AVOKA

Connect – Engage – Improve

Solution Design

Energy Australia

Safety Inspection SmartForm

Version 1.0

Commercial-in-Confidence

This document is presented to the company/organization referred to on the cover of this document (henceforth referred to as The Client). The information furnished within this document shall not be disclosed to anyone other than persons within The Client and third parties retained by The Client and directly related to the services described in this document. This information shall not be duplicated or used in whole or in part for any other purpose.

Copyright

Table of Contents

1 Introduction

This document is intended to provide a design narrative for the development of the Safety Inspection SmartForm to be used on EA tablet PCs, and the recommendations for a work flow for subsequent phases of the form.

1.1 Background

Avoka technologies have been approached by Energy Australia to develop the Safety Inspection SmartForm. This form is important for compliance within EA and it is imperative that EA ensure they are receiving timely and accurate information on any safety deficiencies identified in current contracts. This information assists in accountability and supports the overall safety of the EA workplace in the field.

1.2 Business Aims and Benefits

There are a number of key benefits anticipated in converting the current forms into SmartForm technology.

Namely:

- Reduced time to collect information
- Reduced error rates in data collection
- The ability to incorporate workflows into the solution to route information to EA personnel and external contractors enabling effective collaboration on safety issues
- Engagement with and accountability for EA contractors

2 Solution Design

2.1 High Level Overview

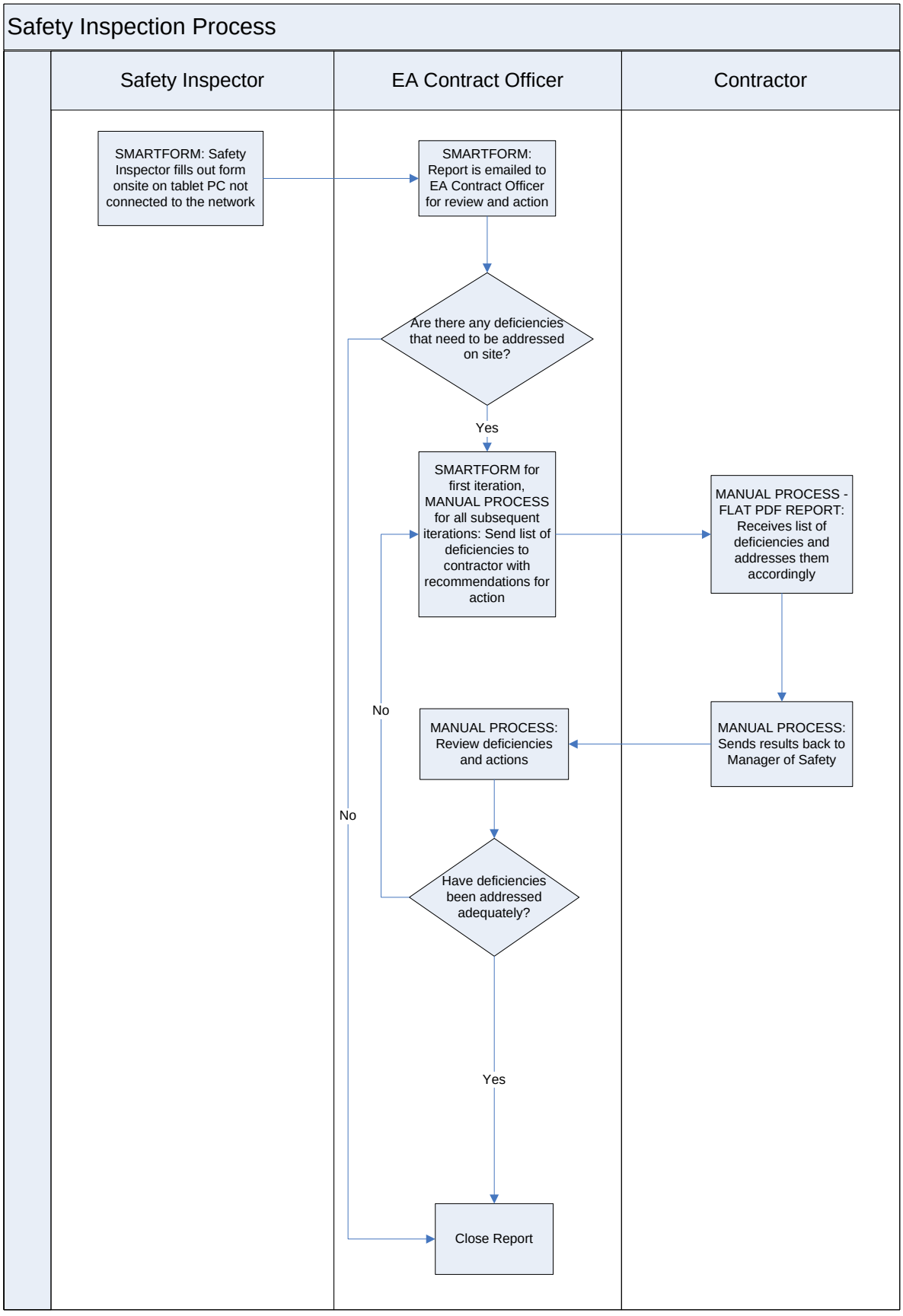


Figure 1. Workflow Overview Diagram

2.2 Adobe LiveCycle ES2

Adobe LiveCycle is not required for this solution as this has been designed as a stand alone form. LiveCycle can assist with the Safety Inspection process by providing a workflow to manage the exchange of recommendations and actions between EA and external contractors. It would be possible to implement a workflow at a later stage if this is deemed to be of benefit to EA.

2.2.1 LiveCycle ES2 Components

Component	Description	Required
Foundation ES2	Provides an engine for executing short-lived orchestrations and a graphical authoring environment (Workbench ES2) complete with a comprehensive set of orchestration components.	Not Required
Forms ES2	Enables rendering and data pre-population of Adobe forms in either PDF, HTML or Flash (Form Guides).	Not Required
Output ES2	Enables the generation of 'flattened' (non-editable) PDF/A documents to serve as a receipt or 'document of record'.	Not Required
Process Management ES2	Extends Foundation ES2 to provide capabilities for user interaction with business processes and 'long-lived' processes that are persistent and recoverable.	Not Required
Workspace	Provides a Flex (Flash) interface for users to interact with LiveCycle processes that utilise the Process Management component	Not Required
Reader Extensions	Required when you wish to call a Web Service from a PDF form or save a copy of your PDF form locally without losing your entered data.	Required
Rights Management ES2	Allows you to secure a document by requiring that a user identify themselves with a remote server before obtaining access.	Not Required
Digital Signatures ES2	Enables the creation of automated workflows involving electronic signatures.	Not Required
PDF Generator ES2	Enables you to automate the creation, assembly, distribution, and archival of PDF documents.	Not Required
Data Services ES2	A server-side framework that allows you to more easily connect Flex and AIR applications into your enterprise.	Not Required
Mosaic ES2	A framework for building personalised (tile-based) flex portals.	Not Required
Collaboration Service	Enables multi-user, real-time collaboration features such as text chat, white boarding, video and VoIP.	Not Required
Connectors for ECM	Helps facilitate integration with industry-leading enterprise content management (ECM) systems.	Not Required
Content Services ES2	Provides a set of services for content management, integration of content with business processes, content reviews, and archiving.	Not Required
Business Activity Monitoring ES2	A multi-dimensional data warehouse for LiveCycle Process Management data.	Not Required

3 Usage Model

3.1 User Groups (Actors)

3.1.1 Safety Inspectors

Safety inspectors are internal EA users who will use the SmartForm to capture data about the safety deficiencies and training currencies of personnel on EA worksites. These users will utilise EA tablet PCs to enter the data into the form, and then email the data once on site at EA offices to the EA Contract Officer.

3.1.1 EA Contract Officer

The EA contract officer will review submissions and make recommendations based on the deficiencies discovered by the Safety Inspector. The results from this review will be emailed with an attached PDF to the identified external contractor.

3.1.2 External Contractors

External contractors will receive a read only version of the form data collected, including the recommendations from the EA Contract Officer. There will be a section within the form where the contractor can comment on the actions taken to address the deficiencies. The contractor then submits the data to a web service and to the EA Contract Officer for further review, or closure of the issues.

4 Form Design

4.1 Target Platform

The SmartForm component of this project will be designed as a PDF SmartForm. This allows for portability, ease of use and effective instigation of workflow processes. The form will be used both offline on a tablet PC, and online on a desktop or laptop during the Recommendations and Review phases. The form will need to support the EA tablet PCs for both functionally and design to ensure ease of data capture by the onsite inspectors.

4.1.1 Minimum Software Requirements

The minimum software requirements will be Adobe Reader 9 or later and an email client such as Microsoft Outlook in order to submit results.

