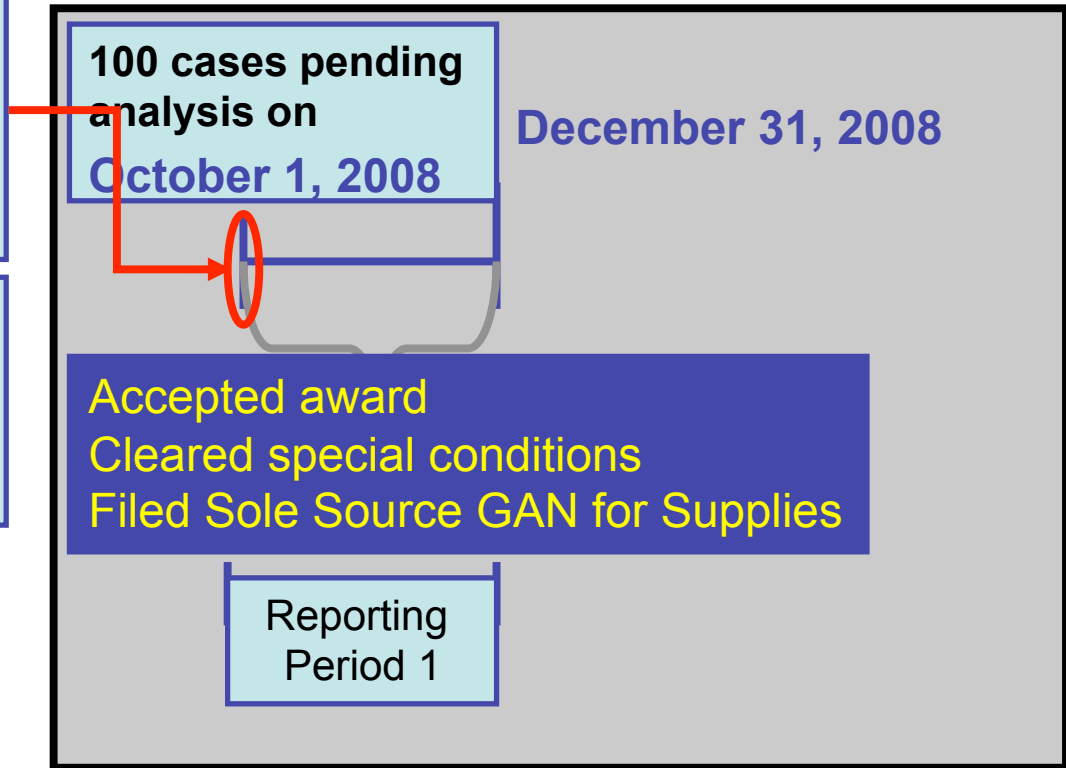
CY08 Q4: 0 cases
2nd Q data: N/A

100 cases pending analysis on
October 1, 2008

December 31, 2008

Accepted award
Cleared special conditions
Filed Sole Source GAN for Supplies

Reporting
Period 1





Reporting Period 2: Status

Goals:

Reduce backlog

Performance Measure Data: (Baseline)

