



MATERIALS MANAGEMENT SYSTEM (MMS) USER'S GUIDE

Version 1.1

**STATE HIGHWAY ADMINISTRATION
STATE OF MARYLAND**

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1 Overview

1.1 Material Management System (MMS) Goals

The implementation of a single electronic MMS has the following mission critical goals:

- Manage the materials quality process throughout the construction project life cycle; this should include support for materials quality activities in traditional design-bid-build construction contracts, as well as design-build and other innovative contracting methods;
- Allow information sharing and knowledge transfer among key SHA stakeholders;
- Allow one-stop data entry and status reporting on progress against material quality goals;
- Provide construction project managers with a notification of potential materials discrepancies as part of the preparation of construction contractor progress estimates;
- Provide documentation of materials clearance compliance for FHWA certification;
- Allow lab managers to track the status and costs of testing within a given Technical Material Division;
- Automate the allocation of testing costs to the various projects;
- Identify sources and materials used on projects through a referencing system to allow for easier access to materials information during construction and ongoing maintenance of the asset; and
- Support capture of data from testing performed by construction contractors, and facilitate the comparison of this test data with SHA quality assurance test results.

1.2 MMS Benefits

The benefits that MMS create for SHA are:

- The central storage and retrieval of common data elements, reduction of data entry errors caused by re-entry of data fields;
- Assurance of real-time data updates, elimination of the need for smaller systems and associated integrations;
- The provision of more robust reporting tools;
- Allowance for easily accessible data and the provision of more robust tools to aid in the management of this complex information set;
- Automation by reducing the amount of paperwork involved and the amount of time taken to transmit information between materials sections as well as between OMT and construction project sites;
- Standardization by contributing to a workforce which is both more interchangeable between projects or districts or between materials sections and a workforce which is more accountable;
- Integration of MMS with existing software applications across SHA;
- Accurate and efficient materials management process;
- Accountability by keeping an audit trail of all changes to the test results, as well as maintaining a record of the entering of test results;
- Support implementation of a knowledge-based system;
- Prevent system obsolescence; and
- Reduction of overhead created by multiple systems and lower training and maintenance costs for large numbers of smaller disparate systems.

2 Login to Material Management System

2.1 Internal User Login

The internal login procedure is applicable only if the user has a valid username and password within the SHA network, and occurs within the SHA intranet as opposed to the internet. For such users, authentication is executed automatically in the background and does not require entry of a user name and password. To access the system internally, type the following URL on a web browser: http://shahanweb2/mms/MMSBrowser_BC.aspx

After a successful login, users can simply create a shortcut of the application to avoid having to type in the intranet address every time. The MMS Welcome screen is displayed after a successful login (see **Figure 1**).




Figure 1. MMS Welcome Screen

2.2 External User Login

External user login into the MMS requires use of a user name (the user's full email address) and a password. This happens when users access the system via the internet.

To login to the Material Management System externally (via the internet), perform the following steps:

1. Go to <http://mms.sha.md.gov> on a web browser. Users will be required to enter their user name and password on the login screen. It is recommended that users write down and keep their password in a safe, readily accessible location.
2. Type in your user name. Your user name is your email address.
3. Enter your password and click .

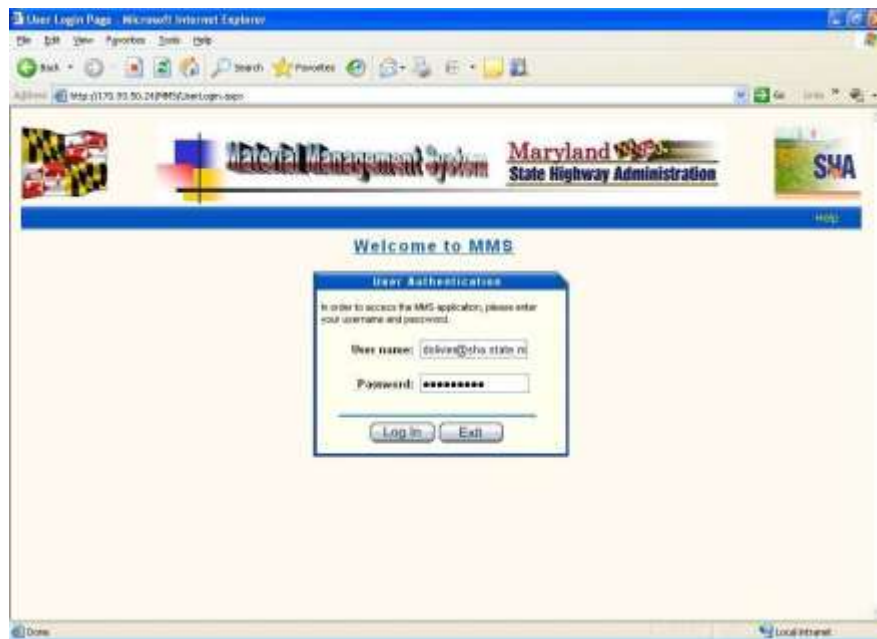


Figure 2. MMS Login Screen

4. If you enter an incorrect user name or password, the following screen is displayed:



Figure 3. Username/Password Do Not Match Screen

5. Contact your MMS administrator if you forgot your password and need to change it.

External User Login (cont'd)

6. After initial login, users are prompted to change their passwords. The following prompt screen is displayed:



Figure 4. Password Administration Change Password Prompt Screen

7. To change your password, you must include the following password criteria:
 - a. Minimum of eight (8) characters long;
 - b. At least one capital letter;
 - c. At least one number;
 - d. At least one special character (#, @, !, ~, etc.).

