Hanford Site Excavation Permit Application Automation Project - 15187

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ABSTRACT

Mission Support Alliance, LLC (MSA), on behalf of the Department of Energy's Richland Operations Office (DOE-RL), recently implemented the Site Excavation Permit Application (SEPA) at Hanford. The SEPA automation replaced a 20-year-old manual excavation permit process that governed all Hanford Site excavation activities. The manual process required time consuming interaction between numerous resources for submitting an excavation permit to 15 separate permit organizations for approvals and signature. The process involved numerous information exchanges - usually by phone or emails, and substantial vehicle travel. It also generated large amounts of paper, lengthy wait periods and the need for continual status updates to permit reviewers until all approvals were obtained.

The new SEPA automated system is an entirely paperless application that streamlines over 25 separate manual permit activities into five Web-based processes. The new application provides sizable environmental sustainability benefits in terms of avoiding: paper waste, air pollution and biofuel consumption. SEPA also deploys automated innovations that produce an approximate 50 percent operational cost reduction when compared to the manual permit process.

INTRODUCTION

The SEPA is a new automated web-based application that replaces an over 20 year old intensive manual process. The newly developed application creates notable environmental sustainability benefits while achieving significant operational process reductions. Through innovative development of specific work process mechanics, SEPA allows permit submittal, review and approval to be performed smarter, faster with more complete results. SEPA revolutionized the excavation process in comparison with the previous manual paper based methodology for the Hanford Site.

MSA teamed with Lockheed Martin Service Inc. (LMSI) to develop the SEPA system. When users access the SEPA system, the system initially opens the individual's SEPA Home Screen (see Figure 1). The Home Screen displays the user's s real-time summary level permit assignments and performance information at a glance. SEPA eliminates a majority of shortcomings associated with the manual process. There are many automated features benefitting permit users beyond what is noted within this paper. For brevity purposes, a sample of SEPA's features are outlined herein that promotes Environmental Stewardship sustainability goals and objectives.

My Permit I	Requests		My Permit Reviews
There are 10 active	permits.		There are 8 open reviews in your queue.
Permit Number	Status	Due Date	Design Authority/Technical Representative Due Today.
DAN14-0062	Draft		DAN14-0065 Due 04/09/2014 Current Review
DAN14-0027	Approved	02/16/2014	Environmental Due Today.
DAN14-0041	Approved	03/07/2014	DAN14-0065 Due 04/09/2014 Current Review
DAN14-0045	Approved	03/07/2014	Radiological Control Due 1 in day
DAN14-0043	Approved	03/08/2014	DAN14-0065 Due 04/10/2014 Current Review
DAN14-0054	In Review	03/13/2014	Transfer Lines & Process Sewer Due 9 in days
DAN14-0040	Approved	03/21/2014	DAN14-0032 Due 04/18/2014 Current Review
DAN14-0042	In Review	04/10/2014	Safeguards and Security Due 1 in day DAN14-0065 Due 04/10/2014 Current Review
DAN14-0065	In Review	04/12/2014	
DAN14-0032	In Review	04/18/2014	Land Use Planning/600 Area Landlord Due 2 in days DAN14-0065 Due 04/11/2014 Current Review
Create New Permit			Facility/System Owner(s) (Ad-Hoc Only) Overdue 32 days
			DAN14-0042 Due 03/08/2014 Current Review
			Facility/System Owner(s) (Ad-Hoc Only) Due 3 in days
			DAN14-0065 Due 04/12/2014 Current Review

Figure 1 - SEPA Home Screen

Sustainability Goals and Objectives

Environmental Management System (EMS): SEPA aligns with Environmental Stewardship goals and ISO 14001 objectives in areas of electronic stewardship, going green and waste prevention as part of environmental management guiding principles and core elements noted below:

<u>Promoting Environmental Stewardship:</u> SEPA creates the opportunity to engage environmental, cultural and ecological interaction more consistently and efficiently compared to the manual excavation permitting process. Environmental Stewardship was introduced to the Excavation Permit process by ensuring Environmental reviews are a mandatory review within the SEPA application. The application will not allow users to by-pass Environmental reviews in order to complete the permit. This feature guarantees the Environmental group's involvement with the Site's excavation permitting process. Environmental reviews were not consistently implemented nor adhered to during the manual process.