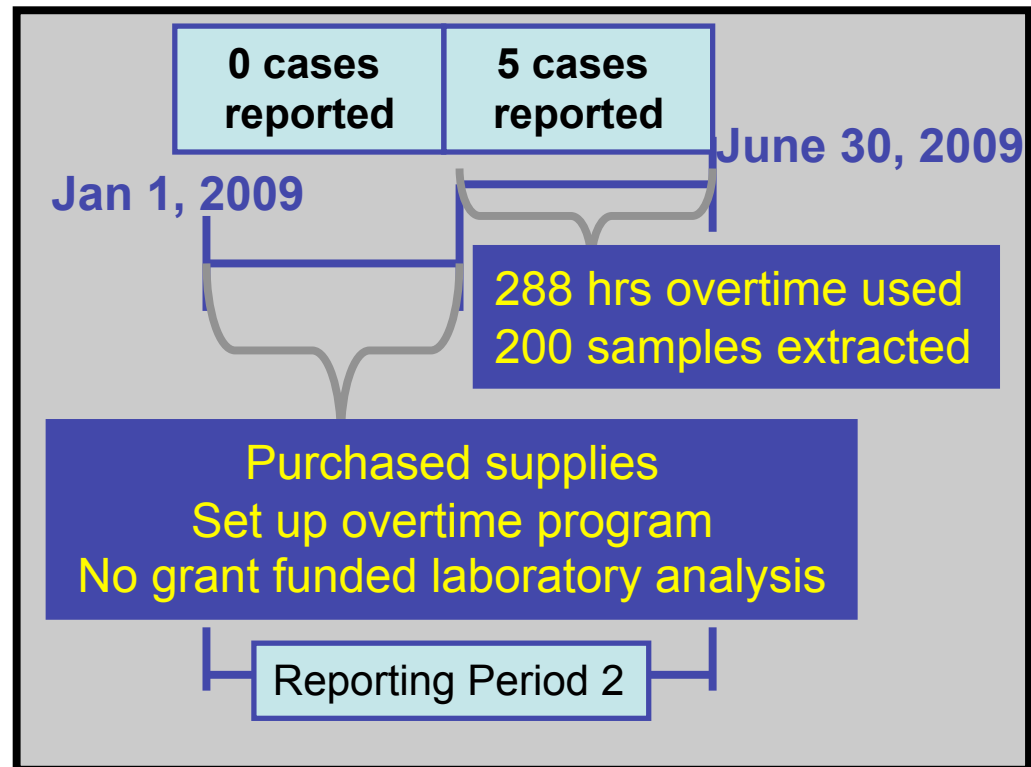
100 cases

Performance Measure Data: (Dynamic)

CY 09 Q1: 0 cases
CY 09 Q2: 5 cases

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases





Reporting Period 3: Status

Goals:

Reduce backlog

How to meet them:

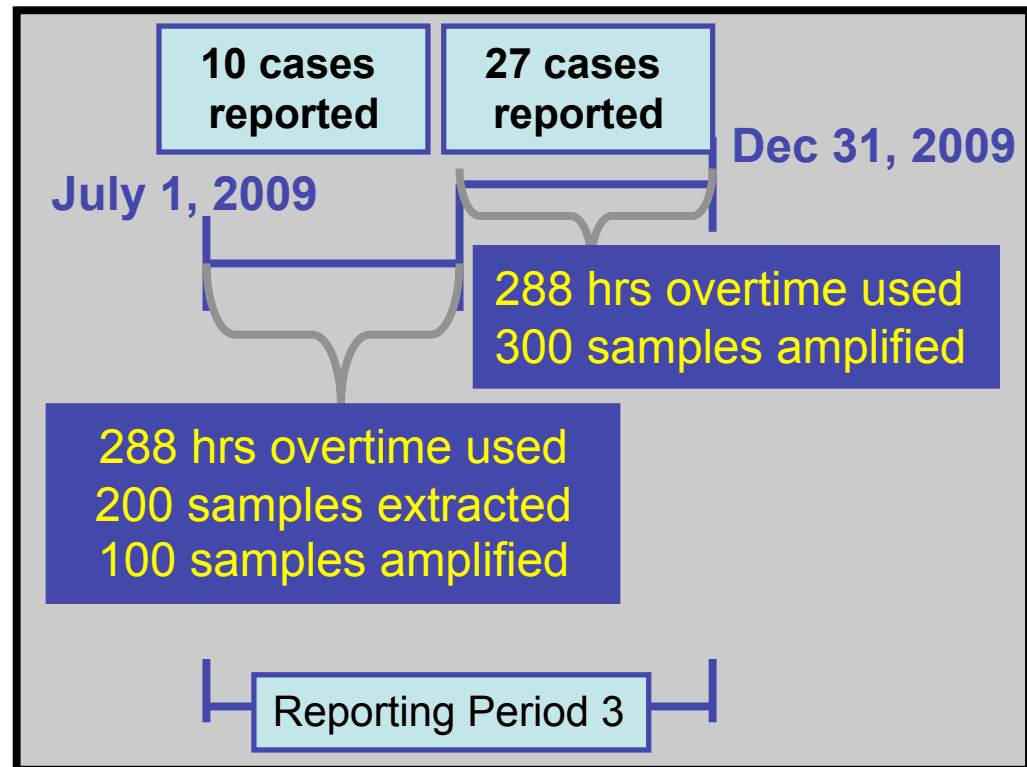
Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases

Performance Measure Data: (Baseline)

100 cases

Performance Measure Data: (Dynamic)

CY 09 Q3: 10 cases
CY 09 Q4: 27 cases





Reporting Period 4: Final

Goals:

Reduce backlog

Performance Measure Data: (Baseline)

