



Australian Government

Department of Defence

DEPARTMENT OF DEFENCE

ENVIRONMENT AND ENGINEERING BRANCH

**DIRECTORATE OF CONTAMINATION ASSESSMENT, REMEDIATION AND
MANAGEMENT**

Contamination Management Manual

Annex L

Data Management

August 2018, Amended June 2021

© Commonwealth of Australia 2018

This work is copyright. Apart from any use as permitted under the [Copyright Act 1968](#), no part may be reproduced by any process without prior written permission from the Australian Government Department of Defence.

Announcement statement—may be announced to the public.

Secondary release—may be released to the Australian Government Department of Defence, its contractors and their equivalents in United States of America, Canada, New Zealand and Great Britain.

All Defence information, whether classified or not, is protected from unauthorised disclosure under the [Crimes Act 1914](#). Defence information may only be released in accordance with the [Defence Security Manual](#) as appropriate.

First edition 2018

Sponsor

Directorate of Contamination Assessment, Remediation and Management

Developer

Directorate of Contamination Assessment, Remediation and Management

Issued by

Assistant Secretary Environment and Engineering Branch

Effective Date

August 2018

Amendment Date

June 2021

Review Date

June 2022 or when changes to processes require an update

Amendments to the document can be proposed as required. Proposals for amendment of this document are to be forwarded to:

Director of Contamination Assessment, Remediation and Management
Email: ncrp@defence.gov.au

Quick Reference Guide

Why is this an issue for Defence?



Commercial Risk

Defence may be exposed to financial and reputational risk caused by incomplete or inaccurate contamination data and reporting.



Defence Capability

Project data and reporting that is not readily accessible or has been incorrectly captured can cause project delays and associated costs that impact on Defence's capability.



HSE Risk

Defence personnel, contractors and site users may be exposed to work health and safety risks where contaminated site data is not readily accessible to inform site work procedures.

Mandatory requirements

The following data management requirements are mandatory when undertaking Defence contamination investigation, assessment and remediation projects on the Defence estate:

- The Garrison Estate Management System, Environmental Factor Management – Contaminated Sites Records (GEMS EFM – CSR) must be reviewed.
- Data and reports generated from contamination investigation, assessment and remediation projects are captured in the GEMS EFM – CSR. CSRs must be updated or created as necessary to reflect the contamination status of a property. Updates must be supported by technical reports, risk assessments and spatial data to be submitted for upload with the records.
- All contaminated land data captured for the project is to be undertaken in accordance with Annex L and the detailed guidance available on [GEMS Gateway](#) and Defence Estate Quality Management System ([DEQMS](#)). In particular:
 - Spatial data is to be captured or created and submitted in accordance with the [Spatial Data Management Plan \(SDMP\)](#) and this Annex, for update in Defence spatial systems.
 - Field and analytical data (including but not limited to soil, water, sediment, and vapour) is to be captured in accordance with the Defence Environmental Data Management Software (EDMS) requirements.
 - [The Contamination Risk Assessment Tool \(CRAT\)](#) must be applied in accordance with the [Defence Contamination Assessment Sequence](#) and the guidance provided within the tool. Completed CRATs must be submitted to support proposed changes whenever updates are required to the risk rating for any CSR in GEMS. For Stage 2 Detailed Site Investigations (DSIs), this includes completing a risk workshop with appropriate Defence stakeholders.

Where to get help or more information

- [Defence Contamination Management Manual](#)
- [CRAT](#)
- [National Spatial Information Management Systems \(NSIMS\)](#) and the [SDMP](#)
- [GEMS Gateway](#) including the *Guide to the CSR fields in GEMS*, the Frequently Asked Questions, GEMS EFM - CSR and the supporting appendices to Annex L

Abbreviations

Abbreviation	Meaning
ADES	Assistant Director, Environmental and Sustainability
AHD	Australian Height Datum
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Cth) (amended 2013)
BONS	Biosecurity and Overabundant Native Species
CAD	Computer Aided Design
CDMS	Contamination Data Management System
CFI	Capital Facilities and Infrastructure
COC	Chain of custody
CRAT	Contamination Risk Assessment Tool (an excel workbook)
CSR	Contaminated Site Record (data relating to a specific contaminated area within a Property)
Defence	Defence is the Department of Defence and the Australian Defence Force (ADF)
DCARM	Directorate of Contamination Assessment, Remediation and Management
DCD	Defence Contamination Directive
DCMM	Defence Contamination Management Manual
DED	Defence Estate Dictionary
Defence PM	Defence Project Manager
DEPAC	Directorate of Environmental Planning, Approvals and Compliance
DEQMS	Defence Estate Quality Management System
DOP	Dilution of Precision
DPN	Defence Protected Environment
DSI	Detailed Site Investigation
E&IG	Estate and Infrastructure Group
EDMS	Environmental Data Management Software
EDVP	Environmental Data Visualisation Portal
EFR	Environmental Factor Record
EFM	Environmental Factor Management
EHSM	Environmental Health and Safety Management for Hazards and Incidents
EIL	Environmental investigation level
EMOS	Estate Maintenance and Operations Services
EPA	Environment Protection Authority or Agency
EPBC Act	<i>Environment Protection Biodiversity Conservation Act 1999 (Cth)</i>
EPE	Estimated precision Error
ERIM	Estate Register Information Model
EScIS	Earth Science Information Systems
ESM	Environment and Sustainability Manager
ESO	Environment and Sustainability Officer

Abbreviation	Meaning
GCS	Geographic Coordinate System
GEMS	Garrison Estate Management System
GEMS EFM – CSR	Garrison Estate Management System Environmental Factor Management - Contaminated Site Record
GEMS GEO	Garrison Estate Management Systems Geometries-Enabled Objects
GDL	Bulk upload/download GEMS Data Load tool
GIS	Geographic Information System
GCS	Geographic Coordinate System
GNSS	Global Navigation Satellite Systems
IDM	Identity Management
LOCR	Defence Legal Obligations and Compliance Register
m bgl	metres below ground level
M bTOC	Metres below top of casing
MET	Metadata Entry Tool
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NSIMS	National Spatial Information Management System
OMP	Ongoing Monitoring Plan
PCA	Pre-construction Contamination Assessment
PCSR	Potential Contaminated Site Record
PDS	Project Delivery Services
PEP	Property Environmental Profile (is a summary of the key environmental issues, status and assessments conducted across the entire <i>Property</i>)
PFAS	Per- and Poly-Fluoroalkyl Substances
PFASIM	PFAS Investigation and Management
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RCIP	Regional Contamination Investigation Program
RICO	Routine Investigation Close Out
SafetyMan	Defence Safety Manual
SAP	Systems Applications and Products in Data Processing
SAQP	Sampling Analysis and Quality Plan
SDMP	Spatial Data Management Plan
SDP	Spatial Data Package
SME	Subject matter experts
SPR	Source-Pathway-Receptor

Abbreviation	Meaning
SAP	Systems Applications and Products in Data Processing
TOC	Top of Casing
UST	Underground storage tank
WHS Act	<i>Work Health and Safety Act 2011</i> (Cth)
WQMP	Water Quality Monitoring Plan
WRCP	Wartime Remnants Clean-up Program

Table of contents

Quick Reference Guide	iii
Abbreviations.....	iv
1. Introduction.....	1
1.1 Background.....	1
1.2 Purpose.....	1
1.3 Defence documentation	2
2. Regulatory Overview	3
2.1 Overview	3
2.2 Contractual obligations	5
3. Defence Contamination Data Management System (CDMS).....	7
3.1 Overview	7
3.2 Roles and responsibilities	7
4. Garrison Estate Management System (GEMS).....	10
4.1 Overview of Contaminated Sites Records in GEMS	10
4.2 Property Environmental Profile	11
4.3 GEMS EFM-CSR Overview	13
4.4 Modifying and retrieving CSRs in GEMS.....	15
4.5 What data and documentation need to be provided for input to GEMS?	19
4.6 GEMS EFM – CSR Fields	20
4.7 Further assistance	20
5. Environmental Data Management Software (EDMS) – ESdat	21
5.1 Overview	21
5.2 When to upload data to Defence ESdat	21
5.3 Access to Defence ESdat	23
5.4 Project data lifecycle	23
5.5 Project set-up.....	25
5.6 Location and sample naming convention	27
5.7 Before field work	33
5.8 After field work	36
5.9 Project audit and finalisation.....	40
5.10 Other considerations.....	40
5.11 Specific location types	41
5.12 Defence EDMS tools.....	45
5.13 Further assistance	45
6. Contaminated Sites Spatial Data	46
6.1 Overview	46
6.2 Defence Spatial Data Management Plan (SDMP).....	46
6.3 National Spatial Information Management System (NSIMS).....	48

6.4	CSRs spatial representation in GEMS GEO.....	50
6.5	E&IG GIS	51
6.6	Sampling location data storage (EDMS).....	51
6.7	CSR spatial data location or extent anomalies.....	51
6.8	Spatial dataset attribute table structures	51
6.9	Metadata	56
6.10	GIS data delivery checklist	57
6.11	Further assistance	60
7.	References	61

Table index

Table 3-1	Summary of CDMS stakeholder roles and responsibilities.....	7
Table 4-1	GEMS business functions & processes.....	10
Table 4-2	Outline of training pathways for key Business Roles to access GEMS EFM-CSR	14
Table 4-3	Outline of when and how to create a new CSR in GEMS	16
Table 4-4	Outline of when and how to update information of an existing CSR in GEMS.....	17
Table 4-5	Outline of when and how to merge existing CSRs	17
Table 4-6	Outline of when and how to archive a CSR in GEMS	18
Table 4-7	Outline of when and how to retrieve archived CSRs record in GEMS	19
Table 5-1	Defence ESdat data upload requirements.....	22
Table 5-2	EDMS project types	25
Table 5-3	QA/QC sample naming convention	28
Table 5-4	Location naming convention	29
Table 5-5	Types of field data.....	38
Table 5-6	Biota naming convention	43
Table 6-1	Main user groups of SDMP	47
Table 6-2	Key SDMP Sections relating to CSRs	47
Table 6-3	CSR dataset attribute table structure.....	52
Table 6-4	Other future contamination spatial dataset requirements.....	56
Table 6-5	GIS data delivery checklist for contamination project/activity.....	58

Figure index

Figure 1-1	Defence environmental documentation and Annex L.....	2
Figure 3-1	Overview of CDMS	7
Figure 4-1	Environmental components of GEMS in relation of PEPs and CSRs	11

Figure 4-2	PEP in GEMS – example Blamey Barracks	12
Figure 4-3	PEP Contaminated Sites in GEMS – example Blamey Barracks.....	12
Figure 4-4	GEMS EFM-CSR flow diagram	14
Figure 5-1	EDMS project lifecycle	24
Figure 5-2	EDMS project naming convention	25
Figure 5-3	Sample naming convention	28
Figure 5-4	Location and sample naming for three common monitoring well scenarios.....	32
Figure 5-5	Adding locations of unknown origins in EDMS	34
Figure 5-6	Reserving locations in EDMS	35
Figure 5-7	Decommissioned and replaced locations in Defence EDMS	37
Figure 5-8	Repaired wells with new TOC in Defence EDMS	38
Figure 5-9	Private locations in Defence EDMS.....	42
Figure 5-10	Co-located samples in Defence EDMS – example for surface water and fish sampling co-locations	44

Appendices

Appendix A – Defence EDMS (ESdat) Tools

Appendix B – ESdat Sample Location and Well Information

Appendix C – CSR GIS file Fields and Attributes

1. Introduction

1.1 Background

Contamination investigation, assessment, and remediation projects generate environmental data about the nature and extent of contamination on the Defence estate. The data is used to support and to inform risk based decision making throughout the estate life cycle.

This document describes the requirements for Defence Project Managers (PMs) and contractors/consultants for the creation, collection, and submission of contaminated land data during the delivery of contamination investigation, assessment, and remediation projects across the Defence estate.

Appropriate management of data associated with contamination investigations will assist Defence to minimise risks to human health and the environment and to avoid impacts on Defence capability and reputation. Use of current, accurate and accessible contaminated land data will support Defence to maximise the value from investment in the conduct of contamination investigations across the estate.

This Annex L should be read with reference to all other relevant material in the Defence Contamination Management Manual (DCMM) on the [Defence Estate Quality Management System \(DEQMS\)](#).

1.2 Purpose

This guidance is to assist Defence personnel and contractors to collect and report analytical data (including but not limited to that of soil, water, sediment, vapour) in the correct formats and to comply with the Defence business processes for the Contamination Data Management System (CDMS). The CDMS (Section 3) includes the following Defence Data Systems:

- The Garrison Estate Management System (GEMS) (see Section 4)
- Environmental Data Management Software (EDMS) - ESdat for field and analytical data (see Section 5)
- The National Spatial Information Management System (NSIMS) for current repository of CSR Source area, location and extent (see Section 6)

It also includes Defence guidance documents (such as this annex), forms and other tools.

1.3 Defence documentation

This guidance document is an Annex to the DCMM and supports the compliance with site contamination management policy as detailed in the [Defence Environment and Heritage Manual](#). An overview of where this Annex fits into the Manual is presented in Figure 1-1.

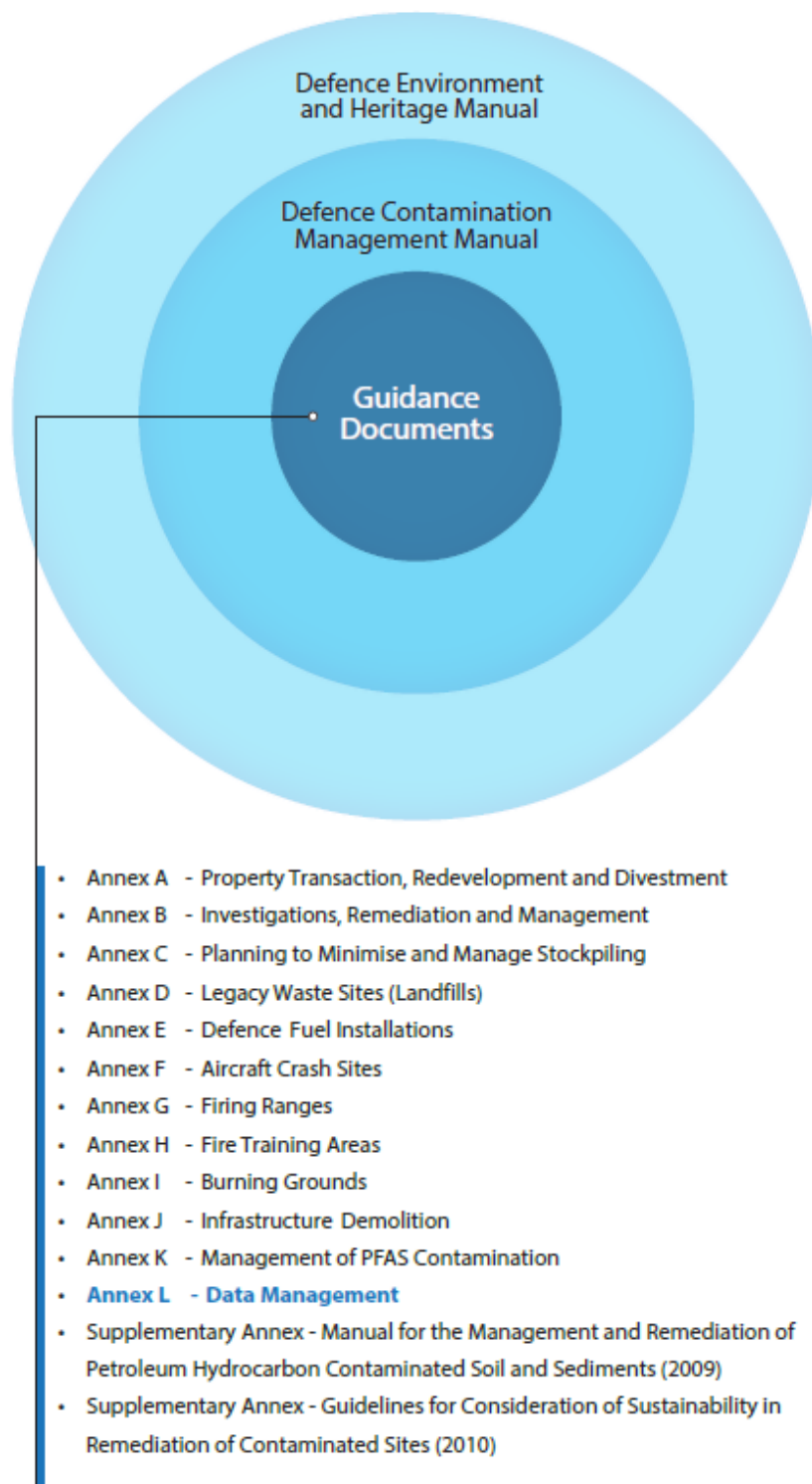


Figure 1-1 Defence environmental documentation and Annex L

2. Regulatory Overview

2.1 Overview

Defence and its contractors must operate to comply with all Commonwealth legislation. Reference can be made to the [Defence Legal Obligations and Compliance Register \(LOCR\)](#), which is designed to provide both guidance on environmental legal obligations and as a tool to manage compliance to these obligations.

Defence may not be subject to State and Territory law in all situations. Whether or not Defence is bound by State and Territory law is a complex issue and legal advice must be obtained to confirm whether a particular State or Territory law is applicable to Defence. Defence contractors must comply with relevant State or Territory laws.

2.1.1 NEPM

The National Environment Protection (Assessment of Site Contamination) Measures 1999 (Cth) (the ASC NEPM) was made under the *National Environment Protection Council Act 1994* (Cth) (NEPC). The ASC NEPM is the national guidance document for the assessment of site contamination in Australia. It is given effect by the *National Environment Protection Measures (Implementation) Act 1998* (Cth) for the Commonwealth and individual legislation and guidelines in each State and Territory.

The NEPC agreed to vary the NEPM by approving an amending instrument to the ASC NEPM in 2013.

All assessments of site contamination on the Defence Estate are to be undertaken in accordance with the recommended process and guidance provided in the ASC NEPM.

The purpose of the ASC NEPM is to establish a nationally consistent approach for the assessment of site contamination, to ensure sound environmental management practices by the community, including regulators, site assessors, site contamination consultants, environmental auditors, landowners, developers and industry parties.

The desired outcome of the ASC NEPM is to provide adequate protection of human health and the environment, where contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination.

The ASC NEPM and schedules are available for download through the [NEPC](#) website. The [ASC NEPM Toolbox](#) contains additional information including calculators, spreadsheets and other supporting documents to assist with application of the ASC NEPM.

2.1.2 Work Health and Safety Act 2011 (Cth)

The *Work Health and Safety Act 2011* (Cth) (WHS Act) commenced in 2012 and is regulated by Comcare, a Commonwealth Government agency that works in partnership with the Safety, Rehabilitation and Compensation Commission. The WHS Act provides for a nationally consistent framework to protect workers and other persons against harm to their health and safety through the elimination or minimisation of the risks to the extent reasonably practicable.

Under the WHS Act, employers must take all reasonably practicable steps to ensure the health and safety of its employees and those who are at or near a workplace under the employer's control. This means that Defence and its contractors have obligations to protect the health and safety of workers and others operating within the vicinity of contaminated land that is on or near to a workplace under Defence control.

Refer to DCMM for details on the application of assessment stages as described in the NEPM for the Assessment of Site Contamination



Model Codes of Practice administered by Safe Work Australia provide practical guides to achieve the standards of health, safety and welfare required under the WHS Act.

Any controls outlined in the [Defence Safety Manual \(SafetyMan\)](#) must be implemented when managing contaminated materials.

2.1.3 Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as matters of national environmental significance.

The EPBC Act protects:

- The environment, where actions proposed are on, or will affect Commonwealth land and the environment.
- The environment, anywhere globally on land and water, where a Commonwealth agency – including the Department of Defence – are proposing to take an action.

The nine matters of national environmental significance to which the EPBC Act applies are:

- World heritage properties
- National heritage places
- Wetlands of international importance (Ramsar wetlands)
- Listed threatened species and communities
- Listed migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource in relation to coal seam gas development and large coal mining development

Defence uses a comprehensive environmental impact assessment and approval program to understand and manage the impacts of its activities on the environment and heritage, and to ensure compliance with the EPBC Act.

Under the [Defence Environment and Heritage Manual](#), the Director of Environmental Planning, Assessment and Compliance (DEPAC) is the Defence technical authority for determining compliance with the EPBC Act. All matters that may trigger the EPBC Act are to be referred to DEPAC.

DEPAC undertakes a self-assessment against the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* and *Guidelines 1.2 – Actions on, or impacting upon, Commonwealth Land and Actions by Commonwealth Agencies*, published by the Department of Agriculture, Water and the Environment to determine whether an action is likely to have a 'significant impact' on a matter of national environmental significance protected by the EPBC Act.

The self-assessment process considers the nature and extent of contamination and if the presence, disturbance, removal or remediation of existing contamination is likely to have a significant impact on EPBC Act protected matters. Where a significant impact to the environment is 'likely', the action must be referred to the Minister for the Environment to make a determination on whether a proposed action is a 'controlled action'.

For more information with regard to the EPBC Act refer to <http://www.environment.gov.au/epbc/>.