4.2 Form Structure

The form will be designed as a Wizard form for data capture, with the ability to transform the report page upon printing to a portrait A4 page.

4.2.1 Wizard Steps

The basis for design is as per the information provided to Avoka during the workshop on Tuesday 6th of December, 2010 and from information passed to Avoka on Thursday the 9th December 2010. The following table identifies each step in the wizard-style form interface:

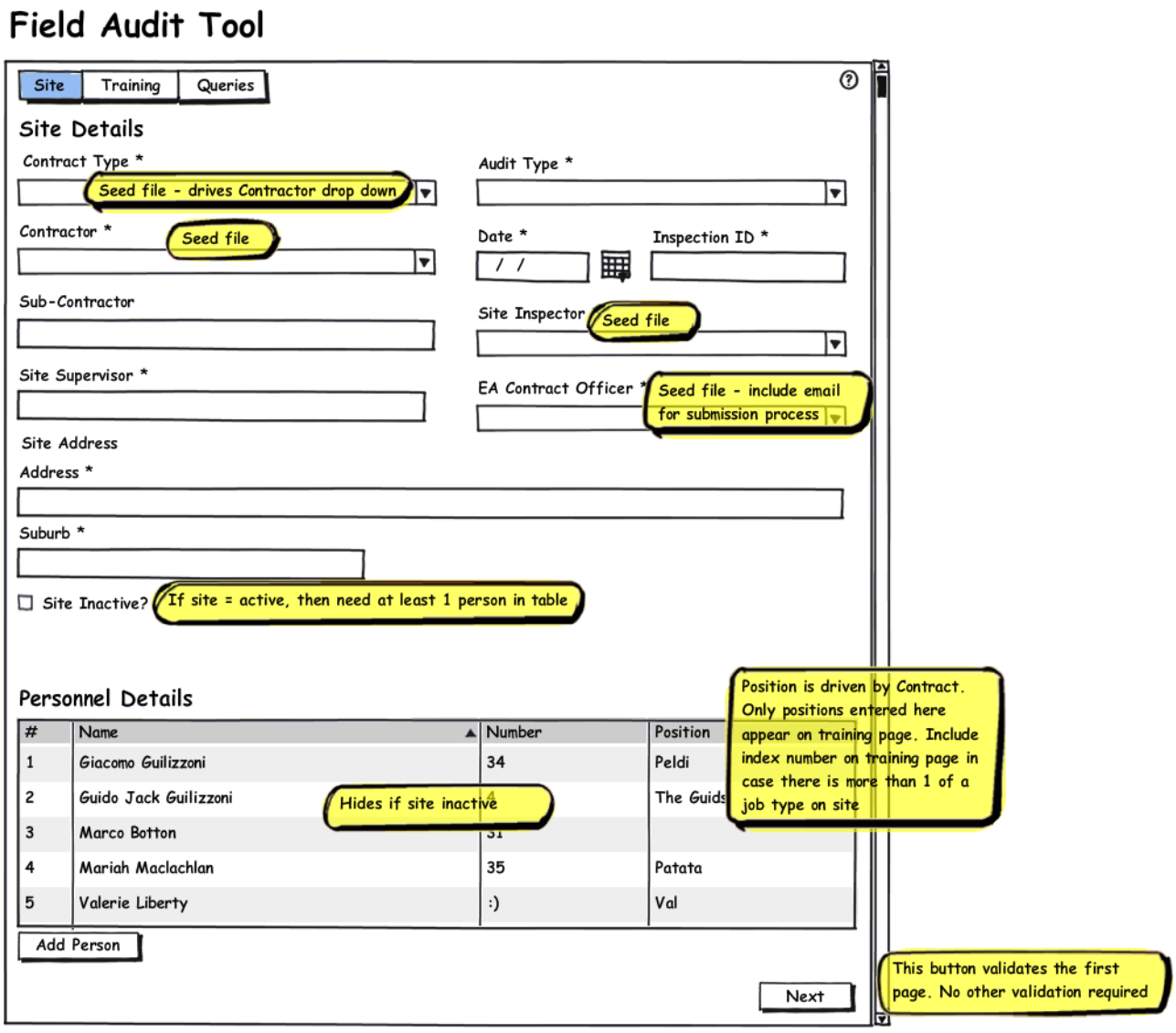
Step #	Step Title	Description
1	Site Details	This is a mandatory step that captures the information such as site address, contractor on site, internal EA employee details, date when the site was inspected and a unique number to identify the report
2	Training Currencies	This page will only appear if the site is marked as active on the Site Details page. This page is designed to audit the training currencies of the contracted personnel on site depending on the type of contract selected in the Site Details page. There are a total of 8 different ways this page could be displayed, all driven from the site details page.
3	Queries	This is where the inspector will record all identified deficiencies on site using a list of checkboxes to identify only the active deficiencies. This page can be displayed in 8 different ways and this is also driven from the contract type selected on the Site Details page, as well as the Type of Inspection field on the Site Details page. This page will also provide the ability to attach images taken on site of the deficiencies. This page will include a submit button that will email the information to the EA Contract Officer.
4	Report and Recommendations	The report page is a listing of those deficiencies identified in the Queries page. This page will be generated once the safety inspector has clicked on “Generate Report”. When the safety inspector clicks on “Submit Report”, it will email to the EA Contract Officer. The EA Contract Officer will open the submitted form and it will default to display the report page. A text area will display at the end of the list of identified deficiencies, where the

		EA Contract Officer will enter in the actions required the issues. Once all recommendations for action are entered, the EA Contract Officer will submit the form via email to the Contractor. From this point forward, the process will be a STATIC PDF and a text area where the contractor can write their plans will be displayed.

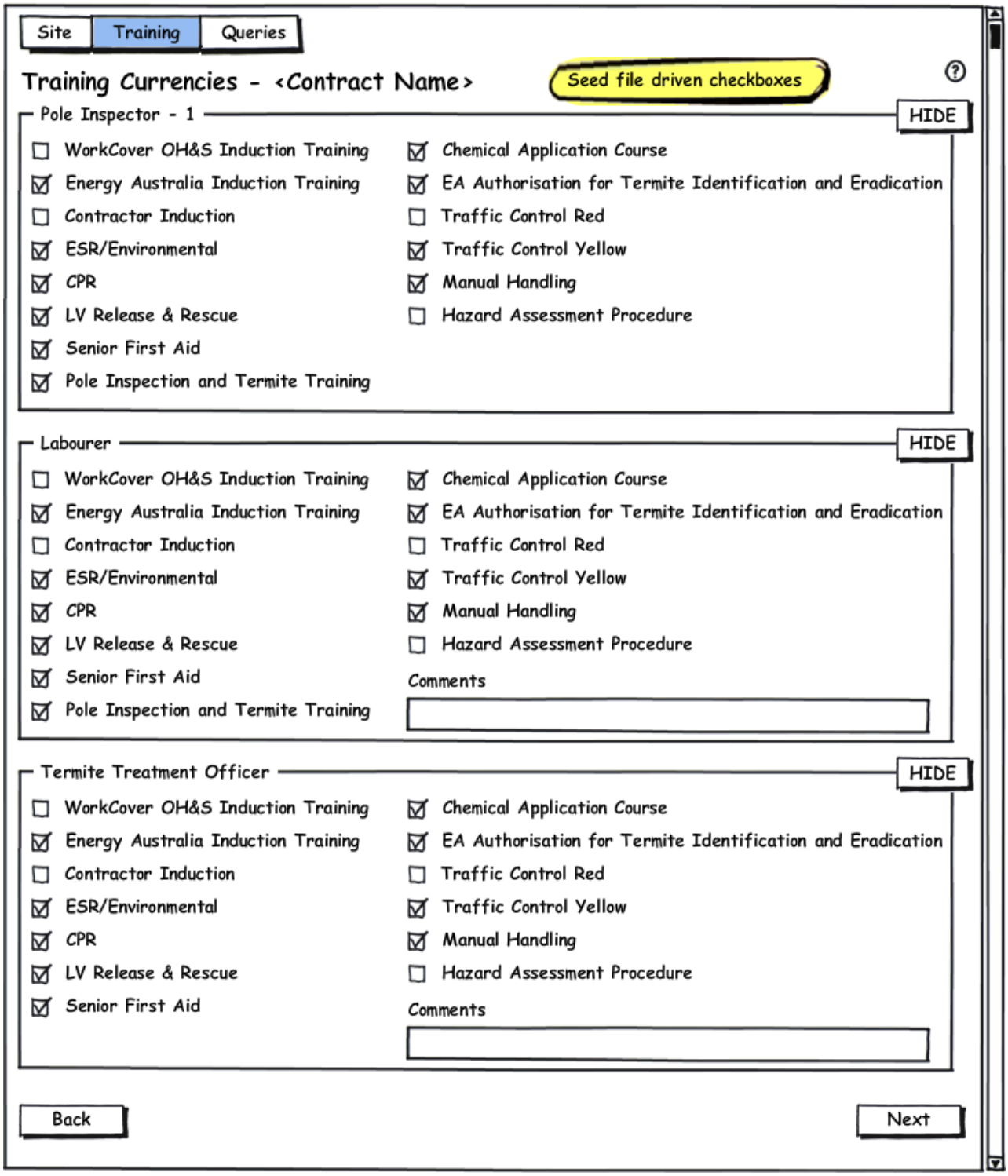
4.2.2 Progress Indicator

A progress indicator will be displayed to the user at the top of each page. This progress indicator will demonstrate to the EA safety inspector how far through the form they are. The progress indicator will represent the name of each page and will be highlighted depending on the current page.

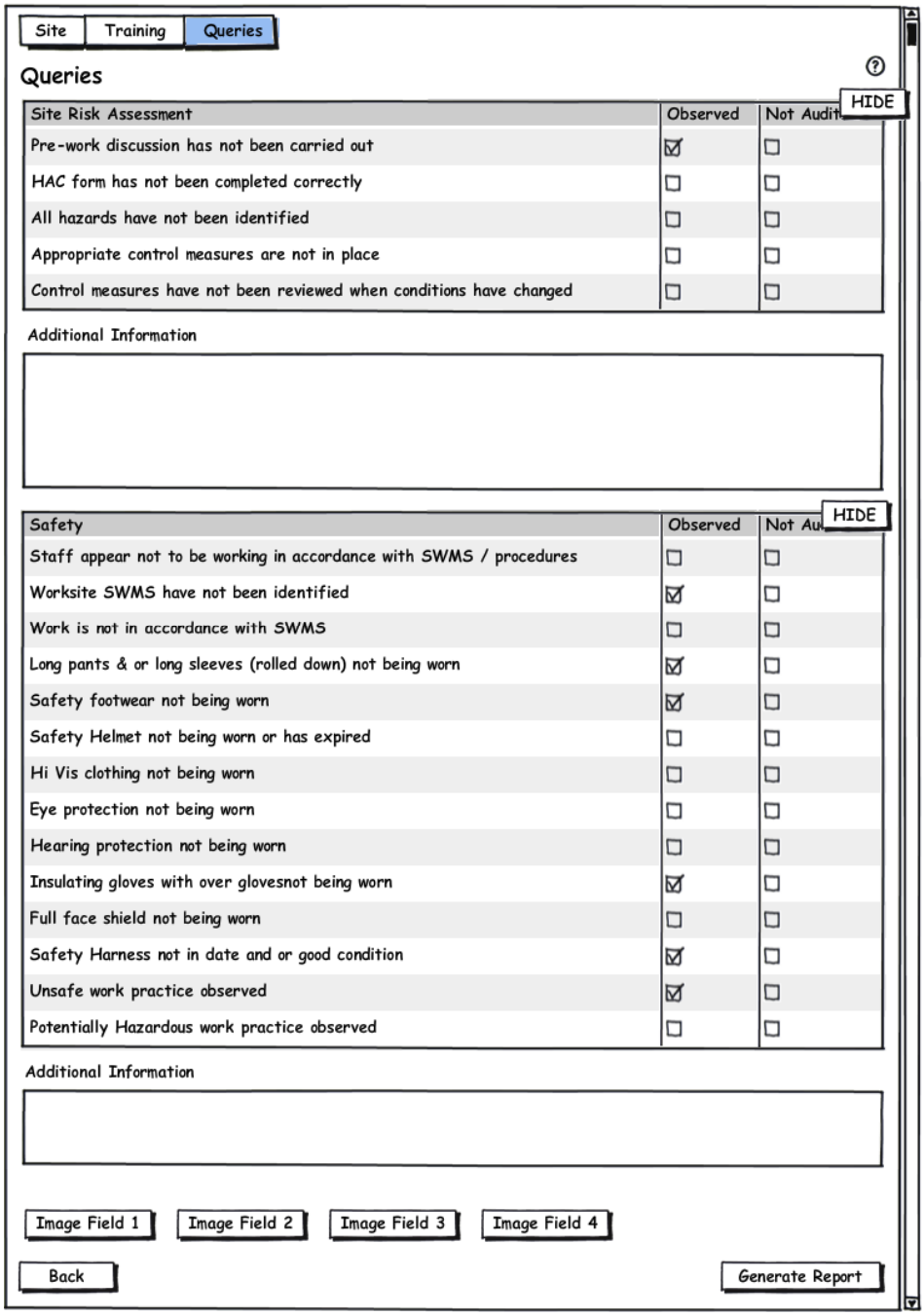
4.3 Form Wireframes



Field Audit Tool

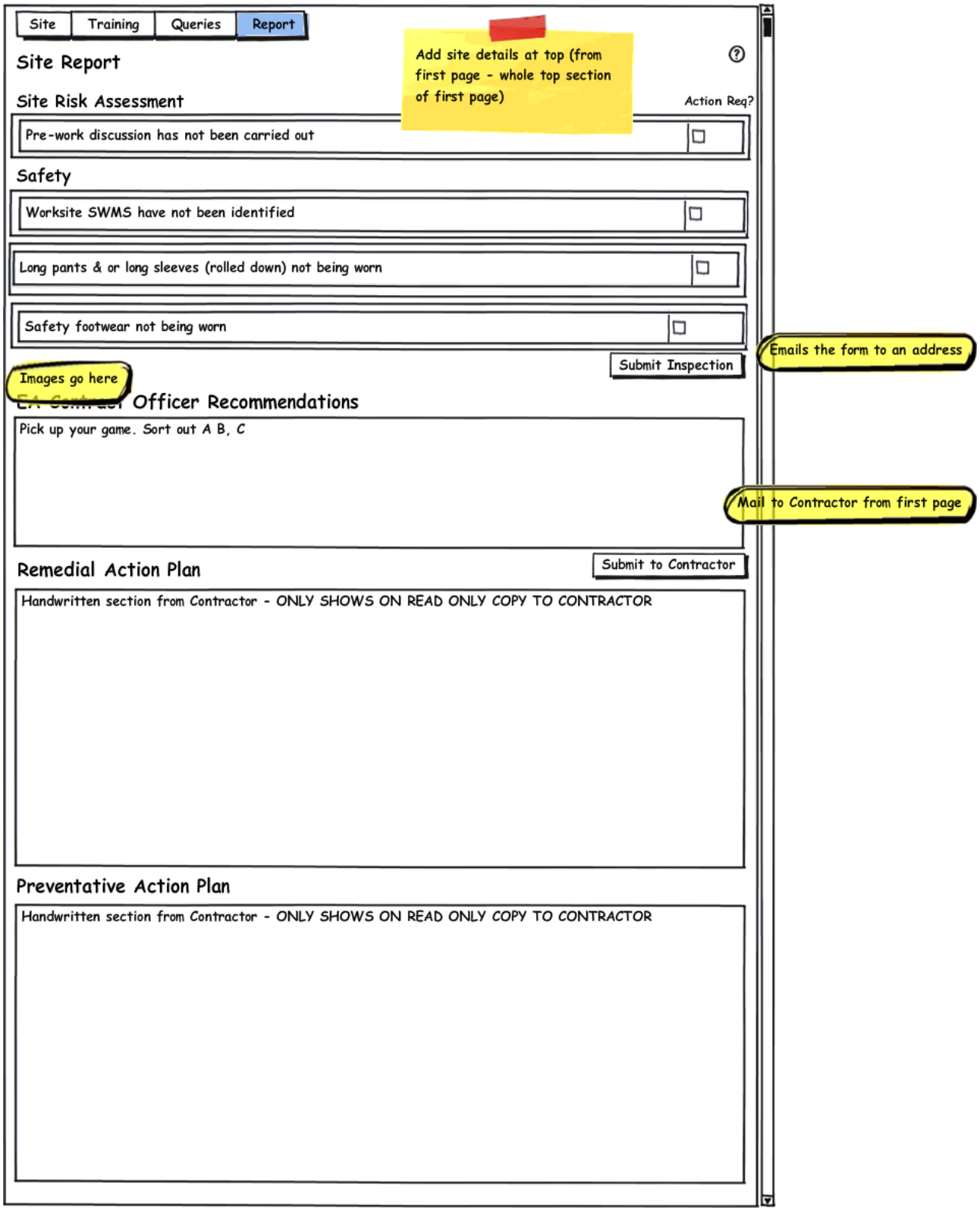


Field Audit Tool



This is based on the "Baseline Audit". All collapsed by default

Field Audit Tool



4.4 Field Level Definitions

Field definitions will be determined during detailed requirements gathering meetings once the project is approved and started. Definitions will be collected using the Avoka Field Specification document and delivered to developers to be used as a guide during development.

4.5 Validation Errors

4.5.1 Field-Level Validation Errors

Field-level validation errors are presented immediately upon exiting a field if the value entered into the field does not satisfy the field's validation requirements. These errors will be presented as a dialog guiding the user to read the error and then click ok in order to go back to the form and rectify the issue.

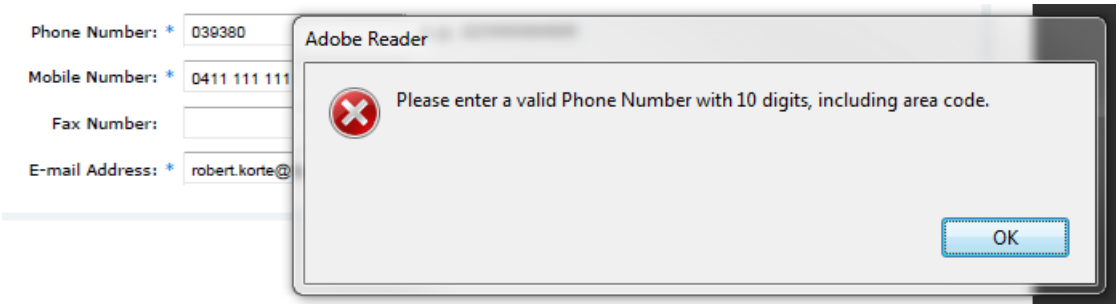


Figure 2. Field-level validation errors

4.5.2 Page Validation Errors

Page-level validation errors are presented upon page submit. In these scenarios there may be more than one error to display. In addition to errors relating to failure to satisfy the field validation requirements, there may also be errors relating to incomplete mandatory information.

These errors will be presented as a list on the “Errors” page at the end of the form. This page will only appear if there are field errors in the form when the “Next” button on the “Site Details” page or the “Submit” button on the report page is clicked.

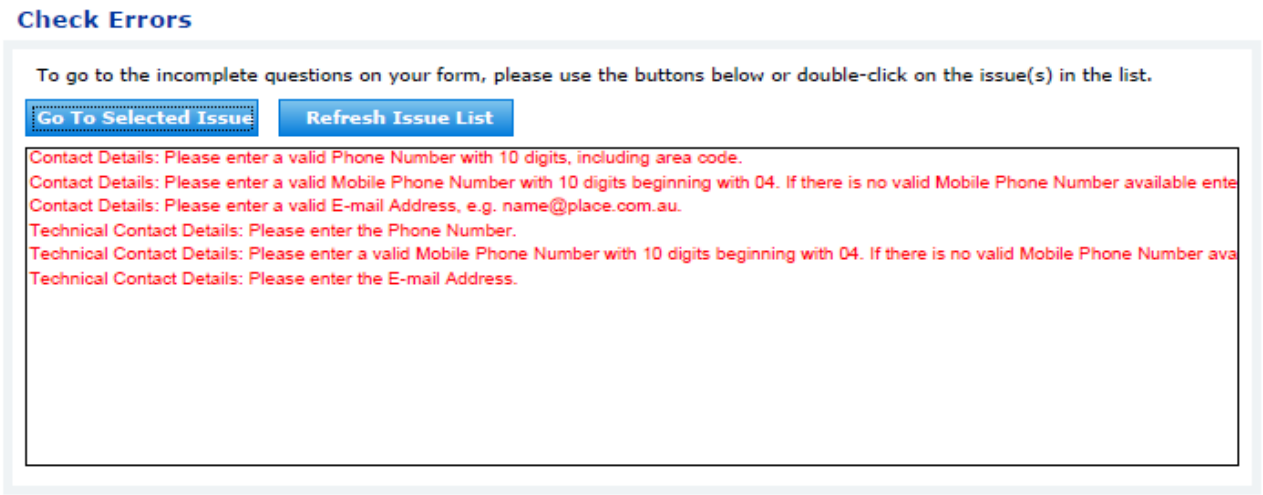


Figure 3. Page-level validation errors

In addition to the errors list, each field in error will be highlighted in red making it easy to visually identify where the issues are preventing the submission of the data.

4.6 Form Data Pre-Population

There is a requirement to develop a seed file to feed in the drop down menus for “Contracts”, “Contractor” and “EA Contract Officer” including their email addresses for submission tasks.

4.7 Submission Method(s)

The data will be submitted via email only. This will include the PDF and the xml for data extraction. Once the on site technician clicks on “Submit Report” the form will be emailed to the EA Contract Officer for review. The report page will be generated once this occurs ready for review by the EA Contract Officer. When the EA Contract Officer opens the attachment in the email, the report page will be shown by default. Once satisfied with the report and recommendations, the EA Contract Officer will generate a read only copy of the report page which will be emailed to the Contractor.

Further Development Options

In a possible subsequent phase of the form, after all form validation has been passed, the form data could be emailed to a LiveCycle process which will notify the EA Contract officer that a safety inspection form has been received. The EA Contract Officer will review the submission, either as an attachment to an email, or by logging in to LiveCycle Workspace. Recommendations will be entered and the “Submit” button clicked. Once this occurs, an email will be sent to the identified external contractor, including a dynamic PDF as an attachment to the email. The external contractor can then respond to the issues, click on a button and send the response back to the EA Contract officer. If the EA contract officer is satisfied, they can close the issue, if not, they can send the issue back to the Contractor for further review including another set of comments. This process can continue for as long as required until the deficiencies have been cleared up. This process would involve a separate workflow quotation if deemed a suitable alternative solution.

4.8 PDF Receipting

No receipting will be required for this form as the form is constantly updated as the process moves forward. If the audit is deemed to be closed, then there will be instructions included detailing where and how to archive the form.

4.9 Printing Support

Printing will be limited to the report, recommendations and responses pages only and will be in portrait format. The data capture part of the form (Site Details, Training Currencies and Queries pages) will not be included in the hard copy.

4.10 Advanced Features

4.10.1 Embedded File Attachments

It has been highlighted that images need to be attached to this form onsite. These images together with the form must total less than 5MB to ensure they can be emailed around effectively. Due to the requirement for the images to be displayed on the form, “image fields” will be used.

Images uploaded using an “image field” cannot be downloaded from the form and saved as a separate file. Also, it is not possible to programmatically force the image fields to open up on a particular folder every time. Further research will be undertaken on this to determine what the settings are for the browse functionality in image fields once the project is underway.

Best attempts will be made to manage the size of the form using image fields where required. Management of the file size will occur upon email submit to the EA Contract Officer. The form will be limited as the total file size will be an estimate based on the known PDF size and the approximate size of the first image attached. The PDF will WARN the user only if the file is estimated to be over 5MB. The user can then go to the file system or email client and verify.

5 UI Design Principles & Guidelines

5.1 Styles & Themes

The form will be designed with colours, logos and fonts the same as the EA IDO forms or the EA Mobile Inspection form. These include:

The EA Logo - EnergyAustralia

EA Form Colours - R=253, G=184, B=18

Help Icon - 

Sample Button - Submit

5.2 Accessibility

Best Practices will be utilized but no formal testing performed.

6 Assumptions

1. Avoka will be given remote access to any on-site deployment environments. No on-site work will be required of Avoka staff.
2. Avoka retains the intellectual property for all licensed products.
3. The tablet PC keyboard will be accessible from a shortcut button on the tablet PC
4. Printing requirements are limited to the report and Actions pages only and will be in portrait format
5. “Administrators” of the form will possess enough technical ability in order to modify a seed file and re-seed the form if drop downs change in the future
6. Submission of the form will be as PDF and xml files attached to an email.
7. Once the file is emailed as read only to the Contractor, there will be no ability for anyone to “re-open” the SmartForm capabilities of the particular file in question. A new file would need to be created.
8. The SmartForms will be tested on the last release of Adobe Reader 8 and 9. In addition, the forms will present a warning message if the user attempts to open the forms in earlier versions of Reader. This message will consist of specific text supplied by DIIRD. Note that very early versions of Reader do not support JavaScript, and may not produce any message at all – however they will probably also not render the form correctly.

7 Document Control

7.1 Contact Details

If you have any queries relating to this document please contact the following document controller(s):

Name	Organisation	Phone	Email
Fiona Mathews	Avoka Technologies	0408 961 838	fmathews@avoka.com

7.2 Revision History

Version	Date	Author	Notes
0.1	14/12/2010	Fiona Mathews	Created
0.2	15/12/2010	Fiona Mathews	Revised
0.3	15/12/2010	Fiona Mathews	Final
1.1	21/12/2010	Fiona Mathews	Final with review from client