3 Material Products Application

The Material Products application enables users to define specific material products that are used on state projects. This tool describes materials that are produced and sold to the state for use on highway projects. Specific OMT users can enter, update and validate product information and submit their specific product information.

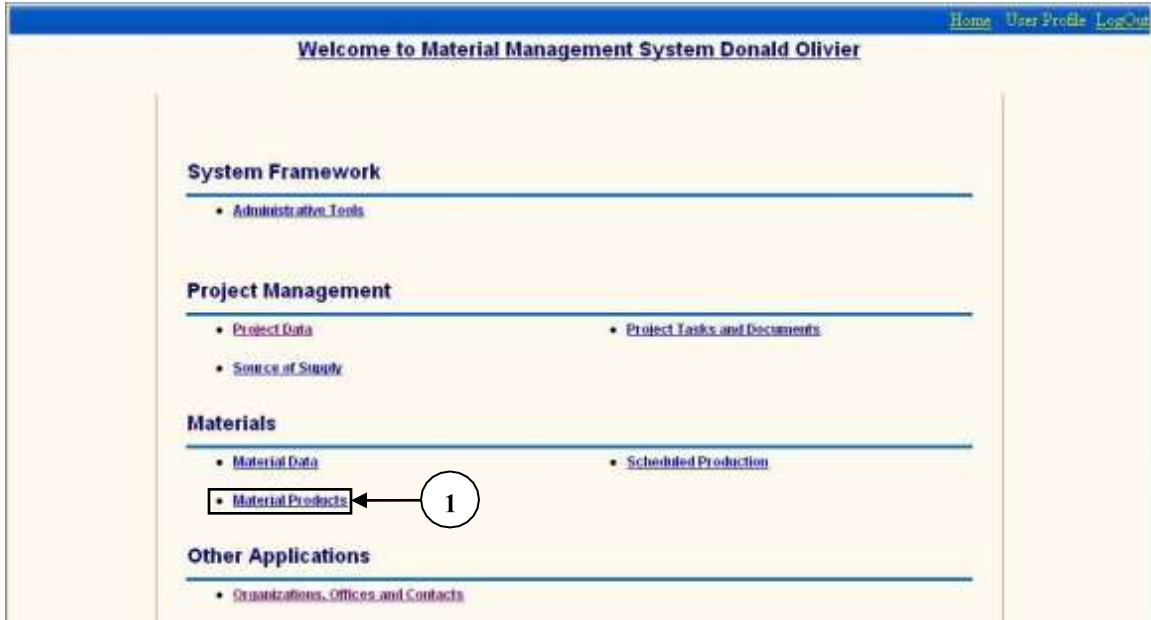


Figure 5. Click on Material Products Link

Number	Description
1	Material Products Link: From the MMS Welcome screen, click on the Material Products link to open the Search for Material Products screen (see Figure 6).

3.1 Search for Material Products

The screenshot shows a web interface for searching material products. At the top, there are tabs for 'Search' and 'General'. Below the tabs, there are two input fields: 'Product ID:' with a text box and 'Material Category:' with a drop-down menu. To the right of these fields is a radio button group with five options: 'All Numbers' (selected), 'Under Review', 'Active', 'Expired', and 'Rejected'. At the bottom of the form are two buttons: 'Search Products' and 'Clear'. Four numbered callouts are present: '1' points to the 'Product ID' text box, '2' points to the 'Material Category' drop-down menu, '3' points to the radio button group, and '4' points to the 'Clear' button.

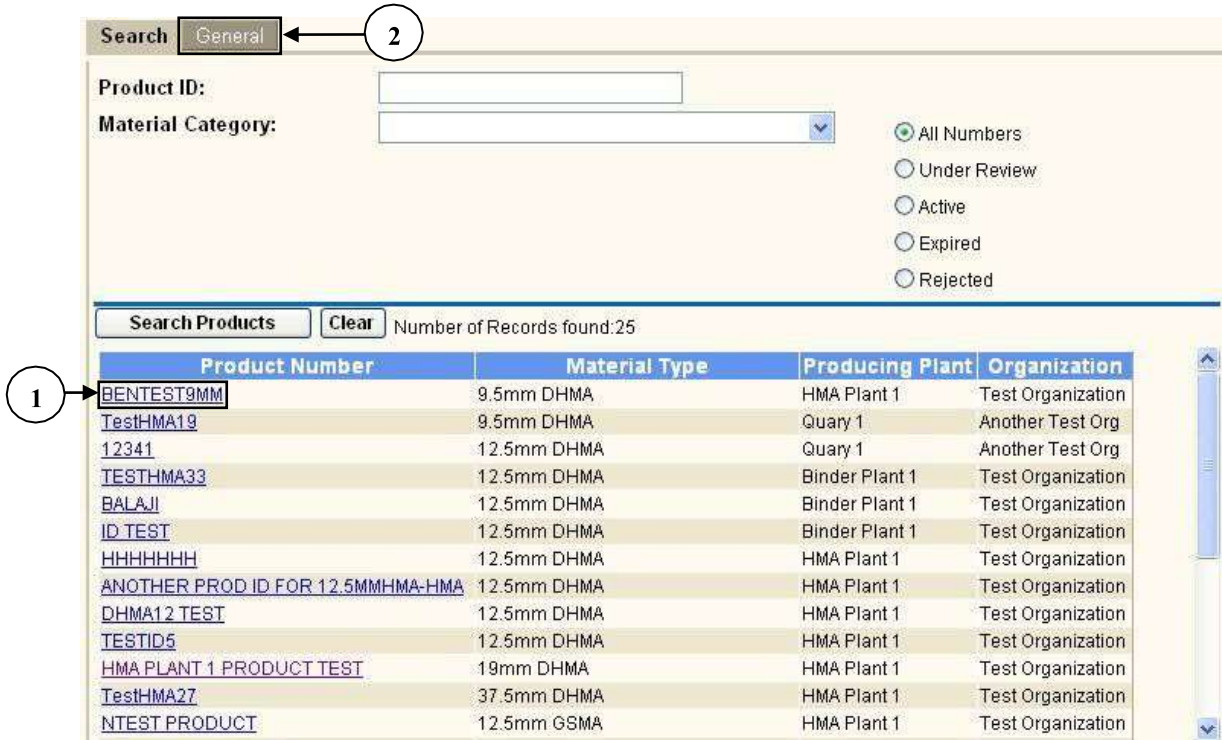
Figure 6. Search for Material Products

To search for material products, perform the following steps:

1. To search for a particular product, enter the Product ID in the “Product ID” field.
2. Click on the “Material Category” drop-down box and select a material category. The “Material Category” drop-down displays the type of material the product is satisfying. This list is populated with sourced level materials only.
3. To search for materials for a current project, check the Materials for Project checkbox and click the appropriate radio button selection. Choices are “All Numbers,” “Under Review,” “Active,” or “Expired.”
4. Click the **Search Products** button to perform a search of a material product or **Clear** to clear the screen. The results of the search are displayed (see **Figure 7**).

TIP: The quickest way to search for all material products is by clicking on the **Search Products** button after the default blank screen is displayed.

3.2 View Material Products Details



Search **General** ← 2

Product ID:

Material Category:

All Numbers
 Under Review
 Active
 Expired
 Rejected

Search Products Clear Number of Records found: 25

Product Number	Material Type	Producing Plant	Organization
BENTEST9MM	9.5mm DHMA	HMA Plant 1	Test Organization
TestHMA19	9.5mm DHMA	Quary 1	Another Test Org
12341	12.5mm DHMA	Quary 1	Another Test Org
TESTHMA33	12.5mm DHMA	Binder Plant 1	Test Organization
BALAJI	12.5mm DHMA	Binder Plant 1	Test Organization
ID TEST	12.5mm DHMA	Binder Plant 1	Test Organization
HHHHHHH	12.5mm DHMA	HMA Plant 1	Test Organization
ANOTHER PROD ID FOR 12.5MMHMA-HMA	12.5mm DHMA	HMA Plant 1	Test Organization
DHMA12 TEST	12.5mm DHMA	HMA Plant 1	Test Organization
TESTID5	12.5mm DHMA	HMA Plant 1	Test Organization
HMA PLANT 1 PRODUCT TEST	19mm DHMA	HMA Plant 1	Test Organization
TestHMA27	37.5mm DHMA	HMA Plant 1	Test Organization
NTEST PRODUCT	12.5mm GSMA	HMA Plant 1	Test Organization

Figure 7. View Material Products Details

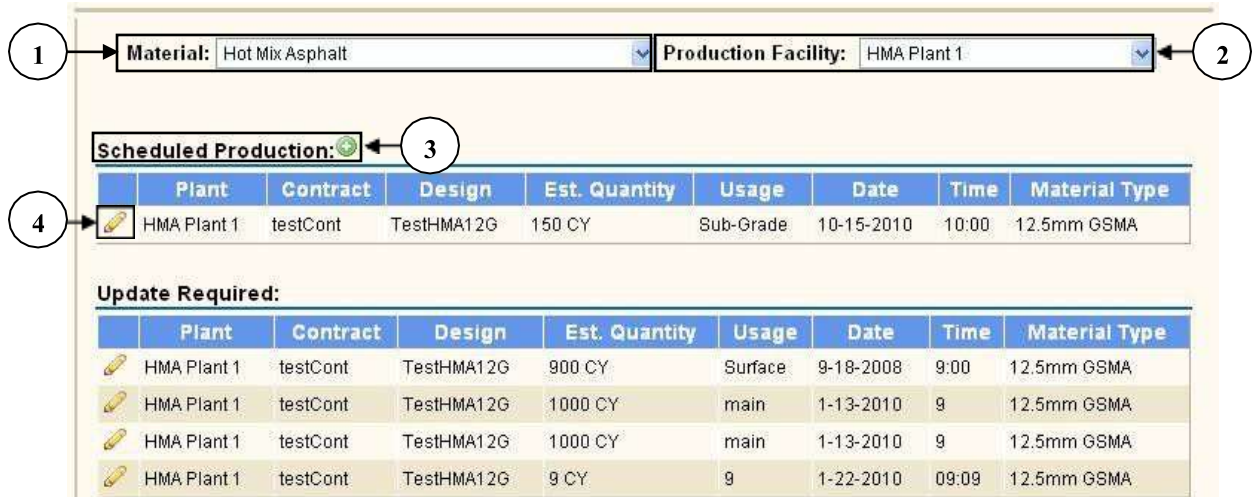
To search for a material product, perform the following steps:

1. Click on the Material Product link to view details of the product.
2. To enter a new material product, click on the “General” tab after clearing Search results via the **Clear** button. This will open up a blank form in the “General” tab (see **Error! Reference source not found.**).

4 Scheduled Production Application

The Scheduled Production application is a tool that enables all MMS users to see what materials are being shipped to what projects. Production-specific users can utilize this tool to enter their estimated production as well as report the actual quantities that they produced. Contract-specific users will be able to verify that the materials that they expect are on their way.

4.1 Update a Scheduled Production Report



Scheduled Production:



Plant	Contract	Design	Est. Quantity	Usage	Date	Time	Material Type
HMA Plant 1	testCont	TestHMA12G	150 CY	Sub-Grade	10-15-2010	10:00	12.5mm GSMA

Update Required:

Plant	Contract	Design	Est. Quantity	Usage	Date	Time	Material Type
HMA Plant 1	testCont	TestHMA12G	900 CY	Surface	9-18-2008	9:00	12.5mm GSMA
HMA Plant 1	testCont	TestHMA12G	1000 CY	main	1-13-2010	9	12.5mm GSMA
HMA Plant 1	testCont	TestHMA12G	1000 CY	main	1-13-2010	9	12.5mm GSMA
HMA Plant 1	testCont	TestHMA12G	9 CY	9	1-22-2010	09:09	12.5mm GSMA

Figure 8. Update a Scheduled Production Report

The “Scheduled Production” screen displays all records for production that are planned to occur on the given day or in the future. This report will be shown to all users of the MMS application. Depending on the user’s permission rights, users might not be able to view data on this page. To update data in the “Scheduled Production” screen, perform the following steps:

1. Click on the appropriate material in the “Material” drop-down box to limit results to a specific material.
2. Click on the appropriate production facility in the “Production Facility” drop-down box.
3. To schedule a material production, click on the add icon (). A blank Material pop-up box is displayed (see **Error! Reference source not found.**).
4. To update an existing record, click on the edit icon (). The Material pop-up box for the existing material is displayed. Edit all appropriate fields and click . If you wish to remove the record, click .

5 Source of Supply

One of the main goals of the Materials Management System is to submit sources of supply for materials that are being used on highway projects. All materials are associated with a Project Bid Item. The bid items are entered through another application that is part of Project Data, but this application may be used to add additional project-specific materials. The entire Source of Supply application requires a selection of a Contract Number.

5.1 Update Material Sources

The Material Sources tab screen allows users to associate additional materials with project bid items. This screen is also a reporting tool that enables users to review the status of a source submission.



Figure 9. Update Material Sources

To update data in the “Material Sources” screen, perform the following steps:

1. Click on Bid item or Materials to display results either by Bid Items or by Sourced Materials.
2. When the “Bid Item” “Group By” radio button is selected, the “Bid Item Category” drop-down box will be displayed. Its purpose is to filter the list of bid items presented. If the Grouping is shown by “Materials,” this drop-down list filters or limits page-displayed results to materials of bid items per selected project (contract).
3. When the user clicks on the “Add Material” button, a popup window will appear and will prompt the user to select a bid item and its sourced material. (See **Figure 10.**)

Update Material Sources (cont'd)



Figure 10. Update Bid Item

To link a material with a bid item perform the following steps.

- 3a. Select a bid item for the project in selection.
- 3b. Select a design level material for the project in selection.
- 3c. Select a sourced level material.
- 3d. Click the **Save** button to save or **Cancel** to exit.
4. Clicking on the “Add Material” icon (on a specific bid item) opens the same popup window as above, but with the bid item number already preselected. The user is prompted to select a sourced level material for the bid item.
5. Click on the link to input quantity on the material you associated with the bid item (see **Figure 11**).

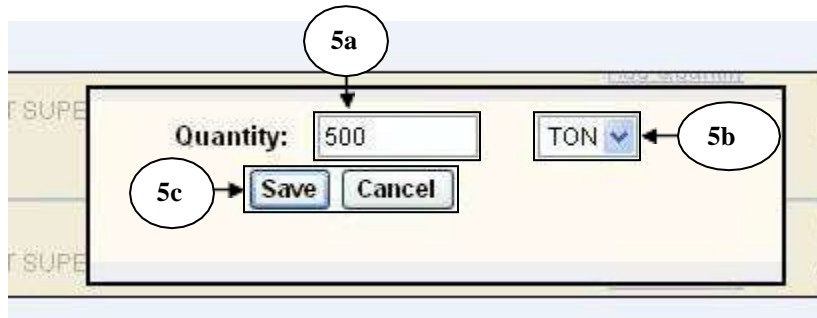







Figure 11. Enter Bid Quantity

To enter a quantity, perform the following steps.

- 5a. Enter the quantity of the Sourced Material being sourced in the “Quantity” field.
- 5b. Select the unit of measure of the Sourced material in the unit of measure drop-down box.
- 5c. Click **Save** to save or **Cancel** to exit the pop-up box.

Update Material Sources (cont'd)

6. Deletes the displayed source material from its displayed bid item.
7. Click on any of the following icons to navigate to Source Entry and Review tab screen. Each Icon implies a different submission status as given below.
 - () No Material has been submitted and submission is not created.
 - () A Source Supply submission is created but not submitted.
 - () There is presently a source submission review underway.
 - () There is an approved source of supply.
 - () The Source of Supply was rejected.
8. Clicking on the “Source of Supply History” icon will open up a pop-out window to show all of the source submission history and review outcomes for the given bid item and material relation. (See **Figure 12.**)

1001-12.5mm DHMA			
Producer	Supplier	Misc.	Outcome
Rock HMA Plant	Rock HMA Plant	Rock HMA Plant	Submitted Date: 04-MAR-10 Completed Date: Approved For Use Expiration Date:
Rock HMA Plant	Rock HMA Plant	Rock HMA Plant	Submitted Date: 04-MAR-10 Completed Date: Approved For Use Expiration Date:

Figure 12. Source of Supply Submission History Pop-up Box

5.2 Update Submission Tasks

Material Sources Source Entry and Review

Submission Task Service Providers Documents Summary

1 Review Task: Source Submission 38 (Mix 1)

2 Material: Mix 1

3 Items: 1011-120561 HOT MIX ASPHALT FOR MAINTENANCE OF TRAFFIC
2001-201032 CLASS 2 EXCAVATION

4 Comments:

5 Save Close

Figure 13. Update Submission Tasks

To update data in the “Source Entry and Review” “Create New Submission” screen, perform the following steps:

1. Click on the “Review Task” drop-down box. The “Review Task” drop-down box enables the user to select a source submission or to create a new submission.
2. Select the “Material” drop-down box to show which material is associated with the project being sourced.
3. Select one or multiple bid items. The “Items” list box enables the user to select the bid item to which the source of submission refers.
4. Add comments regarding the submission underway in the “Comments” field.
5. Click **Save** to update data or **Close** to close the screen.

5.3 Update Service Providers

The Service Providers screen enables the user to define which contractors are supplying and/or manufacturing materials for a given source of supply submission.