<u>Reduced fuel consumption and emission pollution prevention (Going Green)</u>: SEPA creates the opportunity to lower gas consumption and carbon dioxide emissions across the Site. SEPA facilitates permit interaction via web-based network processing which results in reduced vehicle trips between Permit Requesters and Permit Reviewer work locations. SEPA creates the potential to avoid consuming several thousand gallons of gasoline annually across the Site since requester and reviewer work locations could be up to 25 miles apart (there is the potential of up to 15 independent reviewers per permit application). Sustained vehicle transportation was an accepted practice for manual permit processing.

<u>Significant Reduction of Paper Waste (Waste Prevention):</u> SEPA is a turn-key paperless webbased automation tool which promotes Environmental Leadership objectives. The application eliminates the need to generate paper for all permit review transactions. The excavation permit data is stored on a centralized server where everyone involved with a specific permit has unconstrained access to the permit data. Therefore, the need to generate paper copies of the excavation permit is greatly reduced. Estimating an average of 270 excavation permits per year, the SEPA automation creates the opportunity to eliminate approximately 16,200 pounds of paper annually for the Hanford Site. Therefore the Site's Records Inventory and Disposal (RIDS) excavation field files reduction is significant when understanding that each permit requester and all permit reviewers keep independent paper files for all permit activities generated as part of the manual permitting process.

Operational Improvements

In addition to the Environment Sustainability benefits, SEPA creates numerous operational efficiency benefits as well. Some of the benefits are outlined below:

You have been assigned review resp	consibility for the subject excavation permit. Please re	view the permit as assigned.
Excavation Permit Number:	DAN14-0070	
Reviewer's Assignment Category:	Environmental	
Review Permit Weblink:		
Review Due Date:	June 6, 2014	
Responsible Person:	David Havens (509.438.6055)	(
Your prompt attention to this review Thank you.	request is appreciated.	
Site Excavation Permit Administratio	n	
TEST Email: intended target = David	E_Havens@rl.gov -	
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Figure 2- Automated Message

<u>Application Generated Notifications for Improved Responsiveness:</u> SEPA provides 100% twoway automatic transaction notifications. This feature is designed to alert users of an incoming assignment and corresponding responses thus improving process responsiveness. As an example when users initiate an action within SEPA, the application generates email notices alerting the assigned individual of a pending action (see Figure 2). The application generated email contains a weblink so the assignees can immediately access the specific permit assignment. Once the assignee responds, SEPA sends a corresponding email back to the individual initiating the action advising them that a response has been received. This two way email alert notifications feature is used throughout SEPA thereby greatly improving process efficiency.

Ability to Track Permit Reviewer Performance Automatically Saving Time and Effort: SEPA captures all excavation permit information and processes permit activities online. As permit requesters assign permit reviewers to their permit, SEPA posts the reviewer's assignment and their performance status next to their name (see Figure 3). Once Permit Reviewers are assigned, SEPA monitors the reviewer's response and automatically posts continued status updates until their permit is complete. SEPA also provides color background to indicate the reviewer's status (White background – good standing, Yellow background – due date within 2 days, Red background – permit review due date is overdue). At a glance, this feature makes permit tracking very efficient thereby saving time to monitor progress and avoids the drudgery of bird-dogging the reviewers until their actions are complete. During the manual permitting process, Permit Requesters would have to call upon each Permit Reviewer to get progress updates which took considerable time and effort over and over again.