2.1.4 Defence Legal Obligations and Compliance Register

Defence and its contractors must operate to comply with all Commonwealth legislation, including the WHS Act, EPBC Act and the ASC NEPM. In addition, Defence and its contractors should be generally familiar with the legislative and other regulatory requirements associated with the site activities undertaken relevant to the State or Territory in which the site is located. Contractors must comply with State and Territory laws where applicable. Reference can be made to the [LOCR](#) which is designed to provide both guidance on environmental legal obligations and as a tool to manage compliance to these obligations.

2.2 Contractual obligations

Contamination investigations undertaken on the Defence Estate and Defence leased assets are to be undertaken in accordance with existing Defence business processes as outlined in the DCMM and available on [DEQMS](#) and [GEMS Gateway](#).

All contractors undertaking contamination investigations are responsible for complying with these processes.

3. Defence Contamination Data Management System (CDMS)

3.1 Overview

The Defence Contamination Data Management System (CDMS) comprises three main data systems (GEMS, EDMS and geospatial), associated guidance and processes, and other tools that present and interrogate data from various sources.

Figure 3-1 shows a broad overview of the CDMS in the context of projects that consultants will undertake on the Defence estate and where further information can be found within this annex.

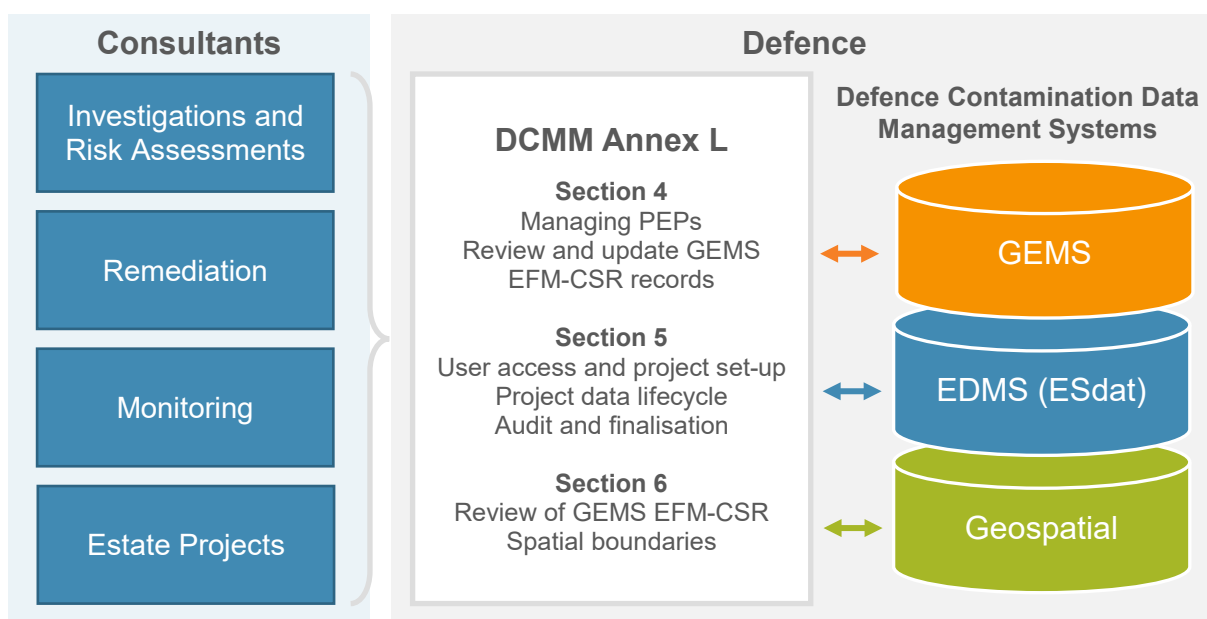


Figure 3-1 Overview of CDMS

3.2 Roles and responsibilities

The main input of contamination-related data from the Defence estate to the CDMS is via consultants, so it is imperative that all relevant stakeholders are aware of their roles and responsibilities. A summary of the roles and responsibilities of both the consultant and Defence stakeholders is provided in Table 3-1.

Table 3-1 Summary of CDMS stakeholder roles and responsibilities

Role	Responsibilities
Consultant Project Team	
Consultant Project Manager	- Be the primary point of contact for project related issues and questions between Defence and the Consultant Project Delivery Team - Be aware of requirements (outlined in this annex) for data management and deliverables for their project and ensure they are met - Review all deliverables for compliance against Defence requirements - Be aware of communications between other consultant project team members (e.g. Consultant Defence EDMS (ESdat) User) and Defence

Role	Responsibilities
Consultant Project Delivery Team	• Be aware of requirements (outlined in this annex) for data management and implement these during project delivery (e.g. planning, field work, reporting and data delivery) • Review relevant existing information in the GEMS EFM-CSR and associated contamination assessment / remediation reports • Prepare update of GEMS EFM-CSR using the GEMS Data Load tool (GDL) spreadsheet, accurately reflecting the results and findings of the investigation • Submit to Defence GEMS EFM-CSR Administrator all the Defence PM approved GEMS EFM-CSR updates including supporting contamination reports and Contamination Risk Assessment Tool (CRAT) output (in excel), where relevant • Prepare update of CSR geometry and other Geographical Information System (GIS) data per SDMP requirements and this Annex • Add Defence PM approved spatial datasets to NSIMS and notify Defence PM • Liaise with nominated DCARM Spatial Data Custodian and GEMS Master Data Management Team, as required
Consultant Defence EDMS (ESdat) User	• Undertaken training and added as nominated user for ESdat • Be aware of requirements (outlined in this annex, particularly in Section 5 EDMS - ESdat) for data management • Champion and disseminate data management requirements in relation to planning, fieldwork and reporting within project delivery team (including field personnel) • Liaise with Defence EDMS (ESdat) Administrator as required • Request EDMS projects to be set-up using nominated form • Review existing locations and reserve planned locations in EDMS • Ensure samples are collected using the sample naming convention and complete Chain of Custody (COC) documentation with correct Defence project details (Section 5 EDMS - ESdat) • Upload location, well and field data following fieldwork and review, reconcile and approve laboratory reports • Complete project audit checklists when required and at project finalisation

Role	Responsibilities
Defence Project Team	
Defence Project Manager	• Be the primary point of contact for project related issues and questions between consultant and Defence • Be aware of requirements (outlined in this Annex) for data management and deliverables for their project and ensure they are met • Review the GEMS EFM – CSR when preparing any requests for proposals/tenders to deliver contamination assessments and/or remediation at a Defence property and/or a site • Liaise with Defence CDMS Team as required • Provide GEMS outputs and spatial dataset for relevant CSR/property to support requests for proposal or tender, or request Defence CDMS team provide relevant data • Provide all relevant reports listed in GEMS EFM-CSR and from Objective to consultant • Identify and communicate site environmental risks to support compliance with legislation and Defence policy • Review, validate and approve CSR updates, investigation reports and records, and ensure approved updates are submitted to Defence CSR Administrator for upload to GEMS EFM-CSR • Review, validate and approve CSR spatial data and ensure approved datasets are added to NSIMS • Notify the DCARM Spatial Data Custodian who will update existing dataset(s) in NSIMS with new dataset
Defence CDMS Team (contactable via ncrp@defence.gov.au)	
Defence GEMS CSR Administrator	• Liaise with Defence PM to enable GEMS CSR updates and outputs when required • Validate and quality check information submitted by consultant (GDL spreadsheets, reports, CRAT outputs and other supporting documents) • Update GEMS EFM-CSR • Update GEMS Property Environmental Profile (PEP) • Close out CSR requests
Defence EDMS (ESdat) Administrator	• Liaise with Defence PM and Consultant Defence EDMS (ESdat) User as required • Maintain database overall and liaise with software provider as required • Create new projects in ESdat as required • Request project audits from consultants as required • Review audit checklists and where compliant, finalise projects
Nominated DCARM Spatial Data Custodian	• Liaise with Defence PM and Consultant Project Manager as required • Export relevant spatial data for projects as required • Quality check Defence PM approved spatial datasets added to NSIMS by Consultant Project Delivery Team and update in NSIMS • Liaise with GEMS Master Data Management Team to prepare dataset for GEMS GEO

4. Garrison Estate Management System (GEMS)

4.1 Overview of Contaminated Sites Records in GEMS

4.1.1 GEMS business functions and processes

The GEMS is a single, integrated system to manage the Defence estate and service delivery and support the Defence Estate Life Cycle.

It is part of the Defence Systems Applications and Products in Data Processing (SAP) system, and provides a single source of information for all estate management activities. This includes a consistent and centralised set of processes, increased automation of estate management work and a better reporting functionality utilising statistical, graphical, visual and spatial features. GEMS also provides real time exchange of electronic information between Defence and Defence contractors/consultants.

The business functions and processes supported by GEMS are shown in Table 4-1.

Table 4-1 GEMS business functions & processes

Business Functions	Business Processes
• Estate planning • Estate financial programming • Acquisitions, leasing and disposals • Major capital facilities development and delivery • Public Private Partnership facilities projects • Estate operations including repairs and maintenance • Land management services • Waste management • Environmental management services • Hospitality and catering • Estate technical governance and compliance	• Contract management • Financial management • Program planning and management • Project management • Works processing • Notifications and communications • Risk management • Performance management • Reporting and analysis

4.1.2 Property Environmental Profile (PEP) in GEMS

In GEMS, environmental factor information is recorded within the Property Environmental Profiles (PEPs) as Environmental Factor Records (EFRs). The EFRs capture the specific occurrence of an environmental aspect on a Defence property (including contaminated sites).

A PEP lists all the EFRs associated with a property. PEP is further explained in Section 4.2.

Log into
GEMS via
GEMS
Gateway to
view existing
Contaminated
Sites Records

4.1.3 Contaminated Sites Records in GEMS

A CSR is one of the EFRs in the PEP. CSRs are maintained in the GEMS EFM-CSR which is a management tool to create and maintain records of potential and actual contamination and associated risks on the Defence estate.

The CSR data supports the prioritisation, assessment and remediation of contaminated sites at all Defence properties and informs the annual calculation of contamination liabilities and provisions for the Defence Financial Statements.

The GEMS EFM - CSR is administered within Defence by DCARM who is responsible for the development of contamination management policy for Defence. CSRs are further explained in Section 4.3.

4.1.4 GEMS in relation to PEPs and CSRs

The hierarchy and environmental components of GEMS in relation to PEPs and CSRs are shown in Figure 4-1.

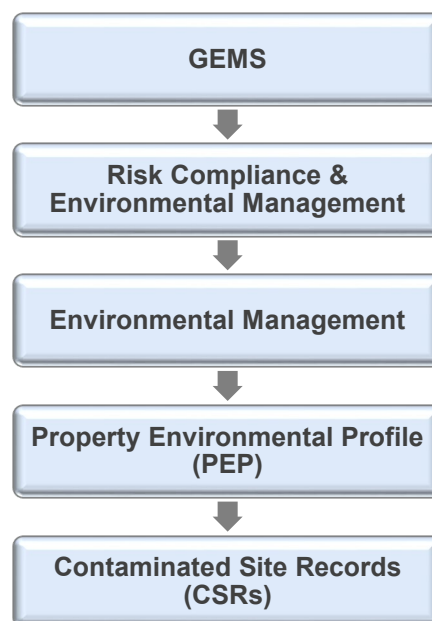


Figure 4-1 Environmental components of GEMS in relation of PEPs and CSRs

4.2 Property Environmental Profile

4.2.1 What is a PEP?

A PEP provides a summary of the key issues, status and assessments conducted for a Defence property in relation to the following nine Environmental Factors.

- Asbestos
- Heritage
- Biodiversity
- Bushfire
- Biosecurity and Overabundant Native Species (BONS)
- Soil
- Contaminated Sites
- Waste
- Resource Management

It also shows the EFR Risk Level Summary for the property.

OFFICIAL

At a property level, the Key Environmental Issues include the following:

- Threatened Species and Communities
- Biosecurity Management Zones
- Key Threatening Processes
- Bushfire Prone
- Contaminated Sites
- Highest Assessed Heritage Status
- Erosion
- Acid Sulfate Soils
- Energy Constraints
- Renewable Energy Opportunities
- Portable Water Constraints
- Climate Change Risk Assessed

An example of a PEP in GEMS is shown in Figure 4-2.

Property Environmental Profile: Blamey Barracks

Functional Location: Blamey Barracks Functional Location ID: PR 20/0315 Status: Active

Street: Kapooka Drive State: New South Wales Region: Southern NSW
City: Kapooka Country: Australia Tenure: Owned

Created By: DATA4 Data 4 Date Created: 01.02.2017
Last Changed By: Last Date Changed: 21.06.2019

Key Environmental Issues		EFR Risk Level Summary			
		Very High	High	Medium	Low
Threatened Species and Communities:	Yes	0	0	0	0
Biosecurity Management Zones:	No				
Key Threatening Processes:	None Recorded				
Bushfire Prone:	Yes				
Contaminated Sites:	Yes				
Highest Assessed Heritage Status:	Unlisted: Proposed CHL				
Erosion:	None Recorded				
Acid Sulphate Soils:	None Recorded				
Energy Constraints:	Not assessed				
Renewable Energy Opportunities:	Not assessed				
Potable Water Constraints:	Not assessed				
Climate Change Risk Assessed:	Not assessed				

Figure 4-2 PEP in GEMS – example Blamey Barracks

For Contaminated Sites (one of the nine Environmental Factors), the PEP provides a broad overview of a property's contamination risks, and identifies assessments and remediation that have been undertaken. Figure 4-3 is an example of a PEP Contaminated Sites Summary.

Property Environmental Profile: Blamey Barracks

Functional Location: Blamey Barracks Functional Location ID: PR 20/0315 Status: Active

Street: Kapooka Drive State: New South Wales Region: Southern NSW
City: Kapooka Country: Australia Tenure: Owned

Summary | CSR Details | Objects | Projects/Work Order | Compliance | Risk | Hazards | Incidents | Notes | Documents

EPA Notification: No
Assessed By:
Assessment Date:

Property Contamination History:

Key Contamination Issues: Potential contamination issues include buried waste (RMV0052, RMV0054), and identified hydrocarbon contamination (RMV0050). The dumping of waste is prevalent across the site, as are areas used historically as firing ranges. The recommendations made within the Stage 2 are for further investigation and management of these areas as they are inactive and in isolated

Source: Buried Waste; Incinerator; Bulk Fuel Storage; Firing / Ammunition ranges; Fire Training Activities; STP.
Pathways: Drainage - below ground, surface; soil; groundwater; Vapours.
Receptors: Site Users; Sandy Creek; Sediments.

Figure 4-3 PEP Contaminated Sites in GEMS – example Blamey Barracks

4.2.2 Accessing the PEP in GEMS

A summary of the PEP for a Defence property and the associated EFRs are accessible through the Defence Protected Network (DPN). It can also be exported as a factsheet directly by Defence personnel. An electronic copy of the reports/documents that are listed in the PEP summary can be obtained through the Defence records management system (Objective) within the DPN.

Refer to [GEMS Gateway](#) for further assistance or contact the CSR administrator at ncrp@defence.gov.au.

4.2.3 Update of PEP by GEMS EFM-CSR Administrator

The PEP should be updated to reflect new information regarding the nature and/or extent of contamination for the property. The PEP is updated by the GEMS EFM-CSR Administrator based on the CSR data in the technical reports provided by the Contractor/Consultant.

The PEP may need to be updated if:

- New contamination is identified on a property.
- Updated information is available for currently listed PEPs e.g. assessments, remediation, change in land use.
- An incident has caused contamination of the environment.
- Reports, notices, licences and other relevant information needs to be added to a PEP.

4.3 GEMS EFM-CSR Overview

4.3.1 What is a GEMS EFM-CSR?

The GEMS EFM-CSR is one of the Environmental Factor Records that are stored within the GEMS Risk, Compliance and Environmental Management module. It contains data and links to reports and documents about the current known status of contamination on the Defence estate.

Specifically, the GEMS EFM-CSR stores the following site-specific contamination information:

- Geo-referenced location of contaminated or potentially contaminated sites
- Information on the types of known and potential contamination sources and contaminants that exist at a site
- Projects or Work Orders related to the site
- Site history and incidents
- The current CRAT risk rating
- Required or recommended management or remediation
- Reports, notices, licences and other relevant information

Figure 4-4 illustrates the functionality and management of GEMS EFM-CSR within Defence business areas.

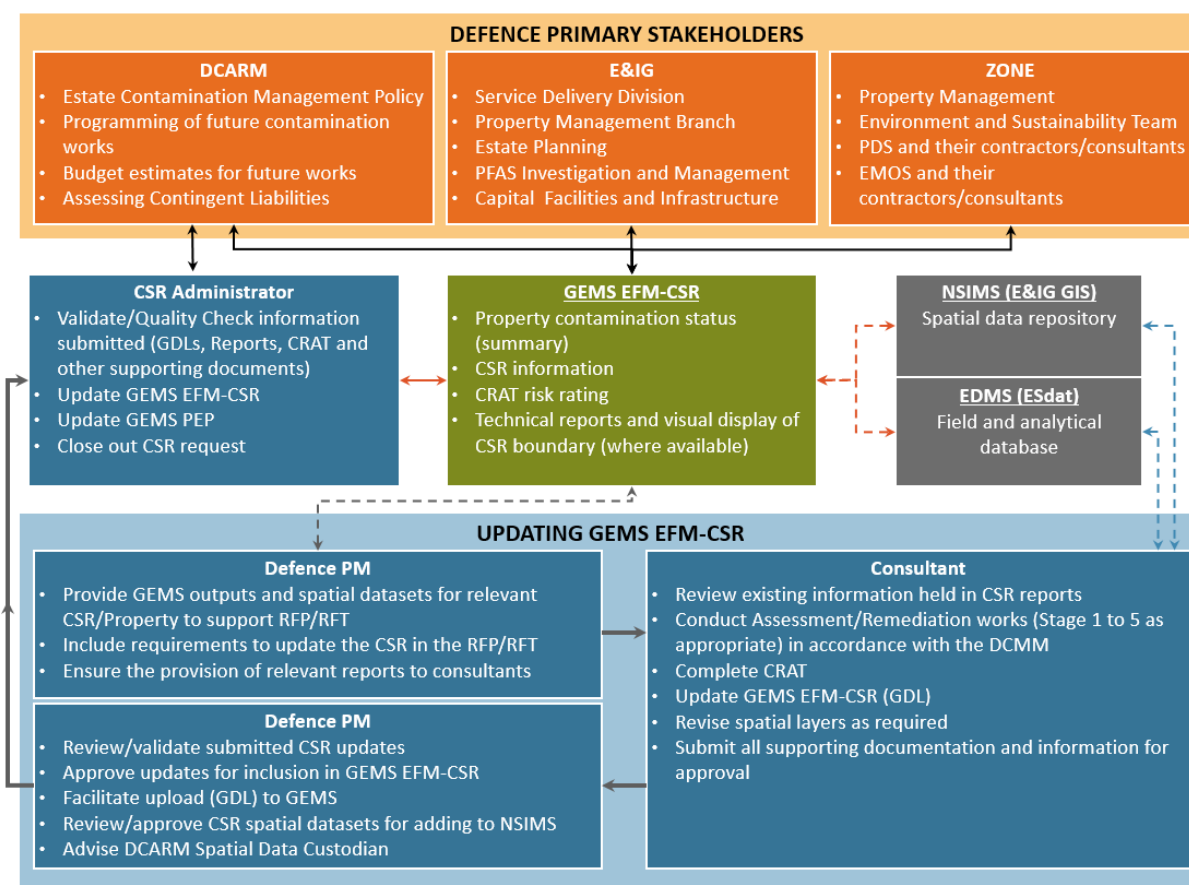


Figure 4-4 GEMS EFM-CSR flow diagram

4.3.2 Key Business Roles for access to GEMS EFM-CSR

CSR information for a specific property and/or an individual CSR resides on the DPN within GEMS. Role-specific access to GEMS need to be obtained prior to gaining access to CSR information.

GEMS Business Roles are groupings of SAP System Access Roles, and each System Access Role has a unique SAP Identity Management (IDM) ID and an IDM Role Name. There are training pathways for each of the GEMS Business Roles, with separate training pathways for View-Only Roles and Edit Roles.

Table 4-2 provides a summary of the training pathways for two key Business Roles for access to GEMS EFM-CSR. The personnel to which these role are most applicable are also identified.

Table 4-2 Outline of training pathways for key Business Roles to access GEMS EFM-CSR

Applicable personnel	Training pathway	Business Role Description
View-Only Business Role: GEMS - EFM Reporter		
Contractors / Consultants ADES / ESM / ESO Defence PM	- Apply for GEMS Access before training via IDM Self-Service Portal - No mandatory training required BEFORE applying for GEMS access	- Access to reports for GEMS EFM-CSR (non-sensitive) - Display and report on all PEP and EFRs for all regions (except for sensitive CSRs and heritage records) - Generate Operational Report (except for sensitive CSRs and heritage records)

Applicable personnel	Training pathway	Business Role Description
	Access self-help training material from SAP Enterprise Help Portal	This role cannot accept or approve CSRs.
Edit Business Role: GEMS - Contamination Program Manager		
CSR Administrator (DCARM admin)	- Mandatory training BEFORE applying for the business role - Access and complete training curriculum in Campus - Apply for the Business Role via IDM Self-Service Portal	- Accept proposed sensitive and non-sensitive CSR as Accepted or Not Accepted - Access reports on Sensitive CSR - Access reports for EFM - Create/maintain/display all CSRs and all other environmental factors - Generate CSR change reports and operational Reports including sensitive CSRs - Display asbestos but not create or maintain asbestos records - EFM – Download/Upload Status change for all Environmental factor types including CSRs, but excludes sensitive heritage records and asbestos - Access GDL tool for CSR download/upload

CSR information can also be exported as a Fact Sheet or in a bulk upload/download GDL in excel format and supplied to contractors/ consultants or other external parties to inform their scopes of work for the delivery of business cases, design services and estate works.