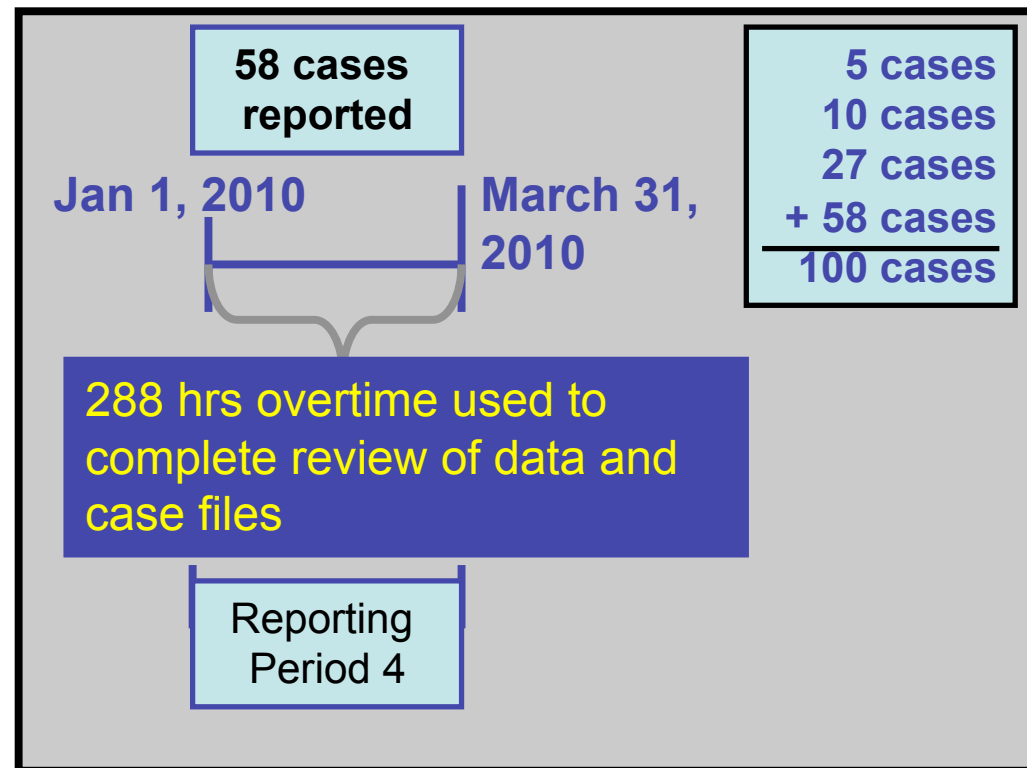
100 cases

Performance Measure Data: (Dynamic)

CY08 Q4: 58 cases
Cumulative: 100 cases

How to meet them:

Provide 1,152 overtime hours to 3 analysts
Purchase supplies to work 100 cases





Example Scenario: Capacity Enhancement Project





Capacity Enhancement Project

What goals did you say your project would meet?

Decrease DNA analysis turn around times for forensic casework by 50% to 30 days.

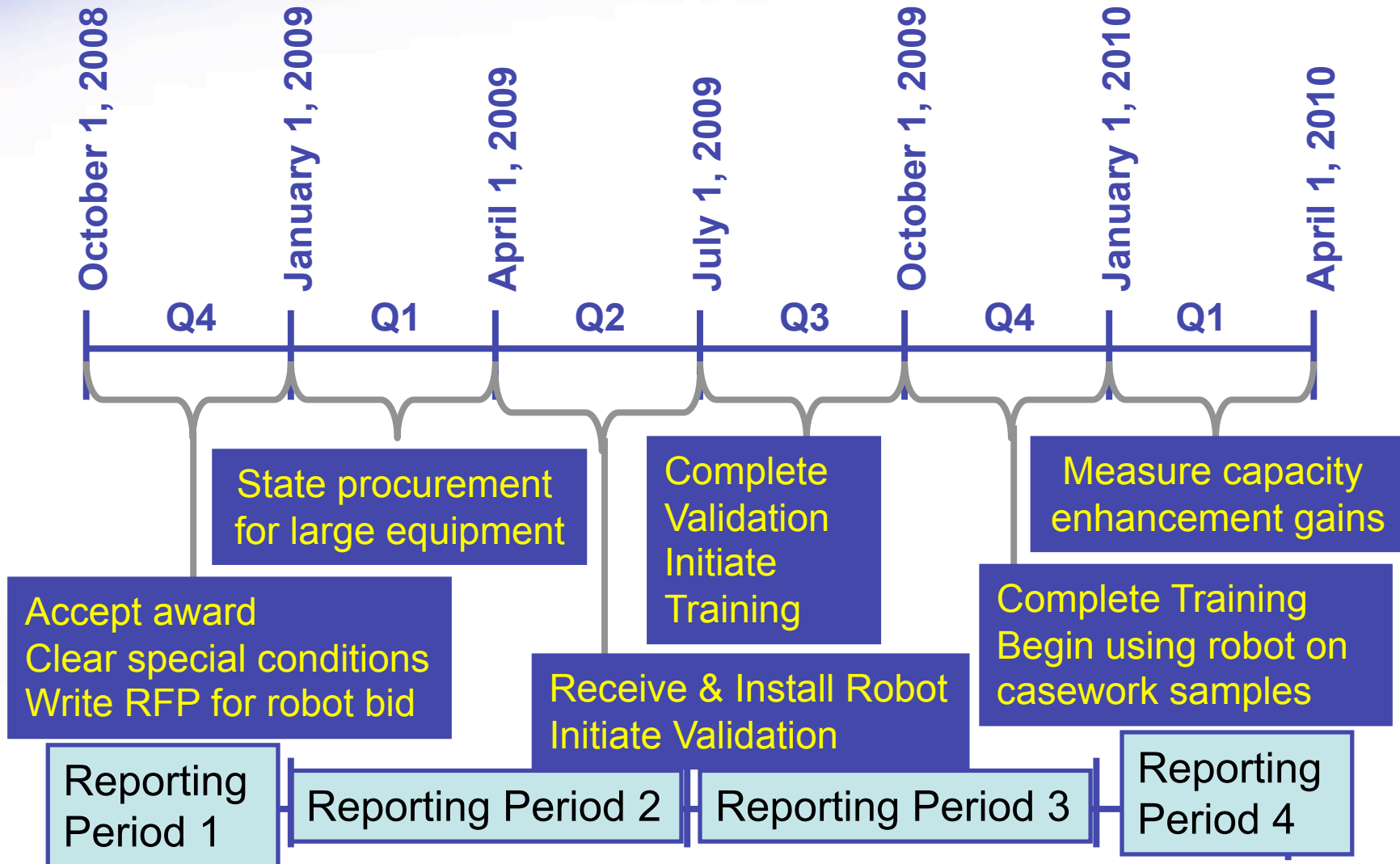
How do you plan to meet them?