HANFORD SITE EXCAVATION PERMIT Permit Requests			-0		4
DAVE HAVENS - PERMIT REQUESTER DASHBOARD				0	_
Home Create New Permit Edit My Permits Displ	ay My Permits		DAN14-0086 Pe	rmit E	ditor
Permit Editor Assign Reviewers Submit for Review	Review Status Cancel Pe	ermit Save Permit			
Permit Status: In Review					
PERMIT NUMBER REVISION	LAST P	ERMITTED START DATE	Document Attachments	i (Add a
DAN14-0086 0			Excavation Permit DAN14-0088	(05/27/2014)	
1. Work Package Number 2. W.O. Project Number	3. Location of Excavation	•	Ground Scan	Edit	Delete
TFC-WO-14-3141 N/A	200 East 🔻 242-A		(05/21/2014) H-2-836513-001-00	Edit	Delete
4. Originated By / Primary Requester	Phone Number	Date	(05/21/2014)	Con	Delete
Shipman, Montee L	5093739089	05/21/2014	H-2-836513-002-00 (05/21/2014)	Edit	Delete
Co-Requester / Secondary Requester	Phone Number	-	H-2-836513-003-00	Edit	Delete
5. Change Notice (ECN, DCN, or FMP) Number	6. Drawings, Plans / Proc		(05/21/2014) H-2-836513-004-00	Edit	Delete
H-2-838513 sht 1.2.3	H-2-836513 sht 1-6 crossing		(05/21/2014)	2011	Denete
7. Description of Work			H-2-838513-005-00 (05/21/2014)	Edit	Delete
Modify pipe supports / pads 242-A steam line.Need t and pads for the 242-A steam line all the way from			H-2-836513-006-00 (05/21/2014)	Edit	Delete
of 242-A. This work will require digging around exi them and installing larger pads. This is to bring t	sting supports and in some them up to specs for earth q	cases removing makes. In most	H-2-838513-007-00 (05/21/2014)		Delete
cases the pads are 1 foot deep, in at least one cas Bollards shown on H-2-836513 sh 3 are 36" deep.	e the pad is 30" deep on H-	2-536513 sh 7. the	Crossing List Part#1 (05/21/2014)	Edit	Delete
		-	Crossing List Part#2 (05/21/2014)	Edit	Delete
8. Special Instructions and Comments			Added in Review: Bob Tucker		
Radiologcial Controls for this excavation include u postings for excavation including spoils pile, and			DAN14-0086 TELECOM (05/22/2014)	Edit	Delete
identified in items #1 and #2 on the crossing line There are no LMSI managed telecommunication cables		signed	Maps		A New Map
map of the LMSI telecommunication cables near the e Care shall be taken to avoid contact with undergroup	excavation for your p	rmit	DAN14-0086 Dig Map A (05/21/2014)	View	Delete
MSA Water and Sever Utilities (WU) has no buried in excavations. However, there are buried water lines	frastructure at the	viewer's	Reviews		Annight
Should this activity require equipment to cross the		atus 💦 🥂	10. Design Authority/Technica	al Peprer	
9. List Facilities, Services, Utilities, and Groundwate	r Wells Affected by Excava	ion		RREVIEW	
		*	11. Environmental		
		-	Ruth M Allen APPRo	INENT	05/27/2014
26. U-Dig Ticket Number			12. Radiological Control		
			Jeff Marks APPRO	OVED W/	05/27/2014
Permit Date Tracking			13. Steam System		
ESTIMATED START ACTUAL START	ESTIMATED END	ACTUAL END	Joe Burrell APPP	ROVED	05/27/2014
08/04/2014	07/03/2014		14a. Electrical Utilities (Trans Distribution)		
Submitted by: MONTEE SHIPMAN				RREVIEW	
			14b. Facility Electrical System David Born OUT FOR	ns (Second R REVIEW	
Review Comments			15. Water Utilities		
Reviews: Ruth M Allen - Environmental [05/22/2014] Care shall be taken to avoid lines.	d contact with undergro	und waste transfer		OVED W/	05/27/2014
lines. Reviews: Jeff Marks - Radiological Control			16. Telecommunications		
[05/22/2014] Radiologcial Controls for th HPT coverage, RBA postings for excavation			Bob Tucker APPR	IVED W/	05/27/2014
for digging over transfer lines identifie			17. Transfer Lines & Process Jeff Huth Appr		05/21/2014
list. Reviews: Gary Stevens - Water Utilities			40. Tasfia Engineera		

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Figure 3- SEPA Electronic Permit

<u>Auto-saving to Official Use Only (OUO) or non-OUO Integrated Document Management</u> <u>System (IDMS) Folders:</u> With innovative processing, SEPA creates the ability of recognizing whether an attached document contains OUO content. The application requests the individual attaching a document to declare whether the attachment contains OUO or not. The application uses the declaration to direct the permit folder to the appropriate share area automatically. This prevents sensitive information from being stored in non-protected archive areas thereby protecting sensitive information and complying with information security regulations.