A full list of all GEMS 'View-Only' Roles and 'Edit' Roles, the corresponding System Role IDM IDs and IDM functions are contained in the [GEMS Role Mapping and Training Matrix](#) in GEMS Gateway.

A Steps-by-Step guide containing instructions on how to obtain role-specific access to GEMS and links to specialised training curriculum in Campus can be also found on GEMS Gateway.

For administrator access, please contact the ncrp@defence.gov.au.

4.4 Modifying and retrieving CSRs in GEMS

Modification of CSRs may include:

- Creation of a new CSR for a property
- Amending or updating information of existing CSRs
- Merging duplicate or related CSRs
- Archiving CSRs

This section outlines the requirements and the process for undertaking the above modifications and for retrieving CSRs in GEMS.

Detailed step-by-step guidance for populating the individual CSR Fields in GEMS is provided in the GEMS EFM – CSR, [Guide to CSR Fields in GEMS](#) in DEQMS.

4.4.1 Creating a new CSR in GEMS

Table 4-3 outlines when and how to create a new CSR for a property in GEMS. For details on the nature and formats of the data and documentation that need to be provided for input to GEMS, refer to Section 4.5.

Table 4-3 Outline of when and how to create a new CSR in GEMS

Creating a new CSR in GEMS	
When	A new CSR should be created for a property if no CSR already exists, when: • An investigation has been conducted and contamination has been detected, with demonstrated complete Source-Pathway-Receptor (S-P-R) linkages • An incident has caused contamination to the surrounding environment (e.g. pollution prevention measures were insufficient to mitigate it) • Evidence suggests that contamination is suspected due to previous land use or Defence activities
How	Email the following key information to ncrp@defence.gov.au: • Property Name • Property ID • CSR Title • Descriptive location of the new CSR (e.g. Near building 155 or in NW of property near boundary) • Physical location of the new CSR – can be provide as a single GPS point (lat/long coordinates in WGS84) • CSR Description – Brief description of what the site incorporates (including justification for creation of CSR) This information will be used to generate a unique CSR with a unique number that can be referenced in the contamination investigation report.

A CSR should not be created in GEMS if:

- A contamination investigation confirms that there is negligible contamination risk or S-P-R linkages are incomplete.
- There is a potential for contamination to have occurred, but it has not yet been investigated or confirmed to exist at a location [e.g. on completion of a Stage 1 Preliminary Site Investigation (PSI) and prior to a Stage 2 Detailed Site Investigation (DSI)]. In this case, the consultants may refer to it as a Potential CSR (PCSR), using the following nomenclature until further investigations are conducted:

PCSR_PPPP_000

Where:

PPPP is the 4 digit Defence Property ID

000 is a sequential number starting from 001

4.4.2 Updating information of existing CSRs in GEMS

From time to time, information regarding an existing CSR may change, and the data held on the Defence CDMS for the CSR will need to be updated. Table 4-4 outlines when and how to update information of an existing CSR in GEMS. For details on the nature and formats of the data and documentation that need to be provided for input to GEMS, refer to Section 4.5.

OFFICIAL

Table 4-4 Outline of when and how to update information of an existing CSR in GEMS

Updating information of an existing CSR in GEMS	
When	The CSR information is to be updated when: - Investigations and/or remediation works have changed the status of the CSR fields. - There is a land use change at or in the vicinity of the CSR that has resulted in a change in the contamination risk profile. - An incident has caused contamination of the environment that cannot be rectified using immediate corrective measures (e.g. spill kit).
How	- Download or request download of the existing PEP and CSR data from GDL Tool for the current status of contamination of a specific property. - Use the GDL Tool to update the data (Refer to Section 4.6 for guidance). - Submit the updated GDL to the Defence PM with supporting documentation for review and approval. - Defence PM submit approved GDL to the CSR Administrator. - CSR Administrator reviews, validates and updates the data in GEMS with supporting documents saved in Objective with a link added to GEMS EFM-CSR. - CSR Administrator provides an updated copy of the GDL for review on completion of the data upload.
Other considerations	- If CSR information to be updated is associated with intrusive investigation/ remediation, sample collection, well installation and chemical laboratory analysis, liaise with Defence PM and the Defence EDMS (ESdat) Administrator for the required ESdat database upload (Refer to Section 5 for guidance). - If CSR information to be updated includes spatial boundaries, CSR title, contamination source, or CRAT risk rating, liaise with the Defence PM and the nominated Spatial Data Custodian for data upload in NSIMS (Refer to Section 6 for guidance).

4.4.3 Merging existing CSRs

Merging of CSRs refers to maintaining the CSR that is most pertinent to the contamination source as the primary CSR after modification and archiving the remaining non-primary CSRs. Table 4-5 outlines when and how to merge existing CSRs in GEMS. For details on the nature and formats of the data and documentation that need to be provided for input to GEMS, refer to Section 4.5.

Table 4-5 Outline of when and how to merge existing CSRs

Merging existing CSRs in GEMS	
When	The CSR may need to be merged if: - Duplicated CSRs exist (e.g. two CSRs referencing to the same contamination issue at the same location). - Two or more individual CSRs relating to the same source areas need to be linked by common location/source.

Merging existing CSRs in GEMS	
How	• Submit sufficient supporting information for merging of the CSRs to Defence PM for review and approval, identifying and justifying the primary CSR to be retained and non-primary CSRs to be archived. • Follow the process outlined in Table 4-4 to update the CSR information using the GDL Tool. • Defence PM to request CSR Administrator to archive the non-primary CSRs and include them in the Legacy CSR ID list of the primary CSR that is to be retained (see Section 4.4.4 for information on archiving of CSRs).
Other considerations	• If CSR information to be merged includes fieldwork and laboratory analysis data, liaise with Defence PM and the Defence EDMS (ESdat) Administrator to undertake the required ESdat database updates (Refer to Section 5 for guidance). • Liaise with Defence PM and the nominated Spatial Data Custodian for updating the dataset in NSIMS (Refer to Section 6 for guidance).

4.4.4 Archiving a CSR in GEMS

A CSR may need to be archived for number of reasons. However, archived CSRs are never deleted from the system, but remain retrievable (see Section 4.4.5 for retrieving CSRs). This provides a record and an audit trail that the contamination issue has been considered, investigated and/or remediated at that location.

Table 4-6 outlines when and how to archive a CSR in GEMS. For details on the nature of the data and documentation that need to be provided for input to GEMS, refer to Section 4.5.

Table 4-6 Outline of when and how to archive a CSR in GEMS

Archiving a CSR in GEMS	
When	The CSR may need to be archived (never deleted) if: • Remediation of the CSR has been completed, with “No Action Required” in line with the Contamination Management Sequence. • A documented contamination investigation report has proven contamination is not present. • The property or part of the property containing the CSR is disposed out of Commonwealth ownership. • After merging CSRs (Section 4.4.3) the non-primary CSRs must be archived. • There are no valid lines of evidence to indicate potential or actual contamination exists.
How	• Submit sufficient supporting information and evidence to justify the archiving of a CSR to Defence PM for review and approval. • Where archiving is related to completion of remediation works, validation reports to demonstrate remediation objectives have been achieved, and evidence to support no risk or negligible risks are to be submitted to Defence PM for review and approval. • Follow the process outlined in Table 4-4 to update the CSR information using the GDL Tool.

Archiving a CSR in GEMS	
Other considerations	Liaise with Defence PM and the nominated Spatial Data Custodian for updating the dataset in NSIMS (Refer to Section 6 for further guidance).

4.4.5 Retrieving archived CSR records in GEMS

Archived CSR records are never deleted from the system, and can be retrieved for review if required. Table 4-7 outlines when and how to retrieve CSR records that have been archived in GEMS.

Table 4-7 Outline of when and how to retrieve archived CSRs record in GEMS

Retrieving archived CSR records in GEMS	
When	It may be necessary to retrieve archived CSR records: - To identify and understand past history and contamination impact of an area. - As an audit trail of contamination investigations and remediation activities conducted at the location in the past.
How	Download or Request Defence PM to download the data for the CSR identified as 'ARCHIVED' using the GDL tool.
Other considerations	- If archived CSR information includes fieldwork sampling/monitoring and analysis data, all field and analytical data will still be available through the EDMS (Refer to Section 5 for guidance). - Liaise with Defence PM and the nominated Spatial Data Custodian to download the previous versions of the CSR dataset in NSIMS for past CSR extents and other GIS data (Refer to Section 6 for guidance).

4.5 What data and documentation need to be provided for input to GEMS?

When providing new or updated information for input into GEMS EFM – CSR, the following must be saved to Objective in folder **fAF6903534** with an email supplied to the CSR Administrator (ncrp@defence.gov.au):

- A completed GDL tool (excel workbook) – The GDL file should be exported from GEMS directly (DPN access) or requested from the Defence PM or CSR Administrator. All mandatory fields must be completed/updated for each CSR prior to submission through the Defence PM or to the CSR Administrator for upload (Refer to Section 4.6 for guidance on completing the GDL).
- A completed CRAT in Microsoft Excel format – The CRAT is used to assess and identify the contamination risk associated with each CSR investigated and to generate a risk rating for each CSR where a review of CSM was completed. (Refer to DCMM **Annex B** for guidance on completing the CRAT).
- A copy of relevant supporting documents – Documents may include contamination Investigation reports (e.g. Stage 1 PSI and Stage 2 DSI), site audit statements (or relevant reviews), incident reports, validation reports or other relevant reports describing the investigation or management of contamination, maps, photographs which may be relevant to the PEP and/or the CSRs.

For guidance on the data and documentation that need to be provided for input to ESdat and NSIMS, refer to Sections 5 and 6 respectively.

4.6 GEMS EFM – CSR Fields

Detailed descriptions of all the CSR fields used in GEMS EFM – CSR and guidance for completing the GDL are contained in the '[Guide to the Contaminated Site Record \(CSR\) Fields in GEMS](#)' document on DEQMS.

4.7 Further assistance

For further guidance, refer to the following links or contact the CSR administrator at ncrp@defence.gov.au:

- [GEMS Gateway](#)
- EIG GEMS Support Team: defenceeiggems.sustainment@defence.gov.au
- [Estate Data Information](#) in DEQMS
- [Guide to the Contaminated Site Record \(CSR\) Fields in GEMS](#) in DEQMS
- [Frequently Asked Questions GEMS Environmental Factor Management – Contaminated Site Records](#) in DEQMS

5. Environmental Data Management Software (EDMS) – ESdat

5.1 Overview

Defence uses a specialist web-based Environmental Data Management Software (EDMS) called ESdat to validate, import, analyse and report a broad spectrum of environmental, physical, locational, and metadata.

ESdat is an industry-established platform for consultants to upload data collected from contamination investigation, monitoring and management projects on the Defence estate into a centrally stored database. The database is hosted by Earth Science Information Systems (ESciS) and is managed by DCARM and the Per- and Poly-Fluoroalkyl Substances (PFAS) Investigation and Remediation Directorate (DPFASR). There is capability to accept relevant soil and water chemical data from other Defence business areas as required.

The data in the Defence ESdat database is used by Defence to make decisions and report information to key stakeholders (including other government bodies). The database supports Defence's capability to provision consultants, contractors, and other Defence stakeholders with the most up-to-date and accurate environmental data to inform projects and future contamination programs. Data from the Defence ESdat feeds into other Defence tools, such as GEMS and visualisation portals.

Consultants with a Defence ESdat license will have the ability to access the Defence ESdat database to review, request, upload and edit data associated with their projects.

This section of Annex L defines the conventions and requirements for the Defence ESdat database. It does not replace the training that is necessary to achieve proficiency in the use of the software.

Defence will not provide general advice on the proficient application of the software. This is the responsibility of the consultants engaged by Defence.

5.2 When to upload data to Defence ESdat

Most contamination project data should be uploaded to the Defence ESdat. Table 5-1 outlines the types of projects where data upload is required, and those that do not require data upload. For details of the stages of contamination management, refer to [Annex B](#) of the DCMM.

Table 5-1 Defence ESdat data upload requirements

Stage of contamination management	Upload data to Defence ESdat?	Decision points
Pre-construction Contamination Assessment (PCA)	Potentially	Data upload to Defence ESdat is not required if the construction project involves removal of contaminated soils in the construction footprint, and remaining contamination is less than the adopted investigation levels. Data upload to Defence ESdat is required at completion of the construction project if there is residual contamination that may require further management or monitoring. Data upload to Defence ESdat is required if groundwater or soil vapour sampling is undertaken, even if the wells are decommissioned on completion of the PCA.
Stage 1 Preliminary Site Investigation (PSI)	Yes	Data upload to Defence ESdat is required if sampling is undertaken. Data from sampling completed to inform soil waste classification does not need to be uploaded.
Stage 2 Detailed Site Investigation (DSI)	Yes	Data upload to Defence ESdat is required. Data from sampling completed to inform soil waste classification does not need to be uploaded.
Stage 3 Risk Assessment (including Human Health and/or Ecological) / Remediation Planning and Design	Yes	Data upload to Defence ESdat is required for sampling associated with risk assessments (human health and/or ecological). Data from sampling conducted to delineate an area for remediation, where it is likely that only part of the sampled area will be remediated, or where the data will inform a before-and-after validation, will need to be uploaded (see Section 5.10.1).
Stage 4 Remediation Management Implementation	Yes	Where a Stage 4 project is completed, upload of in-situ residual contamination results to Defence ESdat is required (Refer to Section 5.10.1). Data from sampling to inform ex-situ soil or water remediation or management options does not need to be uploaded.
Stage 5 Further Management Action or Monitoring	Yes	Where ongoing medium- to long-term assessment is undertaken as part of a monitoring or management program, data from the monitoring/management program will need to be uploaded.
Environmental Incident Response	Yes	If an environmental incident occurs with high likelihood that a GEMS EFM – CSR will be created and with potential for ongoing management and monitoring requirements, then sampling data associated with an environmental incident response will need to be uploaded.

Stage of contamination management	Upload data to Defence ESdat?	Decision points
Other considerations and sampling types		
Waste classification	No	Data upload to Defence ESdat is not required for sampling undertaken to inform soil or water waste classification for immediate disposal (e.g. waste temporarily stored in drums or intermediate bulk containers).
Stockpile content	Potentially	Data upload to Defence ESdat is required for sampling undertaken when stockpiling soil or other waste that is unlikely to be removed for disposal in the short term and may be useful for future understanding of the stockpile contents (refer to Section 5.11.5).

If there is uncertainty with the need to upload data to the Defence ESdat, the consultant should be discuss with their Defence PM and a Defence EDMS (ESdat) Administrator.

5.3 Access to Defence ESdat

Defence ESdat: <https://derp.esdat.net>

5.3.1 Licencing

Defence ESdat can only be accessed by licenced users and all licenced users must also maintain a Defence Baseline Security Clearance. Consultants who are required to upload and manage data in the Defence ESdat database will be provided with one consultant user licence to manage their project(s).

Each consulting firm is required to nominate one individually named user that will be responsible for access to and use of the Defence ESdat database by the consultant firm. This would ideally be a user that is proficient in the use of the program (ESdat Web and/or ESdat Desktop) and/or has a strong background in data management.

The nominated consultant user will need to complete the requisite induction (Section 5.3.2) and submit an access request to ncrp@defence.gov.au before they are granted a consultant user licence. If there are changes to the consultant user, the consulting firm must provide details of the replacement consultant user to a Defence EDMS (ESdat) Administrator. The Defence DEMS (ESdat) Administrator will then re-assign the licence in the Defence ESdat database.

5.3.2 Training

Defence will provide a standard 90-minute introduction to the ESdat Web interface requirements as an online training hosted by EScIS on a one-to-one or small group delivery mode. Once the consultant user has successfully completed this induction, a consultant user licence will be granted and a Defence EDMS (ESdat) Administrator will set-up the consultant user ESdat profile.

5.4 Project data lifecycle

An overview of the project data lifecycle within the EDMS (ESdat) is presented as Figure 5-1.

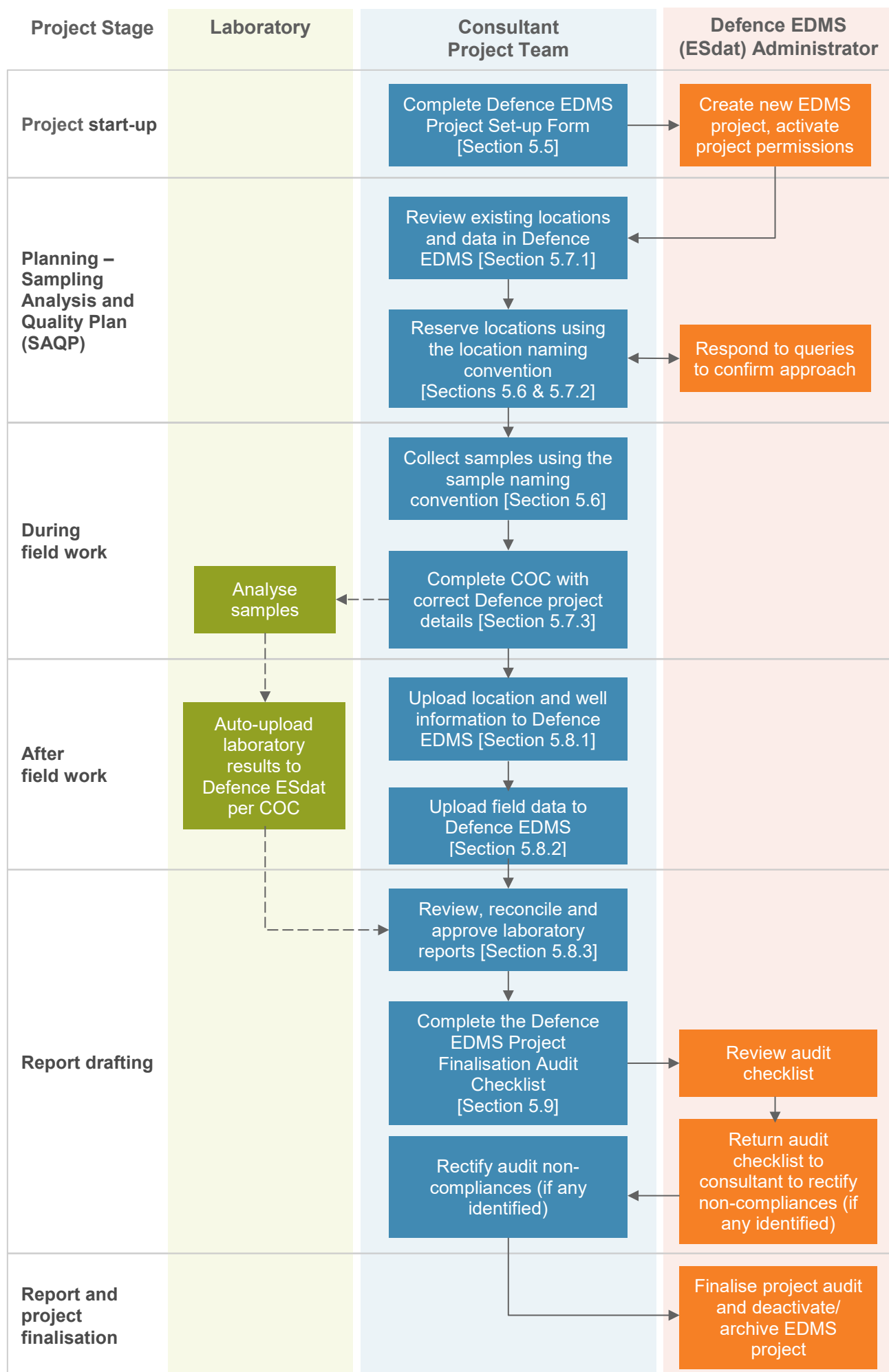


Figure 5-1 EDMS project lifecycle

OFFICIAL

5.5 Project set-up

5.5.1 Project naming convention

Each project with the requirement to upload data to Defence EDMS is given a unique *Project ID*. The *Project ID* naming convention is presented in Figure 5-2.