Implement one new extraction robot (automate laboratory process)

1. Purchase one extraction robot
2. Provide overtime to develop, validate & train
3. Purchase supplies to validate the new process
4. Utilize supplies to analyze samples on robot



Project Timeline





Data Collection Strategy

Goals:

Decrease turn around time
50% to 30 days.

How to meet them:

Implement one extraction robot.
Automate extraction process.

What data will you collect to measure your progress towards meeting those project goals?

How will you collect and store that data?

How will you query the stored data for reporting?

How will you show that you have met the project goals at the end of the project period?



Data Collection Strategy

Goals:

Decrease turn around time
50% to 30 days.

How to meet them:

Implement one extraction robot.
Automate extraction process.

What data will you collect to measure your progress towards meeting those project goals?

The baseline average turnaround time prior to the implementation of the extraction robot.

Average turnaround time at set time points during the project period (i.e. every 3 months)

Δ : baseline TAT to project end TAT



Data Collection Strategy

Measuring average turnaround time:

Date₁ = the date a case is submitted to the lab
(this may also be the date a case is submitted for
DNA analysis)

Date₂ = the date a case is completed (i.e. reported)

N = the number of cases for which **Date₁** and **Date₂**
data are collected

$$\frac{[(Date_2 - Date_1)_1 + (Date_2 - Date_1)_2 + \dots + (Date_2 - Date_1)_N]}{N} = \text{average turnaround time}$$



Data Collection Strategy

Goals:

Decrease turn around time
50% to 30 days.

How to meet them:

Implement one extraction robot.
Automate extraction process.

How will you collect and store that data?

LIMS: dates associated with the receipt of evidence, the initiation of evidence screening, the request for DNA analysis, the reporting/completion.

Chain of custody records: If the DNA laboratory has a discrete evidence area, the date that a case was entered into the DNA evidence = Date₁

Case reports: date of the report = Date₂



Data Collection Strategy

Goals:

Decrease turn around time
50% to 30 days.

How to meet them:

Implement one extraction robot.
Automate extraction process.

How will you query the stored data for reporting?

LIMS reporting tools for Date₁ & Date₂

Evidence custodian log/tracking: Date₁

Report tracking database/spreadsheet: Date₂



Data Collection Strategy

Goals:

Decrease turn around time
50% to 30 days.

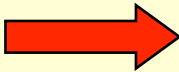
How to meet them:

Implement one extraction robot.
Automate extraction process.

How will you show that you have met the project goals at the end of the project period?

TAT_1 = the baseline average turnaround time

TAT_2 = the average turnaround time for the last reporting period

$\Delta = (TAT_1 - TAT_2)$  If $\Delta \leq 30$ days
the goal was met



Reporting Period 1: Baseline

Goals:

Decrease turn around time
50% to 30 days.

How to meet them:

Implement one extraction robot.
Automate extraction process.

Performance Measure Data: (Baseline)

Average TAT at the beginning of the project period: 60 days

Performance Measure Data: (Dynamic)

CY08 Q4: 60 days
2nd Q data: N/A

Report Narrative:

Explain how you set your baseline TAT.

60 day average
turnaround time

October 1, 2008

Dec 31, 2008

Accepted award
Cleared special conditions
Wrote RFP for robot bid

Reporting
Period 1



Reporting Period 2: Status

Goals:

Decrease turn around times to 30 days.

Performance Measure Data: (Baseline)

Beginning average TAT: 60 days

Performance Measure Data: (Dynamic)

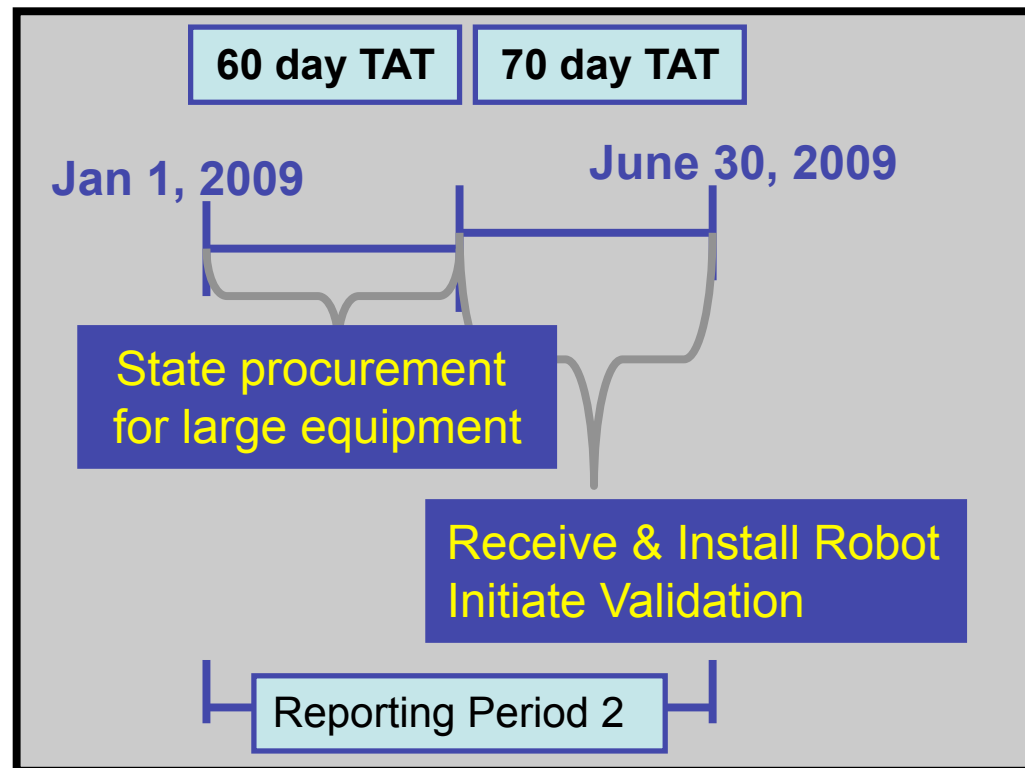
Q1 average TAT: 60 days
Q2 average TAT: 70 days

Report Narrative:

Increased TAT due to analyst working on robot instead of casework.

How to meet them:

Implement one extraction robot.
Automate extraction process.





Reporting Period 3: Status

Goals:

Decrease turn around time
50% to 30 days.

How to meet them:

Implement one extraction robot.
Automate extraction process.

Performance Measure Data: (Baseline)

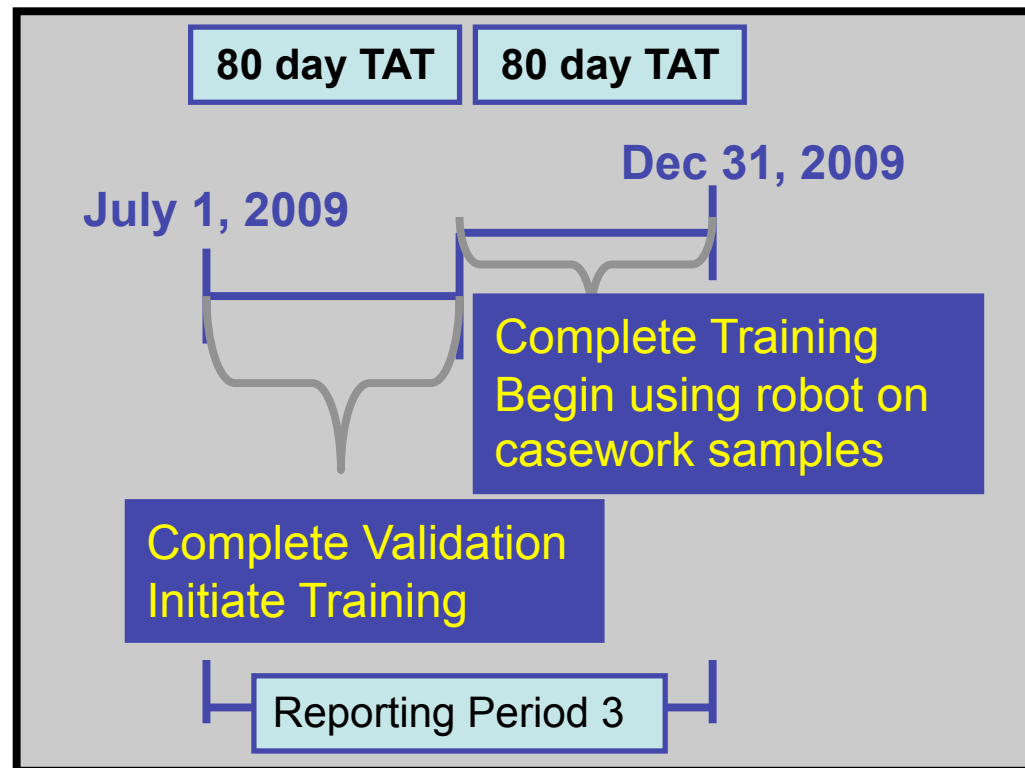
Beginning average TAT: 60 days

Performance Measure Data: (Dynamic)

Q3 average TAT: 80 days
Q4 average TAT: 80 days

Report Narrative:

Increased TAT due to analyst working on robot instead of casework.





Reporting Period 4: Final Report

Goals:

Decrease turn around time
50% to 30 days.

Performance Measure Data: (Baseline)

Beginning average TAT: 60
days

Performance Measure Data: (Dynamic)

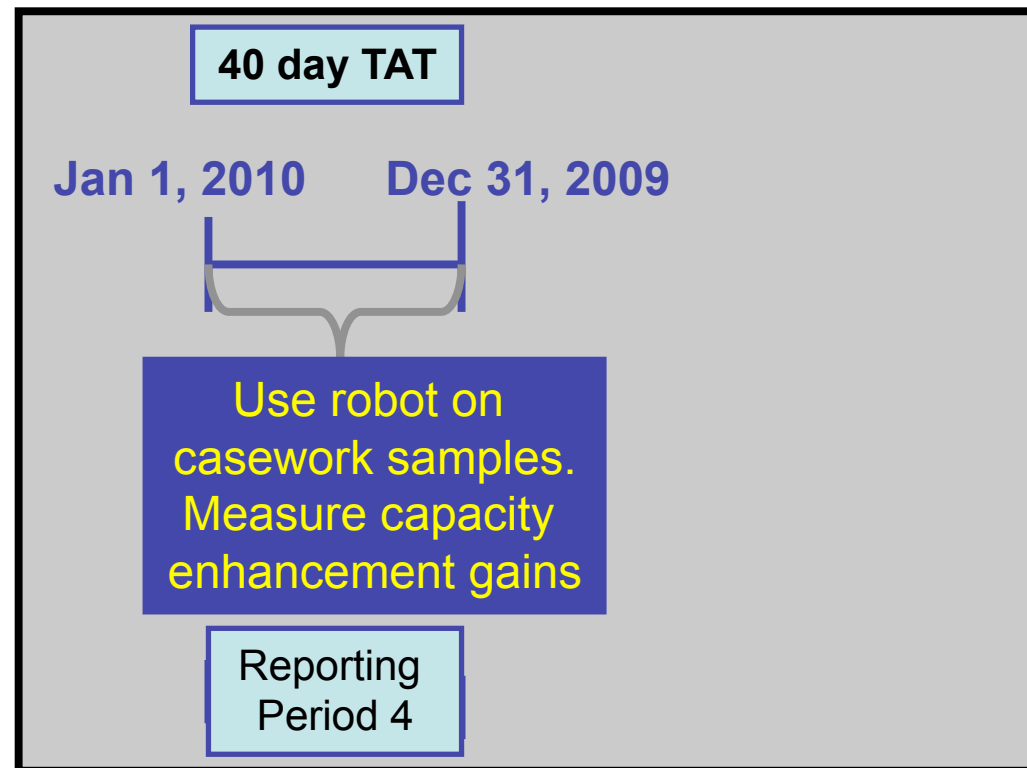
Q4 average TAT:
= Final average TAT

Report Narrative:

Met 50% reduction goal
Anticipate a 30 day TAT
based on continued use of
robot.