<u>Establishing A Set-Alternate Reviewer:</u> SEPA establishes a Set-Alternate feature so when users are out of the office, a reviewer's alternate can act on the reviewer's behalf for uninterrupted reviewer support. The application automatically sends an email notification to the assigned alternate and re-routes permit review assignments to the alternate during the primary Permit Reviewer's time off. The application monitors the reviewer's calendar and returns permit

reviewer assignments back to the primary Permit Reviewer when their scheduled absence expires. This feature ensures continuous reviews without interruption, avoids missed communications, and reduces the potential of permit review backlogs. No other Site application has this capability.

<u>Transferable Technology to Other Business Units or Contractors</u>: SEPA lends itself as an effective automated tool for streamlining other business environments whether at Hanford or other government sites. SEPA contains a wide variety of automation features such as: streamlining assigning actions, tracking performance, generating action alerts, creating high quality electronic maps without specialty training, monitoring approvals, automatically transferring data to a centralized archive storage location.

<u>Significant Operational Cost Savings</u>: An independent consulting firm performed a cost savings assessment comparing the new SEPA automation versus the manual excavation process. Based on the consultant firm's evaluation, SEPA creates significant potential operational savings/avoidance when compared to the manual permitting process. The reduction of time, operational efficiencies gained, and the amount of excavation permits processed annually, SEPA creates the potential for sizeable savings approaching 50% or greater.

<u>Consistent Digital Mapping Data:</u> SEPA offers a number of process improvement features. One example of a process improvement feature is SEPA's Map Draw capability (see Figure 4). The Map Draw capability provides Permit Requesters with a standardized drawing tool to create excavation location footprint maps. The tool derives base map information from the Site's Geographic Information System (GIS) Database. The Map Draw functionality ensures a level of mapping consistency in digital format, quality and accuracy for improved review purposes. It also allows general users to produce high quality drawings without specialized training. In comparison, the manual excavation process only captured mapping print attachments and didn't

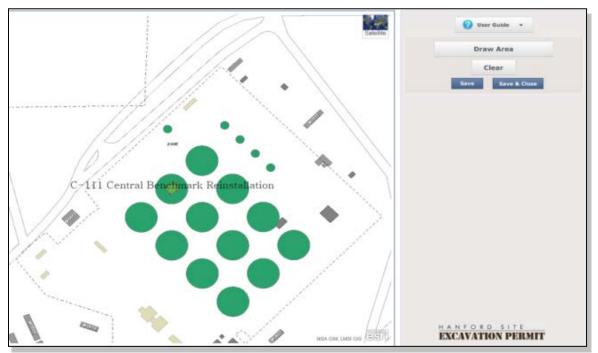


Figure 4 - SEPA Map Drawing Tool

utilize a standardized drawing format so Permit Reviewer received a variety of mapping information to review.

<u>Reviewer Consistency Results in Higher Quality Product</u>: SEPA is designed to streamline process steps and reinforce procedural compliance. The application establishes the Environmental Review Category as one of two mandatory reviews. The mandatory reviews are identified on SEPA's Assign Reviewer Webpage with a large green check mark next to the review category (see Figure 5). The application will not allow Permit Requesters to complete the excavation permit without the Environmental Review approval. The Environmental group's participation is guaranteed thus ensuring involvement of environmental processes and procedural compliance.