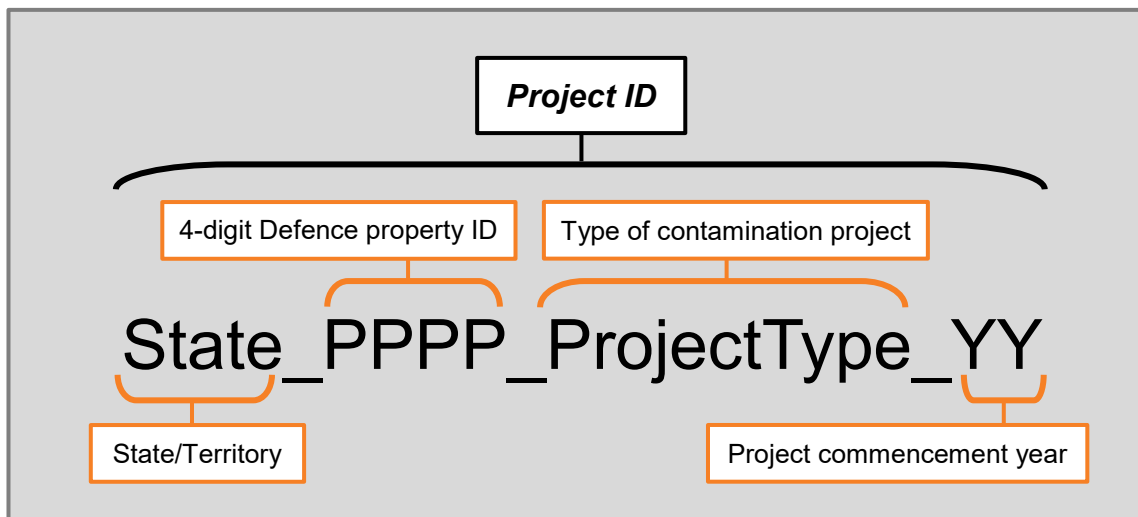


Figure 5-2 EDMS project naming convention

A full list of project types and example *Project IDs* is presented in Table 5-2. Refer to Section 5.2 for the requirements to upload data from contamination projects to Defence EDMS.

As of October 2020, all new non-unique *Project IDs* will have a year suffix (_YY) to avoid duplication of *Project IDs* over time. The year suffix represents the project commencement year, regardless of the number of years the project spans for. The year suffix is not required for projects with unique IDs. Projects that were set-up prior to October 2020 may not have the year suffix.

Table 5-2 EDMS project types

Project Type	Description	Example <i>Project ID</i>
PCAEST00000	PCA projects, where '00000' is the unique EST ID. A year suffix (_YY) is not required for PCA projects	ACT_0022_PCAEST02150
Stage1	Stage 1 PSI projects	ACT_3394_Stage1_19
Stage2	Stage 2 DSI projects	VIC_0596_Stage2_20
Stage3	Stage 3 Risk Assessment (Human Health and/or Ecological) projects	QLD_0207_Stage3_18
	Stage 3 Remediation Planning and Design projects. Refer to Section 5.10.1 for guidance specific to contamination management and remediation projects	

Project Type	Description	Example <i>Project ID</i>
Stage4	Stage 4 Remediation Management Implementation projects. Refer to Section 5.10.1 for guidance specific to contamination management and remediation projects	<i>WA_0089_Stage4_19</i>
Stage5	Stage 5 Further Management Action or Monitoring projects. To reduce confusion with other monitoring programs occurring across the Defence estate (e.g. Routine Water Quality monitoring Plan (WQMP), PFAS Ongoing Monitoring Plan (OMP)), the 'MONITORING' project type discussed in previous versions of Annex L to the DCM has been replaced with 'Stage5'	<i>NT_0990_Stage5_20</i>
PFAS	PFAS investigation projects, encompassing multiple stages of investigation.	<i>NSW_0315_PFAS</i>
PFASOMP	PFAS Ongoing Monitoring Plan (OMP) projects	<i>VIC_0937_PFASOMP_20</i>
PFASMGMT	PFAS management and remediation projects, encompassing multiple service packages. Refer to Section 5.10.1 for guidance specific to contamination management and remediation projects	<i>WA_0967_PFASMGMT_20</i>
PFASgap	PFAS Routine Investigation Close Out (RICO) projects	<i>QLD_1504_PFASgap_20</i>
WQMP	Routine Water Quality Monitoring Plan (WQMP) projects	<i>SA_0669_WQMP_20</i>
OSP	Orphan stockpile sampling projects Refer to Section 5.11.5 for guidance specific to stockpiles	<i>NSW_0027_OSP_20</i>
For other project types not listed above, please discuss alternatives with your Defence PM and a Defence EDMS Administrator (ncrp@defence.gov.au)		

5.5.2 Process

To create a new EDMS project, the following must be completed:

1. Consultant to request the most up-to-date **Defence EDMS Project Set-up Form** (Attachment 1, Appendix A) from their Defence PM and a Defence EDMS Administrator (ncrp@defence.gov.au).
2. Consultant to fill out the Defence EDMS Project Set-up form with information about the project, property and user(s).
3. Consultant to send the completed form back to the Defence PM and Defence EDMS Administrator.

OFFICIAL

4. Defence EDMS Administrator to create the project as per the form and send a confirmation email of the project set-up, including any details that were changed during set-up (e.g. Project ID).
5. Consultant to upload data into the correct project using the correct Project ID (detailed further in Section 5.7.3).

5.6 Location and sample naming convention

5.6.1 Overview

A standardised location and sample naming convention has been developed by Defence to ensure consistency across all contamination projects undertaken on the Defence estate and to allow for more meaningful understanding and use of the data. The naming convention will also support accurate monitoring, data collection and cross-referencing of sample information over time.

Defence Project Managers and contractors managing contamination projects on the Defence estate are responsible for ensuring that all sampling information relating to contaminated sites is consistent with the naming convention outlined in the following subsections.

5.6.2 Location Code

A *Location Code* represents a physical place where samples are collected (i.e. the sampling location). All new sampling locations at a property must be assigned a *Location Code* prior to sampling. A *Location Code* consists of a *Location Type* and a 3-digit sequential number. The *Location Code* is part of the sample ID used when sampling is undertaken (as described in Section 5.6.3).

A summary of the *Location Types* available for use when creating *Location Codes* is provided in Table 5-4.

When creating new *Location Codes*, sequential numbering should be adopted based on what is currently available in the Defence EDMS database for that property (i.e. if the last monitoring well installed at the property was MW012, then the next well installed should be MW013).

Where a sample location associated with permanent infrastructure (e.g. MW, SV) has been replaced, the replacement should be given a new *Location Code*. The previous *Location Code* should not be reused. See Section 5.8.1 for details on how to update location information for decommissioned/destroyed/lost wells.

5.6.3 Sample ID (*Field ID*)

All samples collected from each sampling location must be assigned a unique sample ID (also known as *Field ID* in the Defence EDMS). The sample naming convention is presented in Figure 5-3, with examples given in Table 5-4.

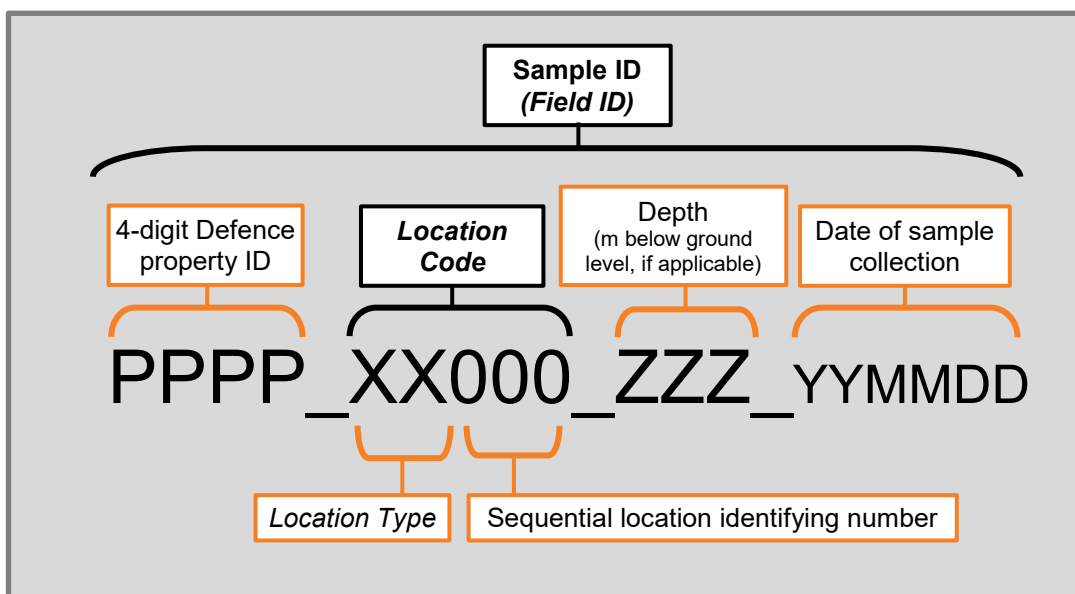


Figure 5-3 Sample naming convention

Depth is only applicable for the following *Location Types*:

- For soil samples (and sediment samples recovered from depth), only the top of the interval is recorded in the *Field ID*, e.g. a sample collected at 1.2 to 1.4 m depth would have 1.2 as the *ZZZ* value.
- For soil vapour samples, an indication of the soil gas sample depth can be recorded as the *ZZZ* value if required, e.g. a gas sample collected from 1.5 m depth would have 1.5 as the *ZZZ* value.
- For nested monitoring wells or vapour wells, the *ZZZ* value is used to differentiate the monitoring unit, e.g. 0902_MW041_S_201108. See Section 5.6.5 for more details.

5.6.4 QA/QC sample naming convention

The naming convention for Quality Assurance (QA) and Quality Control (QC) samples are outlined in Table 5-3.

Table 5-3 QA/QC sample naming convention

QA/QC sample type	EDMS Sample Type	Naming convention	Example <i>Field ID</i>
QC duplicate samples			
Blind duplicate	Field_D	QC1##	1302_QC102_201118
Split duplicate	Interlab_D	QC2##	1302_QC202_201118
QA samples			
Rinsate blank	Rinsate	QC3##	1302_QC313_201118
Field blank	Field_B	QC4##	1302_QC411_201118
Transport (trip) blank	Trip_B	QC5##	1302_QC524_201118
Trip spike	Trip_S	QC6##	1302_QC605_201118
<i>Where ## is a sequential number, independent of sample or matrix type</i>			

Table 5-4 Location naming convention

Location Type	Meaning	Matrix Type	Description	Location Code examples	Sample name (Field ID) examples
Commonly used sample abbreviations					
BH	Borehole	Soil or Solid (concrete only)	A borehole deeper than 20 cm drilled using a mechanical drilling rig, vacuum excavation, hand auger or similar. If the total depth of the borehole is less than 20 cm, the location must be named SS.	BH235	<i>0902_BH235_3.2_201108</i> (soil sample taken from 3.2 m bgl)
SS	Surface Sample	Soil	A surface soil sample collected from the top 20 cm of the soil profile, collected using a hand trowel or similar. If the sample is taken from deeper than 20 cm, the location must be named BH.	SS354	<i>0902_SS354_201108</i>
MW	Monitoring Well	Water, Soil (installation) or Solid (concrete only)	A groundwater monitoring well. Groundwater samples may be collected from a monitoring well using low flow techniques (peristaltic pump, bladder pump), HydraSleeve®, bailer or similar. Where the monitoring well is part of a cluster/group, a Monitoring Unit suffix can be added to the <i>Location Code</i>. See Section 5.6.5 for more details. Soil and concrete samples may also be collected from MW locations during installation. If a monitoring well is not installed (e.g. due to refusal), the location must be named BH.	MW168 MW041S	<i>0902_MW168_201108</i> <i>0902_MW041S_201108</i> <i>0902_MW168_1.5_201108</i> (soil sample taken from 1.5 m bgl during monitoring well installation)
SW	Surface Water	Water	Surface water sample collected by grab sample, Boom sampler, Kemmerer sampler or similar. Where surface water and sediment samples are co-located, each sample must have its own <i>Location Code</i> with the same coordinates. If the Location number does not match, a comment should be provided linking the two samples, e.g. “<i>SW050 and SD033 collected from same location</i>”.	SW095	<i>0902_SW095_201108</i>

Location Type	Meaning	Matrix Type	Description	Location Code examples	Sample name (Field ID) examples
SD	Sediment	Sediment or Soil (if dry)	Sediment sample collected by hand excavation, Van Veen sampler, sediment probe, Vibrocore or similar Where the sample is collected from depth (i.e. not surface), the depth of the sediment sample should be included Where surface water and sediment samples are co-located, each sample must have its own <i>Location Code</i> with the same coordinates. If the Location number does not match, a comment should be provided linking the two samples, e.g. “SW050 and SD033 collected from same location”	SD095	0902_SD095_201108 0902_SD095_0.5_201108 (sediment sample taken from 0.5 m below sediment bed surface)
SV	Soil Vapour	Air, Gas, Soil (installation) or Solid (concrete only)	A soil vapour well drilled using a mechanical drilling rig, vacuum excavation, hand auger or similar. Air/gas samples may be collected from a soil vapour well using SUMMA® canisters, Tedlar® bags, or similar Soil or concrete samples may also be collected from SV locations during installation. If a soil vapour well is not installed (e.g. due to refusal), the location must be named BH	SV010 SV021S	0902_SV010_201108 0902_SV021S_201108 0902_SV010_1.0_201108 (soil sample taken from 1.0 m bgl during soil vapour well installation)
TP	Test Pit	Soil	A test pit excavated using a backhoe, excavator, hand excavations, or similar It may also be used for underground storage tank (UST) validation samples (see Section 5.11.6)	TP104	0902_TP104_1.5_201108 (soil sample taken from 1.5 m bgl)
Less commonly used sample abbreviations					
PW	Pore Water	Water	Sediment pore water sample collected using a PushPoint™ sampler or similar Soil pore water samples collected by a lysimeter should be named SL (soil lysimeter; refer to Section 5.11.1)	PW020	0902_PW020_201108
BIOTFL BIOTFA BIOAFL BIOAFA	Biota samples – refer to Section 5.11.4 for a more detailed guidance on how to use biota <i>Location Codes</i>				

OFFICIAL

Location Type	Meaning	Matrix Type	Description	Location Code examples	Sample name (Field ID) examples
SP	Stockpile samples – refer to Section 5.11.5 for a more detailed guidance on how to use the stockpile <i>Location Code</i>				
POT	Potable Water	Water	A water sample collected directly from a potable water supply system, preferably from a tap If the water sample is collected by lowering sampling equipment down a well, the location must be named MW If the water sample is collected from a different source (e.g. stock water, pool, irrigation, etc.), the location must be named OTH	POT050	0902_POT050_201108
OTH	Other	Any	A sample collected that does not readily fit into the other <i>Location Types</i> listed in this table. It can be used for samples comprising asbestos fragments, concrete, asphalt, paint, influent, effluent, etc. An explanation of the sample composition must be added to the location comments and sample comments OTH should not be used for waste classification samples for immediate disposal (see Section 5.10)	OTH012	0902_OTH012_201108
For samples that are not suitable for the <i>Location Types</i> listed above, please discuss alternatives with or request further clarification from your Defence PM and a Defence EDMS Administrator (ncrp@defence.gov.au)					

OFFICIAL

5.6.5 Well ID and Monitoring Unit

A *Well* entry is required for all MW and SV locations. All well entries have associated metadata including a *Well ID* and *Monitoring Unit*. Refer to Appendix B for other metadata fields that are required to be filled.

Figure 5-4 summarises the *Location Code*, *Well ID* and *Monitoring Unit* to be used in three most common monitoring well scenarios (standard, clustered and nested well installations).

For standard and clustered wells the *Well ID* should be a dash ('-'). The *Monitoring Unit* should always be populated with P, S, I or D (perched, shallow, intermediate or deep respectively). The *Monitoring Unit* represents a relative depth in which the well is screened beneath the property (whether in a single aquifer or multiple aquifers).

For nested wells the *Well ID* should be the same as the *Monitoring Unit* (i.e. P, S, I or D). For more complicated nested well installations an alphabetical series (A, B, C, D, onwards) may be used in the *Well ID*, however the *Monitoring Unit* should still be P, S, I or D.

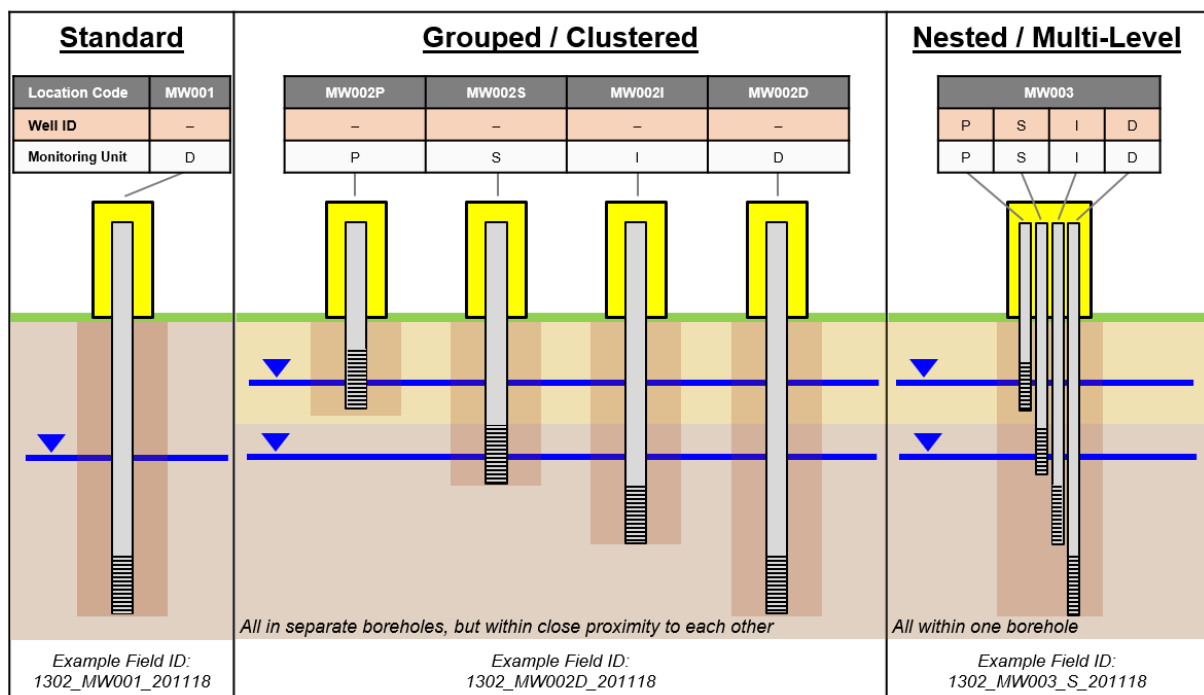


Figure 5-4 Location and sample naming for three common monitoring well scenarios

In all cases, prior to installing any new MW or SV locations, existing wells at the property is to be reviewed to ensure that new wells are named and installed consistently. *Monitoring Unit* and depths of installations (S, I or D, not P which should always only be the uppermost perched aquifer) are to be considered on a site-by-site basis and made consistent.

SV wells are treated similarly to groundwater (MW) wells, however as SV wells will be targeting the unsaturated zone, there is no requirement to maintain consistency between SV and MW wells for depths.

If there is uncertainty on *Well ID* or *Monitoring Unit* that should be used, discuss with the Defence PM and a Defence EDMS Administrator.

5.6.6 Common errors

The most common errors in location and sample naming in the Defence EDMS are listed below:

- HA (Hand Auger) or SB (Soil Bore) when it should be BH (Borehole)
- MB (Monitoring Bore) or GW (Groundwater) when it should be MW (Monitoring Well)
- SED when it should be SD (Sediment)
- LS (Lysimeter) when it should be SL (Soil Lysimeter)
- Including an underscore in the Location Code between the monitoring well ID and the Monitoring Unit suffix (e.g. MW101_S) for clustered/grouped wells
- Addition of letters/suffixes after a Location Code (e.g. SW005A)
- Not adopting the standard 3-digit length for Location Code numbers (e.g. BH01 or SW0471)

If a project contains locations or samples that do not comply with the naming convention outlined in the subsections above, this will be flagged as a major non-compliance during the project audit (Section 5.9) and must be rectified.

5.7 Before field work

5.7.1 Check existing locations

The consultant must review the existing locations, particularly monitoring well locations, for the relevant property/properties in Defence EDMS during the planning stage of the project (e.g. when preparing a SAQP). This allows the consultant to utilise existing locations and data to inform the development of their SAQP. Existing locations can be viewed through the Locations Portal (accessed via the *Field Portal* tab) or the Locations Table (accessed via the *Data View* tab).

Consultant access to Sites and Projects can be reviewed using the Site Access and Project Access tables (accessed via the *Data View* tab).

If the consultant does not have permission to view the property on the Defence EDMS database, a request can be made to the Defence PM and a Defence EDMS Administrator for access to the information.

If the consultant requires access to historical data or other projects occurring on the same site, a request can be made to the Defence PM and a Defence EDMS Administrator for View (read-only) access to the information.

Some locations (e.g. MW, SW, SD) are utilised for ongoing monitoring programs and the same well/locations may be sampled by multiple programs. To track this, the location *Description* and *Purpose* fields are used to provide this additional information, as indicated below:

- *Description* is used to list the contaminants being sampled
e.g. "PFAS, BTEXN, HM..."
- *Purpose* is used to identify the programs using the well, and where relevant, privacy (Section 5.11.3)
e.g. "PFASOMP, EMOS_WQMP"

It is vital that these details are not overwritten by a Location Import Template, and consultants must only append new comments at the end.

If the consultant identifies an existing/historical monitoring well at the property that is not in the Defence EDMS, the consultant must create and allocate a DCMM-compliant *Location Code* (refer to Section 5.6) for this monitoring well and populate the location and well fields as per the requirements in Appendix B – in particular, the *Alternative Name* field (with the historical location/monitoring well ID) and *Data Source* field (with the report year and company that installed the well). If neither of these are known, enter “Unknown ID” and “Unknown” into the respective fields as shown in Figure 5-5.