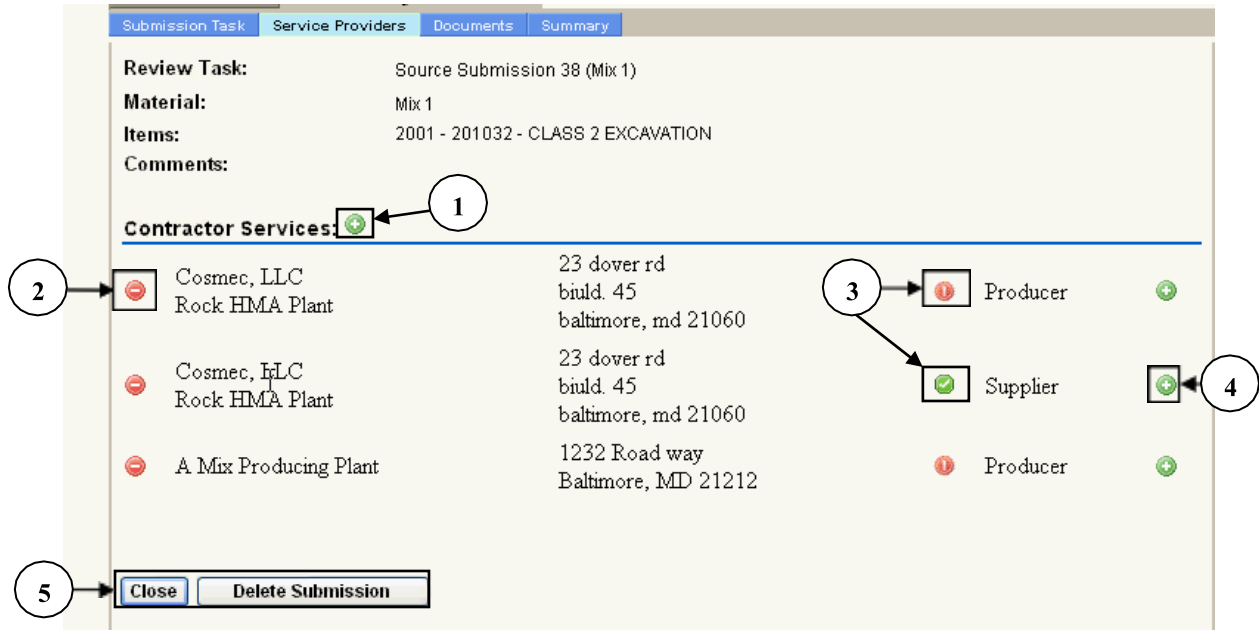


Figure 14. Update Service Providers

To update data in the “Source Entry and Review” “Service Providers” screen, perform the following steps:




1. Click on the add Contractor Services icon () to initiate a pop-up box in which service providers are entered for the specific source submission underway.
2. Click on the delete icon to delete the Service Provider shown.
3. Click on these icons to open the “Facility Review Required” pop-up box on facilities that have not been approved for state use (see **Figure 15**).

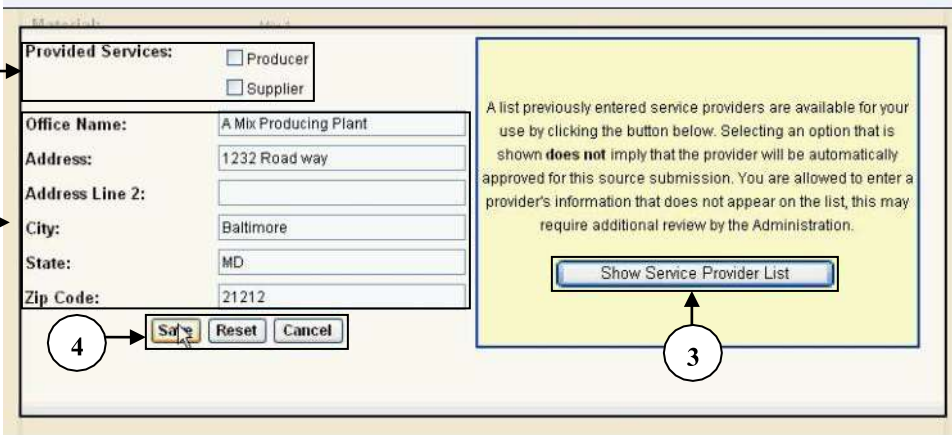


Figure 15. Initiate Review Task

4. Click on this icon to open the pop-up window that will prompt the user to select a product that is approved and produced by the corresponding service provider (only applicable if a product [mix] is required for source approval).
5. Click  to close the “Service Providers” screen or  to delete the submission.

5.3.1 Update Source Providers – Manual Input

The “Source Provider” pop-up screen allows users to select a service provider that has been already processed in the past or to manually input a service provider. The following screen allows users to manually input a service provider.



The screenshot shows a web-based form for manual entry of service providers. It includes the following elements:

- 1**: A box containing two checkboxes: Producer and Supplier.
- 2**: A series of text input fields for: Office Name (A Mix Producing Plant), Address (1232 Road way), Address Line 2 (empty), City (Baltimore), State (MD), and Zip Code (21212).
- 3**: A yellow box containing a disclaimer: "A list previously entered service providers are available for your use by clicking the button below. Selecting an option that is shown **does not** imply that the provider will be automatically approved for this source submission. You are allowed to enter a provider's information that does not appear on the list, this may require additional review by the Administration." Below the text is a button labeled "Show Service Provider List".
- 4**: Three buttons at the bottom: "Save", "Reset", and "Cancel".

Figure 16. Update Service Providers – Manual Entry

To update data in the “Source Entry and Review” “Service Providers” pop-up screen, perform the following steps:

1. Select all applicable “Provided Services” of the facility being entered/selected.
2. Enter basic information on a facility you would like to enter manually.
3. Select to view a list of previously entered service providers that are available for your use (please read disclaimer shown).
4. Click to save the facility information in the text fields you entered, to reset values, or to cancel the screen display.

5.3.2 Update Source Providers – Filtered Input

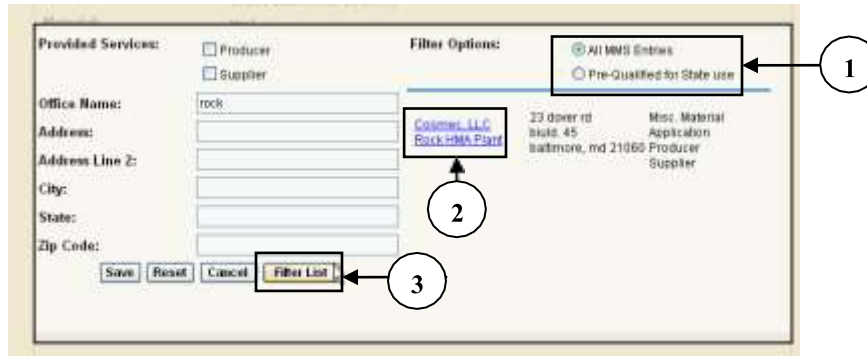


Figure 17. Update Service Providers – Filtered Input

To update data in the “Source Provider Manual Entry” pop-up box, perform the following steps:

1. Select a check box to choose whether you would like to filter the list of service providers that are “Pre-qualified” for state use or all MMS entries.
2. Click to filter the previously entered service providers list. (The user must first enter a filtering criteria/text in any of the text fields shown on the left.)
3. Select a filtered service provider; the facility information will be auto filled in the text fields shown on the left.

5.4 Add Source Entry and Review Documents

Refer to **Error! Reference source not found.** to see the Add Document screen.




5.5 Submit Entry for Review

The “Source Entry and Review” “Summary” screen summarizes information on the source submission process that is yet to be completed. The screen will only be editable to users with certain permission rights.



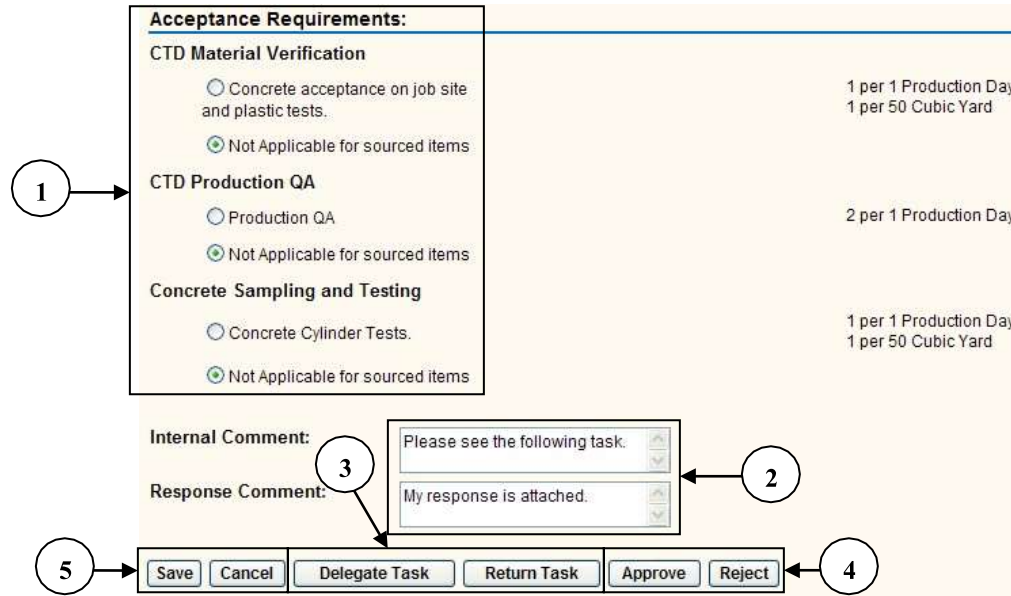
Figure 18. Submit Entry for Review

To update data in the “Source Entry and Review” “Summary” screen, perform the following:

1. Click on the  button to close the screen,  to submit for review, or  to delete the submission.

5.6 Update Acceptance Requirements

The “Source Entry and Review” “Acceptance Requirements” screen will only be available for source submissions that have already been carried out and are under review. This screen will only be accessed by users with certain permissions.



Acceptance Requirements:

Requirement	Frequency
CTD Material Verification	
<input type="radio"/> Concrete acceptance on job site and plastic tests.	1 per 1 Production Day 1 per 50 Cubic Yard
<input checked="" type="radio"/> Not Applicable for sourced items	
CTD Production QA	
<input type="radio"/> Production QA	2 per 1 Production Day
<input checked="" type="radio"/> Not Applicable for sourced items	
Concrete Sampling and Testing	
<input type="radio"/> Concrete Cylinder Tests.	1 per 1 Production Day 1 per 50 Cubic Yard
<input checked="" type="radio"/> Not Applicable for sourced items	

Internal Comment:

Response Comment:

Buttons: Save, Cancel, Delegate Task, Return Task, Approve, Reject

Figure 19. Update Acceptance Requirements

To update data in the “Acceptance Requirements” screen, perform the following steps:

1. Click on the appropriate source “Acceptance Requirements” radio buttons. Selections are dependent on the Material being sourced. Only users with certain privileges will have access to this part of the application.
2. Enter initial comments regarding the source submission.
3. Click to delegate the task of reviewing/inputting information on the source submission or click to return the delegated task back (see **Figure 20**).

Update Acceptance Requirements (cont'd)



Figure 20. Select a Task Designate

- 3a. Select the Source Review Task Designee from the “Task Designate” drop-down box.
- 3b. Click to save or to close the “Task Designate” pop-up box.
4. Click to approve or to reject the source submission.
5. Click to save the data changes or to cancel changes and exit the “Acceptance Requirements” screen.

6 Project Tasks and Documents

The Project Tasks and Documents module is a means to report various tasks and documents of a specific Project. A project number must be selected before the application is run.

6.1 View User Tasks

The “User Tasks” screen is a tool to show any user what tasks he has assigned to him and what other tasks are available for him to work on.

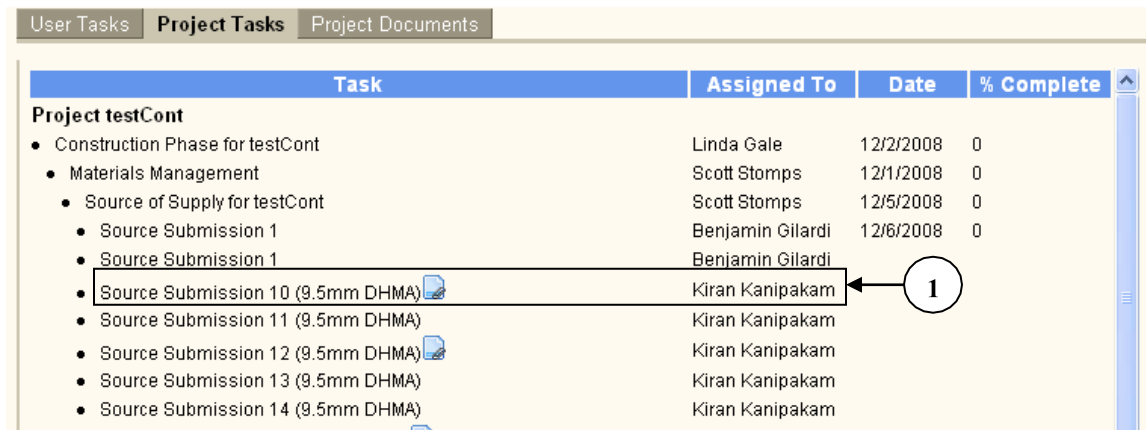


Task	Contract	Due Date	Status	Asignee
Source Submission 47 (12.5mm DHMA)	testCont		Task Initiating	Donald Olivier
Source Submission 6 (12.5mm GSMA)	BA404501		Task Initiating	Donald Olivier

Figure 21. View User Tasks

6.2 View Project Tasks

The “Project Tasks” screen is a tool to provide a hierarchical view of all tasks that are being worked on for a given project. The user must select contract number for this application to function properly.



Task	Assigned To	Date	% Complete
Project testCont			
• Construction Phase for testCont	Linda Gale	12/2/2008	0
• Materials Management	Scott Stomps	12/1/2008	0
• Source of Supply for testCont	Scott Stomps	12/5/2008	0
• Source Submission 1	Benjamin Gilardi	12/6/2008	0
• Source Submission 1	Benjamin Gilardi		
• Source Submission 10 (9.5mm DHMA)	Kiran Kanipakam		
• Source Submission 11 (9.5mm DHMA)	Kiran Kanipakam		
• Source Submission 12 (9.5mm DHMA)	Kiran Kanipakam		
• Source Submission 13 (9.5mm DHMA)	Kiran Kanipakam		
• Source Submission 14 (9.5mm DHMA)	Kiran Kanipakam		

Figure 22. View Projects Tasks

Number	Description
1	Source Submission Number: Shows source submissions that have attached documents on file.

6.3 View Project Documents

The “Project Documents” screen lists all documents that are associated with a given project. It is a list of documents grouped by document type and ordered by date. The user must select a contract number in order for this application to function properly.

Project Documents			
General Correspondence			
Document	Date	To	From
Happy	3/10/2010	stu	John
Darren	3/12/2010	me	Darren
andri	3/12/2010	test	test
file is a test document	3/19/2010	Don	Meigana
Cabela's Code	3/19/2010	Lab Tech	PE
Please Pass these notes to Lab Engineer	3/19/2010	Lab Tech	Material Engineer
Material Design			
Document	Date	To	From
another correspondence test	3/22/2010	him	her
third correspondence	3/19/2010	MRI BEN	BEN
Project Plans			
Document	Date	To	From
DONS DOC	3/19/2010	MEIGANA	DON
Project Proposal			
Document	Date	To	From

Figure 23. View Project Documents