How to meet them:

Implement one extraction robot.
Automate extraction process.





Notes on the CO DNA Backlog Reduction Program





CO Program

Convicted Offender and/or Arrestee DNA Backlog Reduction Programs

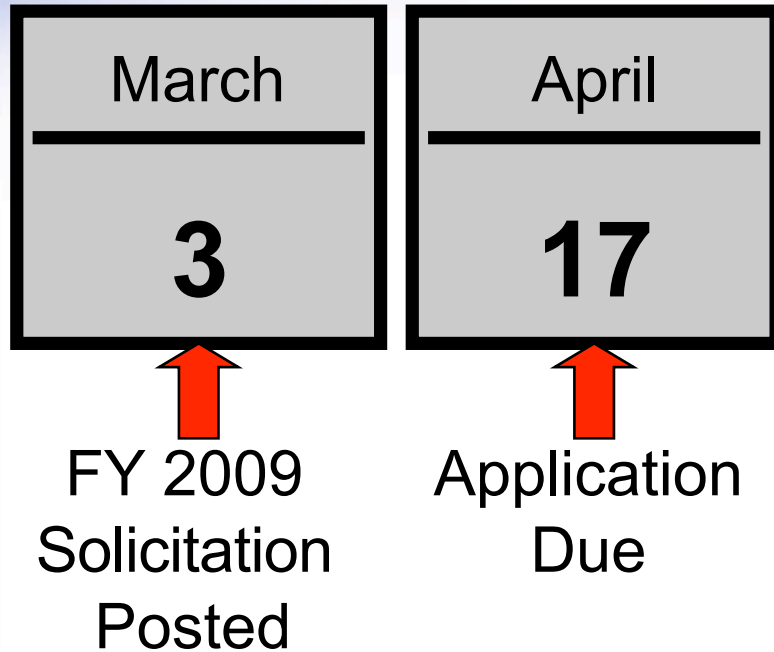
In general, award amounts are calculated based on:

- An estimated number of backlogged database samples for which funds do not exist for analysis or review.
- Up to \$35.00 per such sample to be analyzed (amount per sample should be based on actual costs)
- Up to \$5.00 per such DNA profile to be reviewed.

Because funds under this program are awarded to all eligible applicants who can demonstrate a need (i.e. have an existing backlog of DNA database samples that cannot be eliminated with current funding sources), it is critical that all performance measure data are accurate.



Baseline Data



N = Funded Backlog:
Estimated eligible backlog on
March 31, 2010

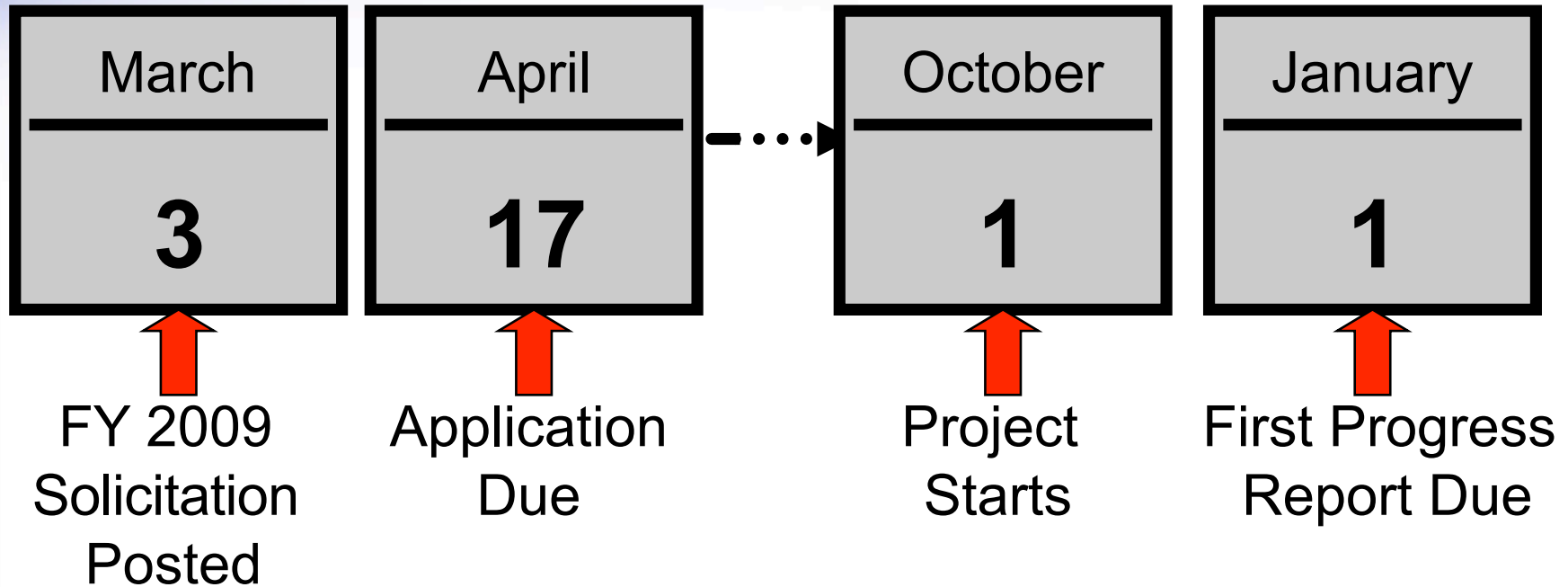
Award amount requested must be calculated based on the estimated cost per sample (not to exceed \$35/sample for analysis and \$5/sample for review)