Location: MW098		List Nearby Locations	Revoke Accepted	Edit
Details Environmental Standards Photos & Docs Map Reports				
Site/Project Project: WA_0089_Stage2 Site: 0089 Monitoring Zone: CSR_WA_000129		Location Details Location Type: MW Location Code: MW098 Alternative Name: Unknown ID Purpose: Asset Code: MW098		
Coordinates Coordinate System: GDA94 / MGA zone 50 Easting: 375023.36 Northing: 6440181.76 Elevation: 1.28 Survey Method: Surveyor Mapped By:		Data Origin Data Source: Unknown Date Added: 04 Nov 2019 2:57 PM Added By: Last Edit Date: 03 Jun 2020 3:37 PM Last Edited By:		

Figure 5-5 Adding locations of unknown origins in EDMS

It is important that these two fields are populated correctly for historical locations so that it is not confused with newly installed monitoring wells and that historical data can be reconciled accurately. If the screened interval and/or survey data are not known (e.g. no borelogs available for the monitoring well), note this in the well comments field.

5.7.2 Reserving new or planned locations

Prior to the commencement of a field program, the consultant is to confirm the sequential location-identifying numbering to be adopted for the property by reviewing the available *Location Codes* in the Defence EDMS database and assigning/reserving new *Location Codes* for the field program. For example, if the program is planning on drilling 20 boreholes and the last borehole drilled on the property was BH321, then *Location Codes* BH322 to BH342 must be created and reserved. This process is critical to the proper application of the EDMS database and to avoid duplication of *Location Codes* and conflicts with other concurrent contamination projects on the property.

To reserve a Location Code, enter “RESERVED” in the Survey Method field and populate the Data Source field with the project commencement year, company name and a short keyword summary of the project (e.g. “2019_CompanyA_Stage 2” or “2020_CompanyB_PFA Mass Flux” as shown in Figure 5-6). These fields must be updated with the correct details after the field program has concluded (see Section 5.8.1 for more details).

Location: SW070 Edit

Details Environmental Standards Photos & Docs Map Reports

Site/Project		Location Details	
Project	WA_0967_PFASMGMT	Location Type	SW
Site	0967	Location Code	SW070
Monitoring Zone		Alternative Name	
		Purpose	
		Asset Code	
Coordinates		Data Origin	
Coordinate System	GDA94 / MGA zone 50	Data Source	2020_GHD_PFAS Mass Flux
Easting		Date Added	20 Jul 2020 5:02 PM
Northing		Added By	
Elevation		Last Edit Date	
Survey Method	RESERVED	Last Edited By	
Mapped By			

Figure 5-6 Reserving locations in EDMS

If there is uncertainty about how to handle data from non-standard sampling, seek advice from the Defence PM and a Defence EDMS Administrator prior to sampling.

5.7.3 Chain of Custody and laboratory requirements

Defence elects to use the automatic laboratory upload function of EDMS. This function allows Defence to receive all chemical analytical results at the same time as the consultant, providing Defence with the ability to understand potential contamination issues at the time of laboratory reporting. This also reduces the time required by consultants to reconcile data to complete projects.

For this automatic laboratory upload to function correctly, the COC documentation must include the Defence auto-upload email address (provided below) as a report recipient and it must include the *Project ID* used in the Defence EDMS database.

It is the consultant's responsibility to ensure that their COCs are completed correctly to facilitate automatic laboratory upload and to ensure that the laboratory follows the EDMS file specifications listed here: https://esdat.net/Lab_Specifications.aspx

Defence Auto-Upload Email Address: DERP.LabReports@esdat.com.au

It is critical that the project ID on the COC and the laboratory-provided EDMS files (specifically the .Header file) matches exactly with the *Project ID* set-up in EDMS, otherwise data upload will fail. Failed uploads must be rectified by requesting the laboratory to re-issue the laboratory report with the correct email address and *Project ID*, or through the *Lab Uploads* tab.

It is recommended that consultants consider establishing a custom project- or program-specific COC form with the *Project ID* and auto-upload email address pre-filled.

Samples that are not to be uploaded into Defence EDMS (e.g. waste classification samples for immediate disposal; see Section 5.2) should be kept on a separate COC/workorder and the ensuing laboratory report should not be uploaded. If already uploaded by the laboratory, it should be deleted in the *Lab Uploads* tab.

5.8 After field work

5.8.1 Uploading location and well information

Consultants are responsible for uploading location and well information to Defence EDMS through the Location Portal (accessed via the Field Portal which is recommended for adding/updating single locations) or by using the EDMS Data Importer template (accessed via the *Import/Export* tab, which is recommended for bulk uploads/updates to multiple locations). The following must be completed:

1. Check that all sampling locations from the field program have been added to Defence EDMS. Add new unplanned locations (if any) or reject reserved locations (if not completed).
2. Populate all mandatory and optional (where applicable) location and well fields for each new location and update existing locations (where required). See Appendix B for a list of the mandatory and optional fields.
 - a. Remove internal comments or non-useful data from the locations (e.g. notes for locations being reserved). It is common courtesy to not overwrite existing comments and to only append new comments at the end of the existing comment (unless the existing comment no longer applies, e.g. the existing comment was about the monitoring well being damaged and the well is now repaired).
 - b. Ensure only the most up-to-date coordinates are entered (e.g. for monitoring wells, enter survey data).
 - c. Check for correctness and completeness of the location and well information for existing locations (e.g. MW) and amended where necessary.
3. Where monitoring wells (MW) or soil vapour wells (SV) are installed, upload borehole logs (in PDF) to the *Photos & Docs* tab within the location page (accessed through the Location Portal). For boreholes (BH) and test pits (TP) where total depth is less than 2 m, uploading these borehole logs is not required unless they provide important site geological/stratigraphy data.
4. Accept the location.

Once a location has been accepted, it cannot be edited unless the acceptance is revoked. If the consultant does not have the required permissions to revoke acceptance of a location, a request should be sent to a Defence EDMS Administrator with an explanation as to why the changes are required.

It is the expectation that the consultant will fully upload and update all location and well information within 28 days of the end of the field program.

The consultant is to report erroneous locations (including duplicates) or erroneous location information to a Defence EDMS Administrator, regardless of whether the locations form part of their project.

5.8.1.1 Dedicated equipment in monitoring wells

There may be multiple concurrent contamination projects on the Defence property where dedicated equipment are installed in monitoring wells (e.g. data loggers, HydraSleeves®, bailers). The consultant must identify this and indicate who is responsible for them in the location comments field (e.g. "*Company A 2020 hydrasleeves*"). It is important to flag the presence of dedicated equipment in monitoring wells to prevent them from being disturbed or removed.

5.8.1.2 Decommissioned locations

If a MW or SV is found to be decommissioned, destroyed, lost, or damaged during a field program, the consultant is to note the well condition in the location comments field along with the consultant company and the month/year that this was noted (e.g. “Confirmed missing (Sept 2020 Company B)”).

If a destroyed/lost monitoring location has been replaced, the consultant is to enter a note into the location comments field that links the destroyed/lost location to the replacement monitoring location (see example in Figure 5-7).

The screenshot displays two location records in the Defence EDMS system. Each record has a header bar with the location name and three buttons: 'List Nearby Locations', 'Revoke Accepted', and 'Edit'. Below the header is a tabbed interface with 'Details', 'Environmental Standards', 'Photos & Docs', 'Map', and 'Reports'. The 'Details' tab is selected for both records, showing a 'Description & Comments' section with 'Description' and 'Comments' fields.

Location: MW036

Details | Environmental Standards | Photos & Docs | Map | Reports

Description & Comments

Description

Comments: Not located since November 2013 (PB); replacement well installed (MW473)

Location: MW473

Details | Environmental Standards | Photos & Docs | Map | Reports

Description & Comments

Description

Comments: Replacement well for MW036 (CSIRO_D)

Figure 5-7 Decommissioned and replaced locations in Defence EDMS

Where known, the note in the location comments field should include the date and details of decommissioning (e.g. “Decommissioned by Company X during Project Y works (Sept 2020)”).

5.8.1.3 Repaired monitoring wells with new Top of Casing elevations

EDMS calculates water elevation from the monitoring well's top of casing (TOC) elevation and the water depth reading (measured in m bTOC). It is important that the TOC field is populated with the most up-to-date/recent survey data so that the water elevation is calculated correctly.

If the well casing has been damaged (e.g. broken, bent, etc.), the monitoring well must be repaired and re-surveyed. Repaired monitoring wells with a new TOC elevation must be amended in the location page (accessed via the Location Portal) as per the instructions below and illustrated in Figure 5-8:

1. Rename existing “-” well to “X-Damaged” or similar and add a well comment with details of the damage and when the damage was noted. This will separate all previous water depth readings calculated from the historical TOC.
2. Create a new “-” well with the same well information (Screened Depth, Base Depth, Monitoring Unit, etc.) but with the newly surveyed TOC elevation and a well comment detailing the repair, when it was surveyed and by which consultant company.
3. Allocate all future laboratory and field data to the newly created “-” well, and not to the superseded well.

Wells					
Name	TOC	Screen Depth (Top - Bo...	Monitoring Unit	Base Depth	Comments
-	46.01	10 - 13	S	13	Well casing replaced and re-surveyed (Oct 2020 Company X)
X-Damaged	46.33	10 - 13	S	13	Well casing snapped off at ground level (Sept 2020 Company X)

Figure 5-8 Repaired wells with new TOC in Defence EDMS

5.8.2 Uploading field data

Field data is a translation of the consultant's field notes for each sampling event. Consultant is responsible for uploading all field data for their field program using the Field Data Importer template (accessed via the *Import/Export* tab).

When selecting a field profile to generate a template, select the appropriate matrix for the field data. The types of field data required for each field profile are presented in Table 5-5.

Table 5-5 Types of field data

Field profile	Upload?	Type of field data
Groundwater	Mandatory	- Water, well and product depths (in m bTOC), including dry wells - Field parameters (pH, electrical conductivity, dissolved oxygen, reduction-oxidation potential, temperature) - Sample observations (e.g. colour, odour, sheen, sediment load, etc.)
Surface Water	Mandatory	- Field parameters (pH, electrical conductivity, dissolved oxygen, reduction-oxidation potential, temperature, turbidity) - Sample observations (e.g. colour, odour, sheen, sediment load, etc.) - Water elevation (in m Australian Height Datum (AHD) if a staff gauge is present and measured) - Flow rate (if measured)
Soil	Optional	PID readings (in ppm)
XRF Reading	Optional	XRF readings of metals (Arsenic, Cadmium, Chromium, Copper, Nickel, lead, Zinc, Mercury; in ppm)

All samples should be assigned to a *Monitoring Round*. It is recommended that *Monitoring Rounds* are named in the following convention:

- 'YYYYMM_Consultant' (e.g. 202011_CompanyX) OR
- 'YYYYMM_Consultant_Description' if more detail is required (e.g. 202011_CompanyX_GME)

It is the expectation that the consultant will upload all field data within 28 days of the end of the field program.

If there is uncertainty on whether to upload field data, discuss with the Defence PM and a Defence EDMS Administrator.

5.8.2.1 Field data import template troubleshooting

Some common issues and their solutions relating to the field data import template are listed below:

- If there are performance issues with the generated import template, leave the 'Template Project' and 'Template Site' fields blank when generating the template. When the template is open in Microsoft Excel, change the calculation option from 'automatic' to 'manual'.
- When copying/pasting data into the import template, ensure that only values are being pasted. Formulas or formatting may cause errors during import.
- By default the template allows 20 rows of data per sheet. If additional rows are required, insert additional rows.

5.8.3 Reconcile laboratory data and samples

The consultants is responsible for reconciling all samples and laboratory data in Defence EDMS through the *Lab Reports* tab. The following must be completed:

1. Check that all laboratory reports from the field program have been added to Defence EDMS. If some laboratory reports are missing from the database, the associated missing laboratory deliverables must be forwarded/mailed to DERP.LabReports@esdat.com.au (see Section 5.7.3 on how to ensure a successful upload via email). Laboratory reports can also be manually uploaded by compressing all lab deliverables (including the EDMS files, COC, certificate of analysis, etc.) into a zipped folder and upload them through the *Lab Reports* tab.
2. Check that the *Matrix Type* and *Sample Type* for all samples are correct.
3. Check the allocation of samples are to the correct *Location Code*. If both the *Location Code* and the *Field ID* are compliant with the naming convention (Section 5.6), the samples should auto-allocate. Manually allocate incorrect or unallocated primary ('Normal') and duplicate ('Field_D' and 'Interlab_D') samples to the correct *Location Code* using the Assign button on the Site/Location column.
4. Allocate all groundwater and soil vapour samples to the correct *Well* (usually "-"), applicable only to water samples for MW locations and gas/air samples for SV locations. The *Well* field should be left blank for all other samples, including soil samples collected during well installation.
5. Assign the correct parent sample to duplicate ('Field_D' and 'Interlab_D') samples.
6. Add sample depths for soil samples.
7. Add sample comments, if required.
8. Approve the laboratory report.

If errors are identified in a laboratory report, request the laboratory to rectify the errors and re-issue the laboratory report.

Samples and laboratory data should be reconciled soon after receipt of laboratory results, ideally at the same time the consultant completes sample reconciliation in their own database.

It is the expectation that the consultant will fully reconcile all samples and laboratory data within 28 days of receipt of deliverables from the laboratory.

5.9 Project audit and finalisation

At the conclusion of a field program, the consultant is to request the most up-to-date **Defence EDMS Project Finalisation Audit Checklist** (Attachment 2, Appendix A) from their Defence PM and a Defence EDMS Administrator. This checklist details the specific requirements for each facet of the data uploaded to the Defence EDMS to ensure all data are consistent, correct, and compliant with the requirements outlined in this Annex. The following must be completed:

1. The consultant completes the audit checklist during the drafting stage of the report, rectifying any non-compliance identified, with any non-compliance remaining should be noted and explained in the checklist.
2. The consultant sends the completed checklist to the Defence Project Manager and a Defence EDMS Administrator for review.
3. A Defence EDMS Administrator audits the project data and will either accept the audit checklist or will note any non-compliance that the consultant must rectify.
4. ***The consultant is to rectify all issued non-compliances within 14 days of receipt of the non-compliance notification.***
5. The Defence EDMS Administrator provides a signed copy of the audit checklist for the consultant's records once the project audit has been passed.

Projects that have concluded will be deactivated and archived to read-only in the Defence EDMS database. For ongoing projects that are audited on a regular or milestone basis, the EDMS project will remain active in the Defence EDMS database while in use.

If the consultant does not have other ongoing projects in the Defence EDMS database, their consultant user licence will be retracted.

The project audit must be completed and passed before the consultant report is finalised, otherwise changes to location or sample data in the Defence EDMS database may warrant a new revision of the report to be issued.

A copy of the passed audit checklist signed by a Defence EDMS Administrator is required prior to contract completion.

5.10 Other considerations

5.10.1 Stages 3 & 4 contamination management and remediation projects – data upload requirements

As described in Section 5.2, there are certain situations in the Stage 3 Remediation Planning and/or Design and Stage 4 Remediation Management Implementation projects when data should not be upload into the Defence EDMS.

The main guiding principles for deciding whether the data should be uploaded to the Defence EDMS is whether the media sampled will:

- Remain in-situ at the conclusion of the remedial works:
 - If yes, the media will remain, data should be upload to Defence EDMS.
 - If no, the media will be removed off-site or moved from its original location, the data is not required to be uploaded to Defence EDMS.
- Be used to inform a before and after validation assessment/study:
 - If yes, the data should be uploaded to Defence EDMS.
 - If no, the data is not required to be uploaded to Defence EDMS.

OFFICIAL

Data associated with any ex-situ or laboratory-based remediation trials (including, but not limited to stabilisation trials) should not be uploaded to the Defence EDMS.

Other key considerations for contamination management and remediation projects are as follows:

- Where monitoring wells are decommissioned, destroyed or lost, they should be treated as per Section 5.8.1.2.
- The Sample Comment field and the Lab Report comment field should be used to describe samples or laboratory reports where non-standard sampling is being conducted.
- Different 'types' of sampling (e.g. different service packages within the project, waste classification or standard sampling) should be split into separate COCs/workorders to allow easy deletion from the Defence EDMS.
- The recommended method for excluding data for upload into the Defence EDMS is listing the correct project ID and Defence auto-upload email address on all COCs (as per Section 5.7.3), then the consultant is to delete the laboratory reports that are not required to be uploaded from within Defence EDMS.
- If validation sampling is to be undertaken of an excavation, follow the advice described in Section 5.11.6.

5.11 Specific location types

5.11.1 Soil lysimeters

Most location types for contamination remediation and management projects are the same as those listed in Table 5-4, however soil lysimeters have been identified as a location type specific to contamination remediation and management projects.

A summary of how the soil lysimeter location type is to be used is as follows:

- *Location Type*: SL (Soil Lysimeter)
- *Matrix Type*: water or soil (installation)
- A lysimeter is placed in the unsaturated zone of the soil profile (sometimes known as a pore water sampling) and used to sample moisture from the soil. If a soil lysimeter is not installed (e.g. due to refusal), the location must be named BH.
- *Location Code* e.g. *SL001* or *SL001D*
- Sample name (*Field ID*) examples:
0902_SL001_201108
0902_SL001_0.5_201108
(where a soil sample is taken from 0.5 m bgl during soil lysimeter installation)
0902_SL001_2011081415
(water sample collected from a soil lysimeter at 2:15 PM)
- As per Section 5.6.5 for MW and SV location types:
 - A well entry is required for all SL locations.
 - A soil lysimeter is treated in a similar way to a MW location, where the *Screen Depth* is the depth range of the porous section of the lysimeter.
 - The *Monitoring Unit* is also very similar and should represent a relative depth in which the lysimeter is screened / collects sample from beneath the property.

- The lysimeter manufacturer, model and any other pertinent installation details (angle of installation, etc.) should be included in the comments field of the well entry.
- The borehole logs (in PDF) should always be uploaded to the *Photos & Docs* tab within the location page (accessed through the Location Portal).

5.11.2 Surface water run-off or similar studies

For any surface water run-off or similar studies, the SW (surface water) and SS (surface sample) location types are to be adopted as per Section 5.6.

To avoid confusion around the presence of surface water at areas where surface water would not normally be present, the location description or comments should contain a note identifying that the location was used for run-off testing, and if testing was conducted by artificial simulation of a rainfall event.

5.11.3 Sampling locations on private properties

Under the *Privacy Act 1988* (Cth), there are requirements for Government management of personal information, including where that information could identify the individual.

Locations on a private property (private locations) such as a property not owned/leased by Defence, or other public land, should not include identifying information or coordinates within Defence EDMS, and must include “PRIVATE PROPERTY” in the *Purpose* field (Figure 5-9).

The screenshot shows the 'Location: SW080' form in the Defence EDMS system. The form has tabs for 'Details', 'Environmental Standards', 'Photos & Docs', 'Map', and 'Reports'. The 'Details' tab is active, showing a form with two main sections: 'Site/Project' and 'Location Details'. The 'Site/Project' section includes fields for 'Project', 'Site', and 'Monitoring Zone', all of which are redacted with black boxes. The 'Location Details' section includes fields for 'Location Type' (SW), 'Location Code' (SW080), 'Alternative Name' (UN2_SW05), 'Purpose' (PRIVATE PROPERTY), and 'Asset Code'. The 'Purpose' field is highlighted with an orange border. Below this is the 'Data Origin' section, which includes 'Data Source', 'Date Added' (15 Aug 2018 12:33 PM), 'Added By' (redacted), 'Last Edit Date' (12 Jun 2020 2:52 PM), and 'Last Edited By' (redacted). There is also a 'Coordinates' section with fields for 'Coordinate System', 'Easting', 'Northing', 'Elevation', 'Survey Method', and 'Mapped By', all of which are redacted.

Figure 5-9 Private locations in Defence EDMS

The private location description or comments may contain generic information of where the sample was collected (e.g. “collected from River X downstream”, “farm dam”), but should not be so specific that it identifies the sampling location.

Programs may maintain access agreement registers to track sampling locations on private property in accordance with specific agreements. Any changes to sampling locations that are made on EDMS should also be updated on the access agreement register.

5.11.4 Biota sampling

All biota sampling must be conducted in accordance with the biota naming convention outlined in Table 5-6. If the biota samples were collected prior to September 2019, the *Location Type* may be BIO only.

Most biota samples will be of a solid matrix (i.e. ‘Biota_S’) comprising whole or part organisms or their products. Biota samples of a liquid matrix (i.e. ‘Biota_L’) are typically serum or blood.

Biota samples require additional sample information to define what type of biota was sampled, as described below and in the examples in Table 5-6. These sample information fields can be populated for each laboratory report through the *Lab Reports* tab.

- Matrix Description - identify the common and species name (if known) of the biota
- Sample Comment - detail the part of the biota analysed

Table 5-6 Biota naming convention

<i>Location Type</i>	<i>Description</i>	<i>Matrix Type</i>	<i>Examples</i>
BIOTFL	Biota – Terrestrial Flora, e.g. fruit, vegetables, grasses, and other plants	Biota_S	<i>Field ID</i> = 0902_BIOTFL001_180630 <i>Matrix Description</i> = Pumpkin <i>Sample Comment</i> = Whole fruit
BIOTFA	Biota – Terrestrial Fauna, e.g. chickens, grazing livestock and their products eggs, milk, blood	Biota_S Biota_L	<i>Field ID</i> = 0902_BIOTFA001_180630 <i>Matrix Description</i> = Chicken egg <i>Sample Comment</i> = Composite of 5 eggs
BIOAFL	Biota – Aquatic Flora, e.g. sea grasses	Biota_S	<i>Field ID</i> = 0902_BIOAFL001_180630 <i>Matrix Description</i> = Seagrass, <i>Posidonia australis</i> <i>Sample Comment</i> = Whole plant
BIOAFA	Biota – Aquatic Fauna, e.g. fish, crustaceans, invertebrates and their products such as roe	Biota_S	<i>Field ID</i> = 0902_BIOAFA001_180630 <i>Matrix Description</i> = Yabby, <i>Cherax destructor</i> <i>Sample Comment</i> = Composite of 3 edible portions

A common error is the incorrect use of Location data to describe biota samples. It should be noted that:

- Location description and comments refer to the location where the biota samples were collected (e.g. "Hunter River").
- Sample description and comments refer to the sample provided to the laboratory.

Co-located media should be assigned to separate *Location Codes* with a note entered into the location comments that links the biota location to the other location as shown in Figure 5-10. For example:

- A surface water sample collected at a fish sampling location should be assigned to a SW location, not a BIOAFA location.
- A surface soil sample collected at a grass sampling location should be assigned a SS location, not a BIOTFL location.

Location:SW284

Edit

Details

Environmental Standards

Photos & Docs

Map

Reports

Description & Comments

Description

Marshall's Creek near Vincent Road bridge

Comments

Co-located with Biota sample BIO224 - BIO228 and SD284.

Figure 5-10 Co-located samples in Defence EDMS – example for surface water and fish sampling co-locations

5.11.5 Stockpiles

Stockpile sampling data should only be uploaded to the Defence EDMS in certain situations where:

- Stockpiled materials are being investigated because their source or origin is unknown (i.e. an orphaned stockpile).
- Stockpiled materials are unlikely to be disposed of in the short-term and sample data may be useful for future understanding of the stockpile contents.
- There is a specific requirement for the data to be retained for a future purpose.

How the stockpile location type is to be recorded is outline below:

- *Location Type*: SP (stockpile)
- *Matrix Type*: soil or solid (asphalt or concrete)
- A stockpile location is a place where a soil or other type of solid sample is collected within a stockpile footprint. There may be multiple stockpile locations for a single stockpile.
- State the stockpile ID in the description if there is one assigned, or provide a description of the location of the stockpile on the property (e.g. "SP behind Hangar A – building B0024"). Where multiple samples are taken from the same stockpile, provide a comment noting which other SP locations are associated with the same stockpile.
- *Location Code* e.g. SP001
- Sample name (*Field ID*) examples:
0902_SP001_201108
0902_SP001_0.5_201108
(soil sample taken from 0.5 m deep into the stockpile)

If stockpile data needs to be uploaded to the Defence EDMS and retained for a future purpose, consider storing this data within a separate project (e.g. 'OSP' project type for the orphaned stockpile program).

If waste classification samples are collected from stockpiles for immediate disposal or re-used on-site in the near future, use a separate COC/workorder for these samples and ensure the laboratory reports are not uploaded to EDMS (refer to Section 5.2).

5.11.6 UST validation samples

For sampling undertaken to validate the removal and decommissioning of USTs or other similar underground infrastructure within one excavation, the following is to be followed:

- Assign all validation samples to one TP Location Code (e.g. *TP101*).
- Use the coordinates for the approximate centre of the excavation as the TP Location Code.
- Add details of the UST decommissioning to the location description and/or comments fields, including the ID of the UST decommissioned if known (e.g. "*0089_UST_016 removal and validation*").
- Identify and differentiate the UST validation samples using the sample ID and sample comments (e.g. Field ID = *0089_TP101-N_3.2_201109*, Sample Comment = *Northern excavation wall, 3.2 m bgl*).

5.11.7 Bulk data uploads

If there is a need to bulk upload data to the Defence EDMS, this should be facilitated through consultation with Defence EDMS Administrators.

Bulk data uploads should only be conducted where circumstances prevent standard live upload and it is subject to stringent data completeness and quality checks (similar to those in place for project audit/finalisation – see Section 5.9).

Laboratory and field data can be uploaded manually through the Lab Reports and Import/Export portals on EDMS.

5.12 Defence EDMS tools

Several tools have been developed to support record-keeping and maintenance of the EDMS. A sample of these tools are listed below and provided as attachments in Appendix A of this Annex.

- Attachment 1: Defence EDMS Project Set-up Form v3.0
- Attachment 2: Defence EDMS Project Finalisation Audit Checklist v4.0

The consultant must request for the most up-to-date version of the EDMS tools from their Defence PM, as the tools are updated from time to time.

5.13 Further assistance

For further support with Defence EDMS, contact the Defence PM and a Defence EDMS Administrator. All correspondence to the Defence EDMS Administrator is to include the Defence PM and the Consultant Project Manager for visibility.

Defence will not provide general advice on the proficient application of the software. This is the responsibility of the consultants engaged by Defence and its contractors.

The following resources are available from the ESdat website:

ESdat Support Portal: <http://esdat.net/Support%20Portal/index.html>

Online Help Manual: http://www.esdat.net/ESdat_Server_Help/

ESdat User Forum: <http://esdat.net/forum/>

ESdat website: <http://www.esdat.net>

6. Contaminated Sites Spatial Data

6.1 Overview

As discussed in Section 4.3, GEMS EFM-CSR is one of the Environmental Factor Records that are stored within the GEMS Risk, Compliance and Environmental Management module, containing site-specific contamination information. The spatial data that supports the identification of an EFM-CSR typically include the results of field sampling (point data) and a derived area indicating the primary and secondary source(s) of contamination (polygon data).

Spatial data is a term that describes datasets that can be displayed in a real-world geographic location on a map, chart or digitally in specialised Geographic Information Systems (GIS) or other software that has spatially enabled components. Spatial data stores geographic locations in either vector form as a series of points, lines, polygons or as raster images using coordinate systems and topology to record and inform the location of information.

Currently, CSR spatial data is stored and/or displayed in multiple systems. The primary systems are:

- National Spatial Information Management System (NSIMS) (Section 6.3)
- GEMS GEO (Section 6.4)

These are supported by:

- E&IG GIS (Section 6.5).
- EDMS (ESdat) with associated program specific web mapping services (Section 6.6).

Each of these databases contain mandatory fields or attributes/values. Additional attributes may be utilised to enhance their discoverability, visualisation, analysis and reporting functionality. These datasets and visualisation platforms make up the spatial data component of the CDMS (Section 3).

The Estate and Infrastructure Group (E&IG) Spatial Data Management Plan (SDMP) was developed to provide minimum standards and specifications for spatial data management. The SDMP and Estate Register Information Model (ERIM) make up the Defence Estate Dictionary (DED), defining all requirements for information collection, storage and maintenance for the Defence estate.

Data suppliers of spatial datasets relating to contamination investigations, assessments remediation programs or projects should consider the guidance contained in the SDMP and within this Annex.

6.2 Defence Spatial Data Management Plan (SDMP)

The [Defence Spatial Data Management plan \(SDMP\) Version 5.0](#) has been developed to provide standards and specifications for spatial data management, improving data consistency and availability of information, and facilitate spatial information dissemination and sharing within E&IG and its stakeholders in the broader Commonwealth, State and Local Government community.

The SDMP provides the minimum Spatial Data Specification for all data stored and managed within E&IG Estate Information Management System, including but not limited to the following:

- GEMS GIS environment
- Defence records management system (Objective)
- NSIMS (currently being reviewed for retirement)

The SDMP is a key element of the management of data within E&IG by defining the minimum specific requirements by which spatial data is to be managed according to the E&IG Information Management Principles (refer to [Section 1 of the SDMP](#) for further details).

The SDMP is intended for use by those creating, using and managing spatial data within, and on behalf of E&IG. The SDMP refers to three main User Groups as listed in Table 6-1.

Table 6-1 Main user groups of SDMP

SDMP Main User Groups	Description of Group
Data Suppliers	E&IG personnel and contractors who create, use and analyse spatial data.
Business Managers	E&IG personnel and head contractors with a responsibility to manage and facilitate use of spatial data within their region or nationally.
Information Stewards	E&IG personnel with responsibility to define and manage data (including and/or related to spatial data) to be made available to Business Managers and Data Suppliers and users.

It is the responsibility of Data Suppliers and Business Managers to implement the SDMP and produce data in accordance with the specifications and Guidance provided in this Annex.

The key sections of the SDMP relating to CSRs are outlined in Table 6-2.

Table 6-2 Key SDMP Sections relating to CSRs

Key SDMP Sections relating to CSRs	Description of contents	Implementation responsibility
General Data Specification - Section 2	Contains the Data Specification that applies to all spatial data.	All users
Specialised Data Specifications - Section 12 Contaminated Sites Data	The specification covers the capture and update of Defence Contaminated Site data that is collected by any project or program undertaking contamination investigations, monitoring and/or remediation on the Defence Estate.	All users working with Contaminated Sites data
Specialised Data specifications – Section 13 Environmental Data	The specification covers data collected for environmental management purposes. The specification provides guidance on the minimum data requirements for Environmental Data.	
Environmental Data Model – Appendix K	Detail requirements in addition to those provided in SDMP Sections 2, 12 and 13. <i>K.1 Environmental Factor Spatial Data Required to Support GEMS Geo-enablement; and K.2 Environmental Asset and Survey Spatial Data</i>	

6.3 National Spatial Information Management System (NSIMS)

6.3.1 Overview

The NSIMS is the E&IG access managed repository for all E&IG Spatial Information and is supported by the SDMP. Typical data stored within NSIMS includes base plans, master site plans, building floor plans, Computer Aided Design (CAD) images, operational manuals, and other supporting documentation for managing the Estate.

All DPN users are able to search for and view datasets in NSIMS. NSIMS includes:

- A spatial dataset metadata catalogue for searching and locating spatial and non-spatial data across the Estate.
- A gazetteer for defining and performing searches on geographic extents or named features.
- A basic viewing tool that allows spatial datasets to be displayed, including attributes/properties of each CSR polygon feature and the datasets metadata.
- Allows datasets to be downloaded from the system for use and display in other systems.

To ADD a dataset to NSIMS, a user must be identified in the System as a Contributor by a National Contaminated Data Custodian.

NSIMS is being reviewed for retirement but should continue to be used as the repository for all Defence Project Manager approved, contaminated spatial data project deliverables, until further instructions are released regarding transition to the alternate solution.

Until NSIMS is retired and DCARM notifies data suppliers, contaminated site spatial data is to be added to NSIMS in accordance with this Guidance and the SDMP unless specified in a Program/Project Scope. See Table 6-3 of Section 6.8 for guidance on the mandatory fields and attribute values for a CSR area dataset.

6.3.2 Mandatory CSR spatial data deliverables

The spatial data deliverables required for a contamination project/activity are defined by the Program or Project Scope. As a minimum, it must include:

- Contaminated Sites - CSR area polygon dataset, where identified
- A Property Contaminated Sites Map (see [Section 12 of the SDMP](#)):
 - In a self-contained soft copy (e.g. PDF).
 - In an editable form (ESRI ArcGIS.mxd map documents as GIS files are preferred).

Contaminated Sites - Sampling Locations records as spatial datasets are no longer mandatory, as this location data will be stored with field sample laboratory results in Defence EDMS, unless specified by the Program or Project Scope (see Section 6.6 for storage of field sampling location data).

Where a map product unavoidably includes licensed reference data (e.g. background imagery), the map must be accompanied by a clear description of the data that Defence will need to re-source to allow it to be updated.

All datasets created or updated in association with these specific datasets also form part of the project deliverables (e.g. groundwater mapping or contours, soil salinity or associated outputs).

Other project deliverables may include remotely sensed data and/or products using a variety of sensors and platforms (e.g. visible and infrared electromagnetic wavelengths sensors from satellite, drones or specialised automated equipment).

6.3.3 What does the area of a CSR cover?

A CSR will only be established where an investigation has determined that the S-P-R linkages are complete and where the Defence CRAT has determined a risk rating (see DCMM, Annex B). The GEMS CSR-EFM provides geo-referenced locations of identified contaminated, or potentially contaminated, sites (DCMM Chapter 5).

6.3.3.1 Contamination Source

A contamination source is the location where a legacy or current activity has caused contaminants to enter an environmental system (soil, water, sediment or air). The spatial representation of a CSR displays this location (DCMM Chapter 3). This location *may* encompass the primary and/or a secondary source(s) of contamination.

The CRAT identifies the:

- **Source Type** as the activity or situation which was known or inferred to be the primary factor causing the contamination.
- **Secondary Source** as the environmental media that are known or have the potential to be contaminated as a result of the primary source.

For example, a leaking fuel tank and surrounding contaminated soils may be identified as a CSR initially, however after initial remediation, the tank may be removed and the area of the CSR may change. After remediation is completed, the remaining contaminated soil may be removed or treated, and the area of the CSR changed, or archived if applicable.

If criteria for the creation of a CSR are not met (see Section 4.4.1), some contamination sources will not be identified as a CSR and consequently will not be represented spatially in GEMS GEO.

PCSRs may be included in GEMS (Section 4.1.3) but are not displayed in GEMS GEO (DCMM Annex B).

6.3.3.2 CSR area polygon

A CSR area may not cover the entire area of contamination, nor directly relate to the extent of the contamination (e.g. where a building is the CSR boundary), the migration pathways or the receptors which may be affected.

The source area of contamination in a CSR spatial dataset are typically recorded as a single polygon and occasionally as a multipart polygon.

The use of site-wide polygons for CSRs where location is not known/could not be found is to be avoided. These can partially obscure or totally cover other CSR polygons.

6.3.3.3 Stockpile CSR polygon

Stockpile CSR polygon areas should cover only the extent of the stockpile, based on information current at the time, and not the management area (e.g. fenced compound the stockpile is located within). This may assist in identifying where soil has been added to stockpiles undergoing management/remediation or have already been categorised for off-site disposal.

6.4 CSRs spatial representation in GEMS GEO

6.4.1 Geo-Enablement of the GEMS

Prior to the release of geo-enablement functionality in GEMS in March 2020, GEMS users explored estate data through traditional tables of information. This remains the primary form of data held in GEMS, along with links to documents held in Defence's document management system, Objective. GEMS geo-enablement involves mandatory application of simple geometry representations that demonstrate existence, area, shape and location of all geo-enabled GEMS estate master records and transactions.

Currently the only contamination object geo-enabled in GEMS GEO is the area of an approved, actual CSR (i.e. not a PCSR). The CSR polygon dataset provides the geometries for the GEMS CSR EFRs.

The SDMP identifies contamination sample locations as Environmental Asset and Survey Spatial Data. This data is created by Defence project/activities for the purpose of identifying and, where required, generating an Environmental Factor spatial dataset but are not themselves EFRs.

GEMS basic geo-enabled functions assist users to visualise, contextualise and interpret GEMS information. Visualisation assists with assuring truth, better understanding relationships, patterns and trends for improved Defence estate decision making.

6.4.2 How CSRs are created, maintained and displayed for GEMS GEO

The [SDMP](#) outlines the elements of the Defence Estate that are represented in GEMS and how they are spatially enabled in Section 15 *GEMS Geo-Enabled Objects* (features) and Appendix N of the SDMP. There are three mechanisms for GEMS geo-enablement for different types of Estate objects. CSRs are geo-enabled through a geometry directly associated with them.

6.4.2.1 Creating and updating CSR geometries

Currently CSR geometries are created and updated external to GEMS via the GEMS Master Data create or update process supplemented with a GEMS geo-enablement work flow.

Once CSR polygon datasets are reviewed and approved by Defence PMs, these files are added to NSIMS as final deliverables by data suppliers. The relevant previous dataset stored in NSIMS is then downloaded for update by the nominated DCARM Spatial Data Custodian, to ensure a whole of Defence Property dataset is updated and available for GEMS GEO.

6.4.2.2 Display of CSR geometries and summary information

When GEMS geo-enablement was initiated, the national contamination site records were used to test and implement some of the processes. Consequently where GEMS records were not matched with an identifiable geometry initially, or if new geometries have not been submitted for a new EFR CSR the system generates "stand-in" geometries. These default CSRs are typically displayed as a triangle in the centre of a Property.

DCARM is undertaking CSR data remediation work and a review of procedures to improve reliability and usability of current active CSR datasets nationally.

It is important to note, that when a CSR record is chosen in GEMS GEO, the information that displays in a pop-up box is from the summary information in the individual EFR CSR record in GEMS and not from the GIS attribute data stored in NSIMS.

6.5 E&IG GIS

E&IG is currently refining its geospatial solutions.

Workspace GIS is currently supporting GEMS geo-enablement, to provide imagery, foundation data and reference layers, base maps and web services and other capability, as required. Currently components of CSR datasets stored in NSIMS are processed for display in GEMS GEO, others are used to support DCARM business processes.

NSIMS is being reviewed for retirement but should continue to be used as the repository for all Defence Project Manager approved, contaminated spatial data project deliverables, until further instructions are released regarding transition to the alternate solution.

6.6 Sampling location data storage (EDMS)

NSIMS has historically been the repository for field sampling location data associated with contamination investigation. From 2021, NSIMS will no longer be the repository for contamination sample location data, instead this will be stored with the laboratory analysis results in the EDMS (see Section 5).

The EDMS stores the longitude (X) and latitude (Y) of field sample locations, taken during contamination investigations. The sample point coordinates enable the display, and analysis of the associated spatial attribute data in GIS software.

Sample locations as a GIS dataset may still be required by some projects/activities as a project deliverable, for example DCARM Regional Contamination Investigation Program (RCIP) investigations, as this may be valuable supporting documentation for the establishment or modification of a CSR area and potentially assist with EDMS audits. However, typically GIS sample location datasets are no longer mandatory unless specified by a project scope.

The SDMP notes (Appendix K.2 2.1.1) where a sample location is deemed to be a permanent or a long-term monitoring location, or is required for incident reporting, and where this data is not already collected within the EDMS, this GIS data is required and should currently be added to and stored in NSIMS.

6.7 CSR spatial data location or extent anomalies

Where a CSR area or sample point location dataset provided by DCARM includes location(s), shape or extent that do not appear to align with the Defence Property boundaries, please contact DCARM at nrcp@defence.gov.au.

Where a Defence Property Boundary in GEMS GEO appears to display incorrectly, please advise your Defence PM and contact the GEMS Master Data Management Team at defenceeiggems.masterdata@defence.gov.au who can provide the most current GIS layer.

6.8 Spatial dataset attribute table structures

The set of fields in the CSR dataset attribute table is a combination of SDMP compliant datasets (Appendix K1 1 and 1.2) and those that currently support DCARM business processes (e.g. mapping products, maintain consistency with existing NSIMS contamination datasets and conventions, facilitate spatial dataset review processes and support the EDMS).

6.8.1 CSR area dataset

The CSR area dataset that covers the entire Defence property has a standardised filename that differs from the SDMP v5, Appendix K, to ensure consistency with earlier NSIMS files.

Filename Format: [Defence_CSR_][PROP_ID]

e.g. *Defence_CSR_0861*

This example file will be the property wide dataset of CSR features (i.e. polygon) that identify the primary and/or secondary source areas of contamination at RAAF Amberley.

The data specifications for the GIS CSR area dataset is outlined in Table 6-3.

Table 6-3 CSR dataset attribute table structure

Field Name	Description of Field	Field Type / max char	Values
FUNC_CODE	A code used to indicate how the individual geometry will be contributed to GEMS	Text 1 char	Allowed Values C - Create U - Update A - Archive V - Void (use this to delete) The above value must align with <i>FunctionCode</i> field in the associated GEMS GDL. In Final approved dataset uploaded to NSIMS this will typically be U or C
STATE	State / Territory abbreviation	Text 3 char	Allowed Values ACT NSW NT QLD TAS WA OTH (eg Overseas)
PROP_ID	Unique Property Identifier which are the last 4-5 digits of the GEMS Property <i>Functional Location ID</i> e.g. <i>PR 20/0861</i>	Text 6 char	e.g. <i>1302</i> IDs less than 1000 are padded with leading zeros e.g. <i>0064</i>
PROP_NAME	Name of Property in full as per GEMS <i>Functional Location</i>	Text 254 char	e.g. <i>RAAF Pearce</i>
EFR_ID	Unique environmental factor record identifier in GEMS (also referred to as CSR ID in GEMS,	Text 20 char	e.g. <i>CSR_QLD_000001</i> The above value must align with the <i>EFR_ID</i> field in GEMS and the associated GDL.