HANFORD SITE EXCAVATION PERMIT Permit Requests DAVE HAVENS - PERMIT REQUESTER DASHBOARD		
Home Create New Permit Edit My Permits Displa	y My Permits	DAN14-0070 Permit Editor
Permit Editor Assign Reviewers Submit for Review	Cancel Permit Save Permit	
Permit Status: Draft		
Permit Review Categories	Selected Review Categories and Reviewe	ers
Please select the reviews required for this permit. By unchecking a review category you are signifying that a	10. Design Authority/Technical Representative	
review is not applicable to this permit. You will be prompted to verify your response.	√ 11. Environmental	Assign Environmental
Note: By determining a "not applicable" response for	12. Radiological Control	
a specific review block, you are accepting responsibility for not obtaining a review by the	13. Steam System	
designated reviewer.	14a. Electrical Utilities (Transmission Distribution)
I0. Design Authority/Technical Representative	14b. Facility Electrical Systems (Secondary)	
✓ 11. Environmental	15. Water Utilities	
✓ 12. Radiological Control	16. Telecommunications	
✓ 13. Steam System	17. Transfer Lines & Process Sewer	
14a. Electrical Utilities (Transmission Distribution)	18. Traffic Engineer	
✓ 14b. Facility Electrical Systems (Secondary)	19. Road and Track Maintenance	
☑ 15. Water Utilities	20. Safeguards and Security	
✓ 16. Telecommunications	21. Land Use Planning/600 Area Landlord	
✓ To: Transfer Lines & Process Sewer	22. Sanitary Sewer	
	23. Facility/System Owner(s) (Ad-Hoc Only)	
18. Traffic Engineer	24. Other (Ad-Hoc Only)	
III. Road and Track Maintenance	✓ 25. Responsible Manager (Ad-Hoc Only)	Assign Responsible Manager (Ad-Hoc Only)
20. Safeguards and Security		
21. Land Use Planning/600 Area Landlord		
22. Sanitary Sewer		
23. Facility/System Owner(s) (Ad-Hoc Only)		
☑ 24. Other (Ad-Hoc Only)		
✓ 25. Responsible Manager (Ad-Hoc Only)		

Figure 5 - SEPA Assign Reviewer Webpage

Information Sharing Improves Permit Reviewer's Comprehensiveness:

All excavation permits are routed to the designated reviewers for each company. The application continually monitors review's progress and provides "real-time" viewing status of all permit activities. This feature allows Permit Reviewers to easily observe other Permit Reviewer's comments throughout the permitting process (see Figure 6). The application promotes interactive coordination between all Permit Reviewers resulting in a more comprehensive review and a better permit product.

Permit Requests DAVE HAVENS - PERMIT REQUESTER DASHBOARD			(-	M	5	A
	isplay My Permits	3			DAN14-0089 Perr	nit E	dito
Permit Editor Assign Reviewers Submit for Revi			Permit Save Permit				
Permit Status: In Review							
PERMIT NUMBER REVISION		LAST	PERMITTED START DA	TE	Document Attachments		()Ad
DAN14-0089 0					Excavation Permit DAN14-0089 (0)		Guess
1. Work Package Number 2. W.O. Project Numbe	r 3. Locatio	n of Excavatio	n		DAN14-0089		" Dele
LMSI-14245P1 Project 14245P1	200 West	 SY-Tank Fa 	irms/Bidg. 252-S		(05/28/2014)	Cuit	Den
4. Originated By / Primary Requester	Pho	ne Number	Date		Added in Review: Michael Borch		
Schatz, Jeff	5090	3721295	05/28/2014		EU attachments (05/30/2014)	Edit	Dek
Co-Requester / Secondary Requester	Pho	ne Number			Added in Review: Bob Tucker		
Joe Kadinger	5090	3723432	_		DAN14-0089_TELECOM	Edit	Dek
5. Change Notice (ECN, DCN, or FMP) Number	6. Drawin	gs, Plans / Pro	cedures		(05/29/2014)		~~
	See sketch	h and aerial photo	attachments		Maps		2
7. Description of Work	L				DAN14-0089 Dig Map A (05/28/2014)	View	Dele
Finish Fiber Installation to MO655				*	Reviews		Aug
					10. Design Authority/Technical F	Repres	200.0
					Doug L Waterbury OUT FOR RE	EVIEW	06/07/
					11. Environmental		
					Daniel C Herrera APPROV	'ED	05/29/
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Figure 6 - SEPA Reviewer Comments

CONCLUSIONS

In summary, Hanford contractors utilize the new SEPA interactive excavation permit toolset for processing excavation permits. SEPA replaces the 20-year-old manual permitting process and greatly improves excavation permit processing effectiveness. The SEPA system promotes environmental stewardship and sustainability goals, creates significant operational efficiencies and is Web-based so the application can be deployed without any special software. SEPA can be shared with all RL contractors, as well as other government sites. DOE-RL and DOE's Office of River Protection (ORP) also has given high endorsements of SEPA's innovation.

The SEPA architect will provide a live demonstration of the SEPA to the Waste Management Symposia and be available to answer questions from the audience.