$$N * \$40.00 = \text{Award } \$ \text{ Total}$$

GOAL: Project must result in the completion and upload of N samples



Baseline Data



N = Funded Backlog:
Estimated eligible backlog on March 31, 2010

B = Baseline:
Actual eligible backlog on October 1, 2009



Baseline Data

$$N = B$$

GOAL: Analyze, review and upload N samples



Baseline Data

$$N > B$$

Samples received per month * 6 months = X

$$N = B + X$$

GOAL: Analyze, review and upload N samples



Baseline Data Change

$$N > B$$

$$\text{Samples received per month} * 6 \text{ months} = X$$

$$N > B + X$$

Action: Submit a Change of Scope GAN:

1. Describe why the backlog is less than the amount for which you applied for funds
2. Re-identify the backlog quantity for the project goal
3. If the cost per sample is adjusted but still remains under \$35/sample, and the total award is still required, provide justification.
4. If necessary, you will need to deobligate funds at the end of the project period.



Baseline Data

$$N < B$$

Other funding source will be used to analyze, review and upload the additional backlog samples.

GOAL: Analyze, review and upload N samples



Baseline Data Change

$$N < B$$

The new goal is now to analyze, review and upload **B** samples; however, the cost per sample has decreased.

GOAL: Analyze, review and upload B samples

Action: Submit a Change of Scope GAN:

1. Describe why the backlog is more than the amount for which you applied for funds
2. Re-identify the backlog quantity for the project goal

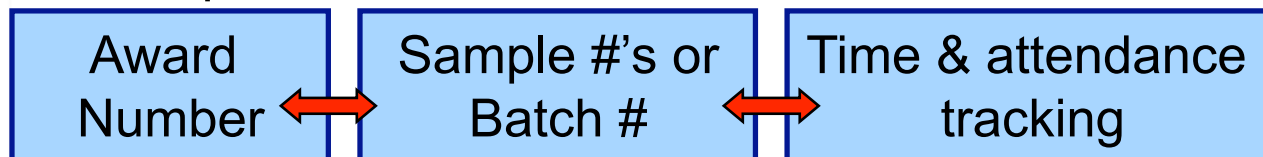


Relate the \$ to the Samples Analyzed

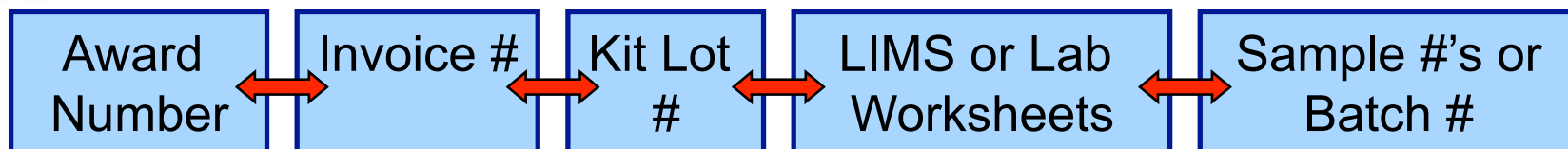
FY 2009 awards can be used for the following:

- Personnel costs associated with in-house DNA analysis and data review
- Supplies for in-house DNA analysis
- Contracts and costs associated with sending samples to fee-for-service laboratories for DNA analysis

Personnel tracking mechanisms exist & can be used to associate to samples worked:



Supplies costs can be tracked directly to samples analyzed:





Capacity Enhancements to Samples

FY07 and FY08 awards allowed for capacity enhancement projects:

Capacity enhancement project impacts are typically measured in decreased turnaround time and increased throughput. Can you build a direct relationship between this kind of data to a quantity of samples analyzed?

It is more difficult to calculate & track a quantity of samples analyzed as a result of award funded capacity enhancement activities.

...but it can be done!