Field Name	Description of Field	Field Type / max char	Values														
	and previously CSR_NO)																
CSR_TITLE	The name of the CSR in GEMS (also referred to as EFRTXT and previously CSR Name)	Text 254 char	e.g. <i>Building 398 – Galvanised Tank</i>														
CSR_RISK	The CRAT risk rating (also referred to as CSR Risk and LEGACYRISK in GEMS, previously RISK)	Text 15 char	Allowed Values Very High High Medium Low Not Assessed														
SOURCE_TYP	As per associated GDL Reference Values for <i>Source Type</i> which includes <i>a numeric code</i> and <i>Description</i> Multiple Values allowed (previously CSR_CLASS)	Text 254 char	Format: [SOURCE TYPE NUMBER] [DESCRIPTION], [SOURCE TYPE NUMBER] [DESCRIPTION] e.g. <i>1 Abrasive Blasting, 13 Contaminated Sediments</i> Please note: Both the Reference Value numeric code and description are required														
BND_BASIS	Records the evidence that is the Basis for the original (if unchanged) or most recent update of CSR boundary shape and extent	Text 3 char	Allowed Values <table><tr><td>PCA</td><td>Pre-construction Contamination Assessment</td></tr><tr><td>PSI</td><td>Preliminary Site Investigation</td></tr><tr><td>DSI</td><td>Detailed Site Investigation</td></tr><tr><td>MON</td><td>Monitoring</td></tr><tr><td>INC</td><td>Incident</td></tr><tr><td>REM</td><td>Remediated and or Managed</td></tr><tr><td>OTH</td><td>Other</td></tr></table>	PCA	Pre-construction Contamination Assessment	PSI	Preliminary Site Investigation	DSI	Detailed Site Investigation	MON	Monitoring	INC	Incident	REM	Remediated and or Managed	OTH	Other
PCA	Pre-construction Contamination Assessment																
PSI	Preliminary Site Investigation																
DSI	Detailed Site Investigation																
MON	Monitoring																
INC	Incident																
REM	Remediated and or Managed																
OTH	Other																
BND_CONF	Records confidence that CSR boundary indicates the area of primary and/or secondary source(s) of contamination	Text 15 char	Allowed Values Confident Probable Possible Unsure Not Assessed														

Field Name	Description of Field	Field Type / max char	Values																																				
CONTAM_CAT	List of identified Contaminant Categories for CSR source(s) Multiple Values allowed Please note: Both the Reference Value numeric code and description are required	Text 254	Format: [CONTAMINANT CATEGORY NUMBER] [DESCRIPTION], [CONTAMINANT CATEGORY NUMBER] [DESCRIPTION], e.g. 3 <i>PFAS</i>, 12 <i>Metals</i> This list has set Category Numbers from GEMS that cannot be changed. Note: This updated list differs from current GDL <table><tr><td>1</td><td>Corrosives</td></tr><tr><td>3</td><td>PFAS</td></tr><tr><td>4</td><td>Asbestos in Soils</td></tr><tr><td>5</td><td>Chemical Warfare Agents</td></tr><tr><td>6</td><td>Explosive Residues</td></tr><tr><td>8</td><td>Petroleum Hydrocarbons</td></tr><tr><td>9</td><td>Chlorinated Hydrocarbons</td></tr><tr><td>10</td><td>Polycyclic Aromatic Hydrocarbons (use PAHs)</td></tr><tr><td>12</td><td>Metals</td></tr><tr><td>13</td><td>Nutrients</td></tr><tr><td>15</td><td>Pesticides / Herbicides</td></tr><tr><td>16</td><td>Polychlorinated Biphenyl (use PCBs)</td></tr><tr><td>17</td><td>Radionuclides</td></tr><tr><td>19</td><td>Phenols</td></tr><tr><td>20</td><td>Other Organics</td></tr><tr><td>21</td><td>Perchlorates</td></tr><tr><td>22</td><td>Phthalates</td></tr><tr><td>23</td><td>Dioxanes</td></tr></table>	1	Corrosives	3	PFAS	4	Asbestos in Soils	5	Chemical Warfare Agents	6	Explosive Residues	8	Petroleum Hydrocarbons	9	Chlorinated Hydrocarbons	10	Polycyclic Aromatic Hydrocarbons (use PAHs)	12	Metals	13	Nutrients	15	Pesticides / Herbicides	16	Polychlorinated Biphenyl (use PCBs)	17	Radionuclides	19	Phenols	20	Other Organics	21	Perchlorates	22	Phthalates	23	Dioxanes
1	Corrosives																																						
3	PFAS																																						
4	Asbestos in Soils																																						
5	Chemical Warfare Agents																																						
6	Explosive Residues																																						
8	Petroleum Hydrocarbons																																						
9	Chlorinated Hydrocarbons																																						
10	Polycyclic Aromatic Hydrocarbons (use PAHs)																																						
12	Metals																																						
13	Nutrients																																						
15	Pesticides / Herbicides																																						
16	Polychlorinated Biphenyl (use PCBs)																																						
17	Radionuclides																																						
19	Phenols																																						
20	Other Organics																																						
21	Perchlorates																																						
22	Phthalates																																						
23	Dioxanes																																						
SOURCE_NAM	Title of the report/project that established the area /extent of the CSR or modifies the area/extent of the CSR	Text 254 char	Format: [OBJECTIVE filename from GEMS] – [GEMS Object ID] e.g. 2020 - AECOM - Stage2 DSI - HMAS Albatross - BS12053471 Note: Where Report recommends Archive leave blank																																				
INSIDE_X	The X coordinate (longitude) of the centroid point of each CSR ie. central point inside each CSR	Double Precision 8 Scale 5	Format: Decimal Degree e.g. 115.88157 A minimum of 5 decimal places (approximate equal to a precision of 1 m). Using the geographic coordinate system (GCS) of the dataset ie. GDA94 or WGS84.																																				
INSIDE_Y	The Y coordinate (latitude) of the centroid point of each CSR ie. central	Double Precision 8 Scale 5	Format: Decimal Degree e.g. -36.99235 A minimum of 5 decimal places (approximate equal to a precision of 1 m). Using the geographic																																				

Field Name	Description of Field	Field Type / max char	Values
	point inside each CSR		coordinate system (GCS) of the dataset ie. GDA94 or WGS84.
LEGACY_CSR	All previous numbers used to identify the EFR_CSR. N.B. where there are multiple unique identifying numbers they should be separated by a comma and then a space. (also referred to as Legacy CSR Number and LEGAL_CSR in GEMS)	Text 254 char	<i>e.g. CNN0109, CNN0304, CSR_NSW_9999</i> This may be a previous CSR number or a unique identifying number temporarily assigned and referenced by a consultant report.
COMMENT	Relevant Information about the Data	Text 254 char	Non-Mandatory field EXCEPT where CSR is a multipart polygon. Required to record. <i>e.g. 12 part multipart polygon with CSR centroid inside most central part; or</i> <i>e.g. 3 part multipart polygon with CSR centroid inside largest part.</i>

6.8.2 Contaminated Sites sampling locations dataset

This dataset is no longer mandatory for collection and submission to NSIMS unless as per SDMP (Appendix K Table K2.1) that the data is not already collected within the EDMS but the sample location is deemed to be a permanent or long term monitoring location, or required for incident reporting.

The sample location dataset has a standardised filename:

i.e. *Defence_CSRsampling_ <Property ID>*

The attribute table structure for the Sample Locations dataset is outlined in Table C1 of Appendix C.

6.8.3 Property CSRs map presentation guidelines

It is a requirement to generate maps showing all current CSRs on Defence properties. The purpose is to support operation and maintenance of the property as well as planning and compliance activities. CSR maps, at this time, are to be generated in accordance with the Contaminated Sites Map Presentation Guidelines detailed in [Section 12 of the SDMP](#).

6.8.4 Other types of contamination spatial datasets

Examples of other forms of spatial datasets that contamination projects/activities may require as deliverables are shown in Table 6-4.

Table 6-4 Other future contamination spatial dataset requirements

Spatial dataset	Description	Format requirement
Contaminant Guideline Exceedance	Data showing contamination that exceeds specified guidelines for human or environmental health across all or part of a Property in a raster form	Refer to: - Section 2 of the SDMP for the preferred raster (image) formats - Section 2.1.2 and Table K2-2 of Appendix K SDMP for filename schema and raster requirements
Contaminant Groundwater Model Outputs	Data showing output of model of predicted contaminant movement in groundwater across all or part of a Property in a raster form	Refer to: - SDMP Section 2 for the preferred raster (image) formats - Section 2.1.3 and Table K2-3 of SMDP Appendix K for filename schema and raster requirements

As for other spatial datasets, when finalised and approved by the Defence PM, they should be added to NSIMS. For examples of minimum datasets for contamination exceedance mapping and for contaminant groundwater modelling outputs, refer to Tables C-2 and C-3 of Appendix C.

6.9 Metadata

6.9.1 Overview

Metadata is structured documentation that describes spatial data. Information stored within metadata may include data currency, accuracy, method of capture, data author, and data quality. Accurate documentation about a spatial dataset ensures data is stored and can be retrieved logically and appropriately in support of E&IG operations and decision making.

It is a requirement for all E&IG spatial data to have a metadata record to accompany each dataset.

6.9.2 Metadata for datasets in NSIMS

A valid metadata record is required to allow data to be loaded into NSIMS. The E&IG Metadata Entry Tool (MET) is to be used to create and edit spatial metadata. The MET allows users to create, view and edit metadata records within the defined metadata structure. Instructions on installation and use of the MET are provided on [DEQMS - Metadata Entry Tool](#).

It is a simple tool designed for non-specialist users to create spatial metadata that meets the E&IG Spatial Metadata Specification. The MET provides an interface that leads a user through dialog steps and options to create a metadata record. Users do not need to be familiar with the full E&IG Spatial Metadata Specification ([Appendix D of the SDMP](#)) to create metadata that meets this specification.

The MET creates a metadata file with the same filename as the data but with an .XML file extension. This metadata file remains in the same directory location as the dataset and always has the same filename as the data.

6.9.3 Specific spatial metadata requirements

As detailed in Section 2 of the SDMP:

- Data capture methodology needs to be specified in enough detail for the data capture to be repeated or for the methodology to be reviewed e.g. the type of Global Navigation Satellite Systems (GNSS) used.
- Horizontal and vertical accuracy of captured data and derived spatial products need to be recorded.

To record accuracy, use the Dilution of Precision (DOP) or Estimated Precision Error (EPE) values recorded by the GNSS at the time of recording a location.

GNSS receivers record the accuracy (or precision) of the GNSS reading as a DOP or EPE. These values can vary dependent on the satellite position and signal quality. Where an accuracy of <30m is required, these readings need to be recorded with the attributes of the GNSS positional data and stored against each record or in the metadata record.

6.9.4 Metadata naming conventions and standardised text for addition of dataset to NSIMS

All metadata fields need to be completed but there are a number of default fields which do not need to be changed. NSIMS contamination datasets use critical keywords, standardised text and format conventions that assist dataset retrieval and management.

In NSIMS, the Metadata entry table is presented in two columns as shown in Figure C-1 of Appendix C. The NSIMS contamination metadata fields that are Project and Data Supplier specific, together with example text are provided in Table C-4 of Appendix C.

6.10 GIS data delivery checklist

To assist Defence PMs ensure that data suppliers provide the specified spatial data that meet the minimum SDMP standards and specifications, a general contamination project/activity GIS data delivery checklist is provided in Table 6-5 for consideration.

Table 6-5 GIS data delivery checklist for contamination project/activity

DEFENCE PM contamination project/activity GIS file checklist	Purpose
Project/Activity Set-Up	
Consider the provision of a Spatial Data Package (SDP) that includes a set of date stamped ESRI spatial files (.shp or .gdb) for the required properties. For example: • A current Defence property boundary file • Existing whole-of-property CSR polygon file • All known monitoring well locations (if relevant) • A template of a CSR polygon file (as per SDMP and Annex L) • A template of a CSR sample location file (as per SDMP and Annex L, if required)	Data Supplier has Defence approved, known and dated GIS datasets at outset of a Project
Confirm delivery mechanism and location for Project draft spatial deliverables, for Stage 1 Review by Defence PM	Establish functional process for delivery and review of draft GIS deliverables
Confirm Data Supplier has access to NSIMS to download datasets for use in Project and as a Contributor (Master/ACT Node) to ADD approved GIS datasets for Stage 2 Review by Defence PM in NSIMS Determine options if required	Only Defence PM approved GIS files are added to NSIMS
Consider a Checklist at the commencement of the project/activity indicating what data Defence has provided and any associated conditions of supply	All parties understand responsibilities
Stage 1 Review	
Deliver to the Defence PM the two mandatory contamination GIS files and any additional datasets specified in the project/activity scope: e.g. 1. Return whole-of-property CSR polygon file with amendments to all or some CSRs, as required and 2. Property map as an .mxd** with source files and/or accompanied by a .pdf • In an identified timeline that allows for review and amendments of the GIS files, if required • With Metadata that is NSIMS and Annex L compliant • With information on for example spatial accuracy and method of capture (as detailed in Section 2 of the SDMP)	Project draft GIS deliverables are submitted for Stage 1 review **See Note below

DEFENCE PM contamination project/activity GIS file checklist	Purpose
File formats as per SDMP e.g. • Zipped ESRI .shp or .gdb files and .mxd with source files • Horizontal Datum – WGS84 if this cannot be provided during the transition to GDA2020, GDA94 is acceptable • Vertical Datum – AHD • Coordinate System - in Geographic Coordinate System (GCS) either WGS84 or GDA94, but not a projected dataset Spatial Accuracy • Boundaries for CSRs – refer to the best available spatial data relevant to the contamination issue or by GNSS techniques to an accuracy of $\pm 5\text{m}$ or better. • Sampling locations - shall be captured using a GNSS technique to an accuracy of $\pm 5\text{m}$. • Free from errors and topologically clean	Files are compliant with SDMP and Annex L. The latter is to maintain consistency with existing NSIMS contamination datasets and conventions Note: The future application of GDA2020 is under consideration. Datasets in GEMS GEO are in WGS84. When downloading datasets from NSIMS these can be either GCS WGS84 or GCS GDA94. DCARM prefers all incoming Final approved Datasets Added to NSIMS to be in GCS GDA94 (ie not projected).
Mandatory spatial datasets names: a. Contaminated Sites Defence_CSR_<Property ID> e.g. <i>Defence_CSR_1302.shp</i> b. Property Contaminated Sites map as a .mxd** CSR_<GEMS Property EB><GEMS Property short name>_YYYYMMDD e.g. <i>CSR_1426Laverton_2020020</i> c. Sampling Locations ** e.g. <i>Defence_CSRsampling_1302.shp</i> **Mandatory only where project scope requires as a deliverable	These file names differ from the SDMP to maintain consistency with NSIMS naming conventions Note: a. The future application of .gdb file format is under consideration but .shp currently remains the format for use in NSIMS. b. DCARM is aware that ESRI is removing support for ArcMap and .mxd. The provision of maps using ArcGIS Pro will be discussed where required
After review of project spatial files, Defence PM notifies the Data Supplier if changes are required or files are approved for Adding to NSIMS	Notify Data Supplier of status of dataset and a request for approved files to be Added to NSIMS
Stage 2 Review	
Data Supplier adds approved CSR spatial files to NSIMS with a completed and compliant metadata record	Approved files Added to corporate spatial data repository by the Data Supplier
Data Supplier notifies Defence PM of successful file upload to NSIMS using the NSIMS Add Dataset tool	Notify dataset Added to NSIMS
Defence PM review datasets and metadata in NSIMS and notify Data Supplier dataset approved	Final, Stage 2 Data review by Defence PM

DEFENCE PM contamination project/activity GIS file checklist	Purpose
Defence PM notifies nominated DCARM Spatial Data Custodian/National Contamination Data Custodian via nrcp@defence.gov.au that a new approved CSR file is available to Update existing CSR files in NSIMS	Notify Spatial Data Custodian to update existing NSIMS files
The nominated DCARM Spatial Data Custodian/National Contamination Data Custodian: - Creates a new version of the most recent CSR dataset (via the Download for Update tool) - Prepares file for loading into GEMS GEO	Notify Defence PM Property wide CSR datasets Updated in NSIMS and expected upload date to GEMS GEO

6.11 Further assistance

- Quick Start Guides in the [NSIMS portal](#) (intranet) to assist with Add Dataset
- Defence NSIMS [User Guide Version 3.2](#) (intranet) on DEQMS
- Training Node in NSIMS to practice and load files to test for example Metadata descriptions
 - Note: NSIMS only works in Internet Explorer. Copy and paste this url to access the NSIMS Training Node:
<http://nsimstraining.drn.defence.mil.au/NSIMSPortal/Main.aspx>
- If you are having difficulties after using the above resources please contact:
defenceeeiggems.sustainment@defence.gov.au Subject *ATTN NSIMS query*

7. References

Department of Defence, Environment and Engineering Branch, Directorate of Contamination Assessment Remediation and Management, *Guide to the Contaminated Site Record (CSR) Fields in GEMS*, 2019

Department of Defence, Estate and Infrastructure Group, *Spatial Data Management Plan Version 5.0*, June 2020

Department of Defence, *NSIMS User Guide Version 3.2*, 2012

National Environment Protection Council (NEPC) (1999) (Cth), *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)* as amended in May 2013 (ASC NEPM)

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

Appendices

Appendix A – Defence EDMS (ESdat) Tools

Attachment 1: Defence EDMS Project Set-up Form v3.1

Attachment 2: Defence EDMS Project Finalisation Audit Checklist v4.1

Attachment 1: Defence EDMS Project Set-up Form v3.1

The form below can be downloaded directly from Objective at [Defence EDMS Project Set Up Form](#)

If you are new to Defence EDMS, please advise the Defence ESdat Administrator (at ncrp@defence.gov.au) that you will be submitting a Project Set-up Form.

Sample Project Set-Up Form (Single Project tab):

Please request Excel spreadsheet version of this form from Defence ESdat Administrator or ncrp@defence.gov.au

 Australian Government Department of Defence		Defence Environmental Data Management Software - ESdat Project Set-up Form v3.0
This form is to be used when requesting a single new project to be set up in the Defence Environmental Data Management Software (EDMS) - ESdat. The form should first be completed by the consultant who is requesting the project, ensuring that the requested project is compliant with the DCMM (Annex L) prior to submission of this form to a Defence ESdat Administrator. Further information about how contamination environmental data is managed by Defence can be found in the Defence Contamination Management Manual (DCMM), specifically Annex L (Guidance on Data Management). The DCMM can be accessed through DEQMS (https://www.defence.gov.au/estatemangement/governance/policy/environment/contamination/default.asp).		
Project Information		
Project ID: As per DCMM (Annex L) guidance. (i.e. State_Property ID_Project Description_YY) (e.g. NSW_1234_Stage2_21 or QLD_1234_PCAEST12345)		
Project Name: (e.g. HMAS Cairns Stage 2 DCARM Investigation 2021)		
Site/Property Information		
Defence Property ID (4 digits only):		
Defence Property Name:		
Coordinate System GDA94 MGA Zone:		
User Information		
Consultant Company:		
Consultant ESdat User(s):		
Consultant Project Manager:		
Defence Project Manager:		
Defence Branch/Program: (e.g. DCARM, PFASIMB, FSB, RWQMP)		
Notes / Information		
Any general information for Defence ESdat Administrator:		
Please name the file based on the following naming convention: DefenceESdatProjectID_Consultant_DateOfRequest (e.g. NSW_1234_Stage2_20_SamplingCo_20201225.xlsx) Upon completion of the form, consultants should email an Excel copy of the checklist to their known Defence ESdat administrator(s) and CC their Defence Project Manager, their internal Project Manager and the ncrp@defence.gov.au group email address. If no Defence ESdat Administrators are known to the consultant, the form may be sent to the ncrp@defence.gov.au group email address. Upon review by the Defence ESdat administrator, they will either set the project up in the Defence EDMS, or request further details from the consultant who requested the project. A confirmation email will be sent confirming that the project has been set up.		

OFFICIAL

Please request Excel spreadsheet version of this form from Defence ESdat Administrator or ncrp@defence.gov.au

OFFICIAL

Attachment 2: Defence EDMS Project Finalisation Audit Checklist v4.1

The form below can be downloaded directly from Objective at [Defence EDMS Project Finalisation Audit Checklist Form](#)

Sample tabs from the Project Finalisation / Audit Checklist:

Please request Excel spreadsheet version of this form from Defence ESdat Administrator or ncrp@defence.gov.au

 Australian Government Department of Defence		Defence Environmental Data Management Software - ESdat Project Finalisation / Audit Checklist v4.0
This checklist is to be used when auditing or finalising projects within the Defence Environmental Data Management Software (EDMS) - ESdat. This checklist is designed to assess the compliance of the project data within the EDMS against requirements outlined in the DCMM (Annex L). The checklist should first be completed by the consultant who completed the project, ensuring any non-compliances are addressed prior to submission of this checklist to a Defence ESdat Administrator. If data is non-compliant, the Defence ESdat Administrator should assess the identified non-compliances to determine if the data is acceptable for archiving/finalisation. If data is not acceptable, the Defence ESdat Administrator should advise the responsible consultant to rectify the non-compliances as required to comply with Defence requirements. Further information about how contamination environmental data is managed by Defence can be found in the Defence Contamination Management Manual (DCMM), specifically Annex L (Guidance on Data Management). The DCMM can be accessed through DEQMS (https://www.defence.gov.au/estatemangement/governance/policy/environment/contamination/default.asp). How to use this checklist: Cells that the consultants should complete are shaded light blue, cells that the Defence ESdat Administrator should complete are shaded light orange, cells that either can complete are white, cells that are not required are shaded grey. The checklist should be completed while reviewing data in the Defence EDMS. Each sheet of this spreadsheet should be reviewed.		
GENERAL INFORMATION		
Project Information		
Project ID: (i.e. State_Property ID_Project Description)		
Project Name:		
Site Information		
Site ID(s):		
Site Name(s):		
Project Status		
Is this project being finalised? (i.e. is it complete)		
User Information		
Consultant Company:		
Consultant ESdat User(s):		
Consultant Project Manager:		
Defence Project Manager:		
Defence Branch/Program: (e.g. DCARM, PFASIMB, FSB, RWQMP)		
Notes / Information		
Any general information for Defence ESdat Administrator:		

OFFICIAL

	Australian Government Department of Defence	Defence Environmental Data Management Software - ESdat Project Finalisation / Audit Checklist v4.0
---	--	---

How to use this checklist:
 Cells that the consultants should complete are shaded light blue, cells that the Defence ESdat Administrator should complete are shaded light orange, cells that either can complete are white, cells that are not required are shaded grey.
 The checklist should be completed while reviewing data in the Defence EDMS. Each sheet of this spreadsheet should be reviewed.

LOCATIONS				
Item	Consultant	Defence	Notes	
Completeness				
Have all locations been added?				
Have any unused locations that were previously 'reserved' been removed?				
Are coordinates the most up-to-date correct coordinates? (e.g. for monitoring wells, are the coordinates from survey data?)				
Have any internal comments or non-useful data been removed from the locations data? (e.g. notes for locations being reserved)				
Have comments been added to the relevant locations for any destroyed/ decommissioned/ damaged wells?				
Have any erroneous 'locations' (including duplicates) or erroneous data related to locations been reported to a Defence ESdat administrator (even if outside particular project)?				
Has advice been sought from Defence for any non-standard sampling (e.g. lysimeters, etc.) and how data is to be handled?				
ESdat Data Compliance				
Location Codes/IDs are DCMM (Annex L) compliant (and entered as 'XX000')				
Coordinates in GDA (eastings/northings) are associated with all locations				
If no coordinates appropriate qualification provided in comments/description				
Location Type is DCMM (Annex L) compliant and matches Location Code/ID				
Where Location Type is OTH, appropriate qualification provided in comments				
Locations are assigned to the most relevant CSR in the Monitoring Zone field where applicable				
Locations have been approved				
All borehole logs for MW and SV locations established in project have been uploaded as PDFs via the 'Documents' tab via Locations Portal				
All borehole logs for BH and TP locations with total depth of >2m have been uploaded as PDFs via the 'Documents' tab via Locations				
Further Notes / Information for Locations				
Non-Compliance Rectification Tracker				
Date	Non-Compliance Description	Date Rectified	Initials	Notes

Please request Excel spreadsheet version of this form from Defence ESdat Administrator or ncrp@defence.gov.au

 Australian Government Department of Defence		Defence Environmental Data Management Software - ESdat Project Finalisation / Audit Checklist v4.0	
How to use this checklist: Cells that the consultants should complete are shaded light blue , cells that the Defence ESdat Administrator should complete are shaded light orange , cells that either can complete are white, cells that are not required are shaded grey. The checklist should be completed while reviewing data in the Defence EDMS. Each sheet of this spreadsheet should be reviewed.			
SIGN OFF			
Consultant Acceptance			
By writing my full name here I am confirming that I have reviewed the Defence Esdat database for this project and this checklist, and confirm that any non-compliances that are remaining have an appropriate explanation:			
Date:			
Please name the file based on the following naming convention: DefenceESdatProjectID_Consultant_DateOfAudit (e.g. NSW_1234_Stage2_SamplingCo_20201225.xlsx)			
Upon completion of the checklist, consultants should email an Excel copy of the checklist to their known Defence Esdat administrator(s) and CC their Defence Project Manager and the ncrp@defence.gov.au group email address.			
Upon review by the Defence Esdat administrator, they will either accept the checklist (and finalise the project if required) or will note any non-compliances that the consultant must rectify. A signed copy of the audit checklist will be sent back once completed.			
Defence ESdat Administrator Acceptance			
By writing my full name here I am confirming that I have reviewed the Defence Esdat database for this project and this checklist and confirm that the project data complies with the requirements, with any non-compliances adequately explained and suitable for finalisation/archive:			
Date:			

OFFICIAL

Appendix B – ESdat Sample Location and Well Information

Locations

ESdat Location Field	Description	Required?	Options/Examples
<i>Site ID</i>	Unique 4-digit Defence property identifier	Required	e.g. <i>0136 (Victoria Barracks)</i>
<i>Project ID</i>	Unique project identifier, set-up as per Section 5.5	Required	e.g. <i>QLD_0136_Stage2_20</i> (A Stage 2 DSI project at Victoria Barracks in Queensland that commenced in 2020)
<i>Location Code</i>	Unique sampling location identifier that must be compliant with the location naming convention outlined in Section 5.6	Required	See Table 5-4 in Section 5.6 for more examples
<i>x_coord</i>	Easting and northing coordinates in Geocentric Datum of Australia 1994 (GDA94), <u>NOT</u> UTM or GDA2020. Must not be included for locations on private property (see Section 5.11.3 for further details)	Required	-
<i>y_coord</i>		Required	-
<i>Elevation</i>	Ground elevation in m AHD, <u>NOT</u> top of casing elevation for MW locations	Optional	-
<i>Description</i>	Description of the sampling location. Can be used to identify analytes included in an ongoing/routine monitoring program	Optional	e.g. <i>Ki-it Monger Brook discharge to Ellen Brook</i> e.g. <i>PFAS, major cations, major anions, physical and inorganic</i>
<i>Location Type</i>	Sampling location type that must be compliant with the location naming convention outlined in Section 5.6	Required	<u>Standard options:</u> BH MW SW SD SS TP Refer to Section 5.6 for a comprehensive list of available Location Types
<i>Monitoring Zone</i>	EFM-CSR ID of the associated CSR, if applicable. Where a location is suited for multiple CSRs, only one CSR (the primary one) may be listed	Required, if applicable	e.g. <i>CSR_QLD_000462</i>

OFFICIAL

ESdat Location Field	Description	Required?	Options/Examples
<i>Survey Method</i>	Method used to obtain the coordinates of the location	Required	<u>Options:</u> GPS Surveyor Map Approximation
<i>Mapped By</i>	The name of the company who obtained the coordinates of the location	Optional	-
<i>Comments</i>	Comments about the location. Where required fields are not populated for the location, appropriate qualification must be provided in the comments	Optional	-
<i>Alternative Name</i>	Previous/historical/legacy location identifiers	Required, if applicable	e.g. <i>MW01, MW1</i>
<i>Data Source</i>	The source of the data in the following format: ReportYear_CompanyName_AbbreviatedReportName. It is important that the abbreviated/summarised report name is used in this field so that the report can be located for reference Reserved locations must still have a Data Source, see Section 5.7.2 for more details For MW and SV locations, this field must be populated with the details of the company/report that installed the well If the source of the data is unknown, this field must be populated with "Unknown"	Required	e.g. <i>2019_CompanyA_Stage 2 DSI (a 2019 property-wide Stage 2 Detailed Investigation report by Company A)</i> e.g. <i>2015_CompanyB_Baseline ESA (a 2015 baseline Environmental Site Assessment report by Company B)</i> e.g. <i>2020_CompanyC_PFAS Mass Flux (a PFAS Mass Flux project by Company C that commenced in 2020, report not yet issued)</i>
<i>Purpose</i>	For locations that are sampled as part of an ongoing monitoring program, this field can be used to identify the program of works Can also be used to identify private property (see Section 5.11.3)	Optional	e.g. <i>EMOS_WQMP, PFAS OMP</i> e.g. <i>PRIVATE PROPERTY</i>
<i>Accepted</i>	The status of the location. The location must be accepted after all the required Location fields have been populated	Required	0 = Not Accepted 1 = Accepted

OFFICIAL

ESdat Location Field	Description	Required?	Options/Examples
<i>Accepted By</i>	The user who accepted the location Automatically generated if accepted through the Location Portal. Must be populated with a User Name if accepted through the Location Import Template	Required	-
<i>Accepted Date</i>	The date the location was accepted Automatically generated if accepted through the Location Portal. Must be populated with a date and time if accepted through the Location Import Template	Required	-
<i>Asset Code</i>	This field is not currently utilised by Defence	N/A	-

Wells

ESdat Well Field	Description	Required/ Optional	Values/Examples
Site ID	Unique 4-digit Defence property identifier	Required	e.g. 0136 (Victoria Barracks)
<i>Project ID</i>	Unique project identifier, set-up as per Section 5.5	Required	e.g. <i>QLD_0136_Stage2_20</i> (A Stage 2 DSI project at Victoria Barracks in Queensland that commenced in 2020)
<i>Location Code</i>	Unique sampling location identifier that must be compliant with the location naming convention outlined in Section 5.6	Required	See Table 5-4 in Section 5.6 for more examples.
<i>Well</i>	A well entry for MW and SV locations. See Section 5.6.5 for more information on <i>Well</i> IDs	Required	Default: -
<i>TOC</i>	Top of casing (TOC) elevation in m AHD. See Section 5.8.1.3 if TOC changes are required (e.g. repair)	Required	-
<i>Top Screen Depth</i>	The depth of the top of a well screen, in m bgl	Required	-
<i>Bottom Screen Depth</i>	The depth of the bottom of a well screen, in m bgl	Required	-
<i>Monitoring Unit</i>	The aquifer or position within the aquifer where the well screen is located	Required	P, S, I or D
<i>Base Depth</i>	The depth of the base of the well, in m bgl. Usually the same as <i>Bottom Screen Depth</i> , but might be different (e.g. the well is 15 m deep but the screen is only between 9-12 m)	Required	-
<i>Casing Description</i>	The material the well casing is made from	Optional	e.g. <i>Steel, PVC, Teflon</i>
<i>Inner Diameter</i>	The diameter of the well casing, in mm	Required	Typically 50 mm for MW and typically 5 mm for SV (i.e. the diameter of a Teflon tube)
<i>Screen Description</i>	The material and size of the well screen	Optional	e.g. <i>0.5 mm Slotted PVC</i>

ESdat Well Field	Description	Required/ Optional	Values/Examples
<i>Extraction Usage</i>	This field is not currently utilised by Defence	N/A	-
<i>Metered</i>	This field is not currently utilised by Defence	N/A	-
<i>Comments</i>	Comments about the well. Where required fields are not populated for the well, appropriate qualification must be provided in the comments	Optional	-
<i>Stickup</i>	Height of well casing above ground level, measured in in m	Optional	-
<i>Data Source</i>	The source of the data in the following format: ReportYear_CompanyName_AbbreviatedReportName For MW and SV locations, this field must be populated with the details of the company/report that installed the well If the source of the data is unknown, this field must be populated with "Unknown"	Required	e.g. 2019_CompanyA_Stage 2 DSI (a 2019 property-wide Stage 2 Detailed Investigation report by Company A) e.g. 2015_CompanyB_Baseline ESA (a 2015 baseline Environmental Site Assessment report by Company B)
<i>Water Depth Expected Min</i>	This field is not currently utilised by Defence	N/A	-
<i>Water Depth Expected Max</i>	This field is not currently utilised by Defence	N/A	-

OFFICIAL

Appendix C – CSR GIS file Fields and Attributes

Table C-1: Sampling locations point file dataset

Table C-2: Example of minimum dataset for contamination exceedance mapping

Table C-3: Example of minimum dataset for contaminated groundwater modelling outputs

Table C-4: NSIMS metadata for contamination dataset

Figure C-1: Example of the Metadata entry table in NSIMS

Table C-1: Sampling locations point file dataset

The current NSIMS CSR sampling location point datasets includes multiple project data sources and cover the entire Defence property. It has a standardised filename that differs from the SDMP v5, Appendix K, to ensure consistency with earlier NSIMS files.

Format: [Defence_CSRsampling_][PROP_ID]

e.g. Defence_CSRsampling_0861

This example file will be the property wide sample location (i.e. points) for multiple projects that undertook field sampling for contamination assessment, at RAAF Amberley.

The data specifications for the GIS CSR sample location dataset, if specified as a Project deliverable are outlined in Table C-1. All Fields are from the SDMP v5, Appendix K with some additional information to assist completion and GIS compliance.

Table C-1 - Sampling locations point file dataset

Field Name	Description	Type	Values
STATE	State abbreviation	Text 3 char	Allowed Values
			ACT
			NSW
			NT
			QLD
			TAS
			WA
PROP_ID	Unique Property Identifier which are the last 4-5 digits of the GEMS Property Functional Location ID e.g. PR 20/0861	Text 6 char	OTH Overseas
			e.g. 1302
			IDs less than 1000 are padded with leading zeros e.g. 0064
PROP_NAME	Name of Property in full as per GEMS Functional Location	Text 254 char	e.g. RAAF Pearce
LOCATIONID	Identifier of Location (as used in ESdat, previously SAMPLE_ID)	Text 18 char	Format: [TYPE][Unique ID] e.g. MW06 or POT024 Where previous sample ID is longer than 10 characters remove PROP_ID Note: ESdat uses Location Code for this value
EFR_ID	Unique environmental factor record identifier in GEMS (also referred to as CSR ID in GEMS, and previously CSR_NO)	Text 20 char	e.g. CSR_QLD_000001 The above value must align with the EFR ID field in GEMS and the associated GDL The CSR the sample point is investigating or may be associated with
ASSETCODE	An Estate asset code for fixed Sampling Equipment or	Text 50 char	Optional Value- Use for fixed Sampling Fixed Equipment/Infrastructure where available

Field Name	Description	Type	Values	
	contaminated storage structures			
TYPE	Description of the type of sampling location	Text 3 Char	Allowed Values	
			INC	Incident
			POT	Potable
			BH	Borehole
			MW	Monitoring Well
			SW	Surface Water
			SD	Sediment
			SS	Soil or Surface sampling
			SP	Stockpile
			OSP	Orphan stockpile
			OTH	Other
DESCRIPT	For extra descriptive information on the sampling point	Text 254 Char	Identify the reason for the sample point e.g. sentinel well, background water quality, plume movement, control location	
SAMPLE_DAT	Date the sample was taken	Date	Format: [DD/MM/YYYY] e.g. 01/10/2010	
RECRD_BY	Name of the person reporting the record	Text 80 char	e.g. John Smith or, Smith Associates Pty Ltd	
STATUS	Use status of location	Text 2 char	Allowed Values	
			O	Operational
			U	Unused
			D	Decommissioned
SOURCE_NAM	Title of the report/project that established the sample point	Text 254 char	Format: [Objective filename from GEMS] – [GEMS Object ID] e.g. 2020 - AECOM - Stage2 DSI - HMAS Albatross - BS12053471 Where Report recommends Archive, leave blank	
COMMENT	Relevant Information about the Data	Text 254 char	Non-mandatory field	

OFFICIAL

Table C-2: Example of minimum dataset for contamination exceedance mapping**Requirement**

File Name	The following filename schema shall be adhered to: ContamExceed_[Property Acronym]_[PropertyEBI] Example: ContamExcced_Lavarack_0229.IMG
Description	Data showing contamination that exceeds specified guidelines for human or environmental health across all or part of a Property in a raster form.
Feature Type	Raster: Refer to SDMP Section 2 for the preferred raster (image) formats.

Minimum Data Requirement	Field	Field Data Type	Comment
Layer/Band name	Contaminant name	Text 80 Char	If the delivery format allows layers/bands are to be named with the Contaminates name or a Look up table is to be provided that relates each bands to each Contaminate.
Layer/Band values	Exceedance value beyond relevant contaminant guideline	Double Precision 9 Scale 5	Exceedance value beyond relevant contaminant guideline
	Units of Measure	Text 18 char	Scope/Guideline Specified
	Specify Guideline	Double Precision 9 Scale 5	Measurement value – with Unit of measure standardised
Ground Sampling Cell Size		NA	Scope Specified

Table C-3: Example of minimum dataset for contaminated groundwater modelling outputs

Requirement

File Name	The following filename schema shall be adhered to: Contam_(SampleType Acroynm)_Model_[Property Acronym]_[PropertyEBI] Example: ContamGWModel_Lavarack_0229.IMG
Description	Data showing output of model of predicted contaminant movement in groundwater across all or part of a Property in a raster form.
Feature Type	Raster: Refer to SDMP Section 2 for the preferred raster (image) formats.

Minimum Data Requirement	Field	Field Data Type	Comment
Layer/Band name	Contaminant name	Text 80 Char	If the delivery format allows layers/bands are to be named with the Contaminates name or a Look up table is to be provided that relates each bands to each Contaminate.
Layer/Band values	Groundwater Model output value	Double Precision 9 Scale 5	Numeric values with fractional values with up to 9 char field length / 5 decimals
Ground Sampling Cell Size	Scope Specified	NA	

Table C-4: NSIMS metadata for contamination datasets

NSIMS metadata for contamination datasets	
Metadata Information	
File Identifier	This Value should automatically fill as the name of the added shapefile e.g. <i>Defence_CSR_1302.shp</i>
	Using a previous XML for the relevant property there should be no need to change other Field default Values in NSIMS
Contact (Metadata contact in MET Tool)	
Data Suppliers are to complete all three Values Add Company Name, Position Name and only choose Role - author for this Value	
Organisation	<i>Enviro Consulting Pty Ltd</i>
Position Name	<i>Geospatial Analyst</i>
Role	author
Extent	
Check and update Bounding Box coordinates of new and updated dataset	
Keywords	
If using a previous XML for the relevant property there should be no need to change Field default Values in NSIMS	
Data Quality	
Identifies the revision date , the reason for and data source of, the identified <i>Revision Revisions</i> are numbered consecutively and not overwritten	
Dataset Lineage	Format: [Revision #] – [YYYY-MM-DD] [dataset uploaded and or created by] [Data Supplier] [for Name of Project and or Report]. [Revision #] – [YYYY-MM-DD] [dataset uploaded and or created by] [Data Supplier] [for Name of Project and/or Report] e.g. <i>Revision 1 – 2018-10-29 dataset uploaded by Enviro Consulting for 2018 - Stage 1 PSI - Goulburn Depot. Revision 2 – 2020-02-05 – dataset created by BlueSkies for 2021 - Stage 2 DSI –Goulburn Depot and uploaded by BlueGreen as part of Data Remediation Project</i>
Responsible Party (Contacts in MET Tool)	
Data Suppliers are to complete all three Values There are options for multiple Role entries. Ensure information for two roles is completed. 1. Add Company Name, and the Name of a Point of Contact officer with knowledge of the dataset. Only choose Role - pointOfContact for this Value 2. Add standard text (below) for Role - owner	

NSIMS metadata for contamination datasets	
Organisation	<i>Enviro Consulting Pty Ltd</i>
Position Name	<i>John Smith, Principal Environmental Scientist, GRS Regional Data Manager (NSW/ACT)</i>
Role	pointOfContact
Standard text below to be inserted in all three Values	
Organisation	<i>ID EE: Infrastructure Division, Environment and Engineering Branch, Directorate of Contamination Assessment, Remediation and Management (DCARM)</i>
Position Name	<i>Regional Contamination Investigation Program (RCIP) Project Manager</i>
Role	owner
Resource Date	
There are options for multiple Date and Type Values (in NSIMS by clicking through arrows) Use of the Calendar to insert Date is mandatory in NSIMS Typically the Type chosen for contamination datasets will be revision Occasionally Type - creation will be used if it is the first contamination dataset of this type, for the Property (e.g. CSR polygon, sample point location, plume model geotiff) If the Type – revision exists an update of the Date can be made. Do not change Date of an existing Type – creation	
Value	Date (of dataset addition to NSIMS)
Type	Only use revision or creation
Resource Identification	
This Title is not the dataset file name it is the NSIMS Title of the dataset Data Suppliers are to complete the Title with standardised text and format	
Title	Format: [Contaminated Sites] – [Prop_ID][Property Name] – [CSR_Sites_Polygons] e.g. <i>Contaminated Sites - 1302 RAAF Base Darwin - CSR_Sites_Polygons</i> Format: [Contaminated Sites - Sampling Points] – [Prop_ID][Property Name] e.g. <i>Contaminated Sites - Sampling Points - 1302 RAAF Base Darwin</i>
The Abstract indicates: The primary purpose of the dataset e.g. <i>Spatial Component for GEMS Contaminated Sites EFR</i> What Program it was created for and by which company e.g. <i>Data created for DCARM RCIP from information supplied by Enviro Consulting</i> All SOURCE reports identified in the Dataset being added to NSIMS, as basis for creation or most recent updates of each CSR in the dataset e.g. - <i>2018 - Stage 1 PSI - Goulburn Depot (ID0304). Additional sources 2020 – Stage 2 DSI-Goulburn Depot and 2012 – Orphan Stockpile Waste Classification Investigation at Goulburn Depot</i>	

NSIMS metadata for contamination datasets	
Abstract	Format: [Spatial Component for GEMS Contaminated Sites EFR] e.g. full Abstract <i>Spatial Component for GEMS Contaminated Sites EFR. Data created for DCARM RCIP from information supplied by Enviro Consulting - 2018 - Stage 1 PSI - Goulburn Depot (ID0304). Additional Sources 2020 – Stage 2 DSI-Goulburn Depot and 2012 – Orphan Stockpile Waste Classification Investigation at Goulburn Depot</i>
	If using a previous XML for the relevant property, there should be no need to change other Field default Values in NSIMS

Figure C-1: Example of the Metadata entry table in NSIMS

Example of the Metadata entry table in NSIMS – Standardised Metadata inputs for GIS datasets being Added to NSIMS – requiring ‘updating’ from an existing XML. This is to be read in conjunction with NSIMS Help on *Add a Dataset*.

[Home](#) [Find Map or Plan](#) [Search Results](#) [Map Viewer](#) [Manage Data](#) [System Maintenance](#) [Help](#)

⚠ There are some warnings for this Metadata. [Click here for more details.](#)

Metadata Information → File Identifier Defence_CSrsampling_0766.shp → Language eng → Character Set utf8 → Hierarchy Level dataset → