ENGINEERING SERVICES

ASSET SYSTEMS MANAGEMENT

Asset Management - System Planning ♦ Systems Analysis - Engineering/Modeling and Technical Support

CMOM SCIP Models

Phase 1: Project Charter

To	Team
From	Mark Liebe, Arnel Mandilag
Date	April 6, 2012
Project	Internal Order 9ESPP0000055 (to be revised)
Subject	CMOM - Phase 1

General Description

Gary needs a tool to help him manage his Maintenance Program's inspection and cleaning activities and their annual planning. The model results will help Gary understand how much should be spent and how it should be prioritized. The results will also help meet DEQ permit reporting requirements required at the end of this year.

These models will not be equivalent to the REHAB MODEL, as they are much simpler and a product is needed within the next 8 weeks. The models will focus on pipes from node to node, not manholes (although they will in the future), and not laterals. Two models will be built, one for Inspection and one for cleaning.

Vision for Success

This is how we see our contribution to this project being successful (adapted from the *Agile Manifesto*):

- Ensure early and continuous delivery of documented, valuable results that can be reviewed and evaluated against the requirements of the permit
- Work closely with Gary to develop the interim results so there are no surprises in 'The End'
- Use the documented results as the primary measure of progress
- Ensure continuous attention to technical excellence
- Welcome changing requirements from Gary, even late in the development of the work, as long as impacts to schedule, budget, and quality are clearly conveyed, understood, and approved by Gary

- Build projects around motivated individuals, giving them the support and environment they need, and trust them to get the job done, which will ensure that a sustainable work environment is maintained
- Support face-to-face conversation as the most efficient and effective method of conveying information to and within the team

Schedule for Phase 1

Key Activity	Lead	Description	Completion Date
Model Development and Analysis- Inspection	ASM	Needs based assessment based on risk	June 1, 2012
Model Development and Analysis - Cleaning	ASM	Needs based assessment based on risk	June 1, 2012
Alternative Development - Inspection	ASM	Simple adjustment of levers (example, change values for the asset tags)	August 31, 2012
Alternative Development - Cleaning	ASM	Simple adjustment of levers (example, change values for the asset tags)	August 31, 2012
Report Preparation – Inspection	Gary		December 1, 2012
Report Preparation - Cleaning	Gary		December 1, 2012

Stakeholders

Gary Irwin (end user of results), Gail Luthy (technical input), Joe Hoffman (rehab analysis coordination)

Project Team

Role	Name	Group
Sponsor	Gary Irwin	Maintenance
Project Manager	Mark Liebe	Asset Systems Management
Lead Developer	Arnel Mandilag	Asset Systems Management

Development Team	Mike Szwaya, Issac Gardner, Neil Revello, Kevin Ramey	Asset Systems Management
Technical Support	Gail Luthy	Maintenance
Documentation/ PM Support	Alicia Lanier	Asset Systems Management

Objectives

This is part of Phase 1 of a multi-phase project. The primary objectives of our work are as follows:

Develop a regularly updated **Inspection** Schedule/Map/List that minimizes overall risk, along with explanation for why inspection for any particular asset was ranked as it is. Keep it simple. Expect a yearly refresh, although initial updates will likely be frequent as the product is approved.

Develop a regularly updated **Cleaning** Schedule/Map/List that minimizes overall risk, along with explanation for why inspection for any particular asset was ranked as it is. Keep it simple. Expect a yearly refresh, although initial updates will likely be frequent as the product is approved.

Known Qualities of the Collection System Sewer Inspection and Cleaning Prioritization Models

- Two models : Inspection Model, Cleaning Model
- Intended users (people running the model): Asset Systems Management for near future (2-3 years)
- ASM maintenance of the model: Assume ASM for near future (2-3 years)
- User of end results: Gary (and Gail, and Joe to some extent)
- Expected output: Map, Schedule from each model, with pertinent data for each pipe; specifically for Gail, a table keyed with compkey to generate groups of projects. Table for Gail preferably in ACCESS.
- ASM is not intending to back feed into Hansen.
- Scale: Pipes from node to node only, manholes, NOT laterals
- Drivers: Tags for each asset that can be picked as the driver
- Each Pipe is dealt with atomically; there is no segmentation
- Each Pipe can be assigned one or more Drivers. A Driver has
    - A name

    - A frequency of occurrence (stated as a period of time)
    - A cost per occurrence
- While each Pipe can be assigned one or more Drivers, a pipe picks out only one of them to be the Critical Driver. At this time, this is the Driver with the shortest period
- All Pipes will have a Preventive Maintenance Driver assigned (for Inspections)
- When the model is applied, the model will be run to twice the longest period available in all possible Drivers. The first period acts as a hot start; the actual usable data is the second period.
- The Inspection and Cleaning models are run independently of each other. [There is a sequence that is typically used, for example, cleaning before inspection. But this sequence may not be required.]
- The model will need to support alternatives analysis
    - Comparison routines
    - Archiving routines
- Seed data is expected to come from Hansen workorders and Gail's knowledge
- Results for the 1st phase will be used for a total needs assessment
- Results for subsequent phases will be leveled using a budget cap (one for inspection, one for cleaning)
- Pilot Models – should cover two basins with different schedules.

Definitions

The following definitions are intended as working project definitions and are not intended to be used in permit documents.

Inspection: An event in which data about the current condition of an asset is recorded.

Cleaning: An event to restore function, facilitate inspection, or respond to a problem associated with an asset.

Inspection Driver: A reason to incite an inspection. It has a category, a frequency of occurrence, and a cost per event. An inspection driver can be attached as an asset tag. *[Drivers are tags]*

Asset Tag: *[use Driver]* To be further determined in a workshop with Gail; likely be PM driver, Fats/Oil/Grease hot spots, watch me pipes, large diameter pipes. Each tag will have an associated frequency and cost. Each asset will have one or more asset tags assigned.

Levels of Service: Frequency of (inspection or cleaning) on tag

Performance Measures: Specifically, these are the SSO's [no SSO's?, no basement flooding]

Consequences of Failure: Use the economic figure available from REHAB for SSO's

Likelihood of Failure: See Gary's chart. This is the probability that an event will be triggered, and can be calculated with a yet-to-be-developed formula that incorporates operational data as well as estimated remaining useful life.

Product Backlog:

Management Process

Agile with SCRUM framework has been used successfully in many software development projects. For it to work at BES, we need to have 100% of the resources during the Sprints. At each sprint, we can determine whether a resource will be needed that week, but attendance is required for each weekly sprint review.

Gary is the Product Owner. Mark is the SCRUM Master. Everyone else is the DEVELOPMENT TEAM.

Communication and management will be facilitated by the following:

SPRINT – time-boxed burst of activity that marks a "mini-phase" of development. Though these can be up to 30 days in duration, for the tight time frame of this project, they will be between 1-2 weeks in duration.

SPRINT Planning Meeting – Longer meeting (up to 1 hour) at the beginning of each SPRINT. It consists of two parts:

- What will be delivered in the Increment resulting from the upcoming Sprint?
- How will the work needed to deliver the Increment be achieved?

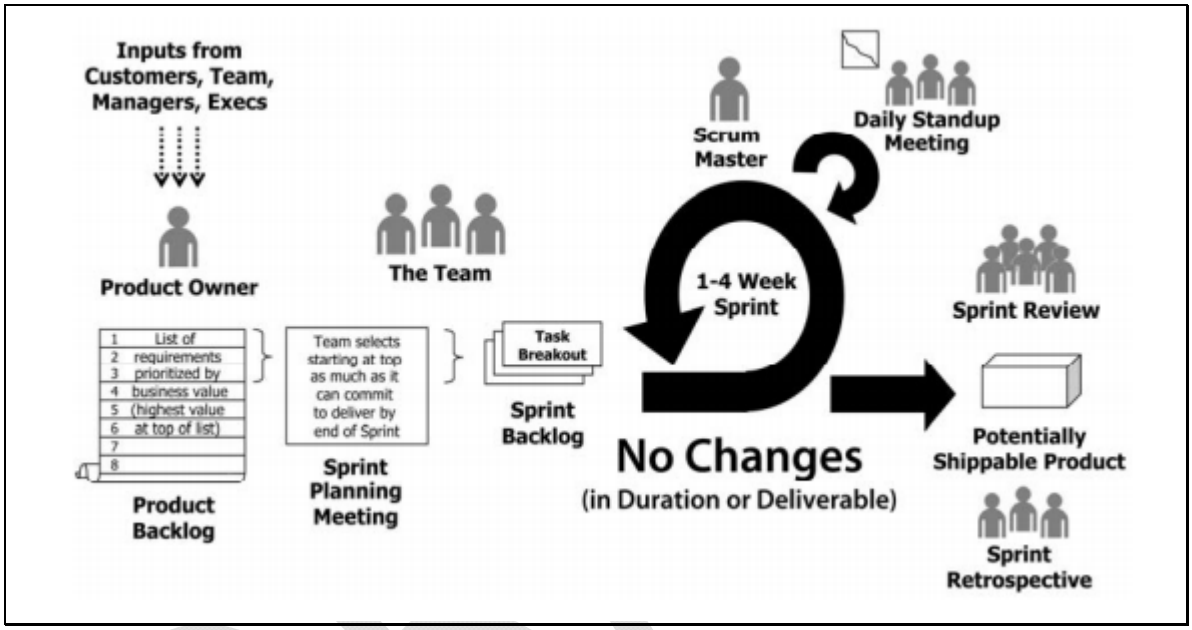
Daily SCRUM – short meeting (15 minutes) for the DEVELOPMENT team and Mark. It is meant to deal with:

- What has been accomplished since the last Daily SCRUM?
- What will be done before the next Daily SCRUM?
- What obstacles are in the way?

SPRINT Review Meeting –

- The Product Owner identifies (from the DEV TEAMS report) what has been "Done" and what has not been "Done";
- The Development Team discusses what went well during the Sprint, what problems it ran into, and how those problems were solved;

- The Development Team demonstrates the work that it has “Done” and answers questions about the Increment;
- The Product Owner discusses the Product Backlog as it stands. He or she projects likely completion dates based on progress to date; and,
- The entire group collaborates on what to do next, so that the Sprint Review provides valuable input to subsequent Sprint Planning Meetings.



Project Directory

To be determined (somewhere on \\Cassio\System_Planning

Document Templates

To be determined

File Naming Conventions

All files shall have a meaningful enough label to differentiate it from other documents. Most should include a date stamp (YYYYMMDD) for versioning sake (ie. Meetingnotes_20120405.doc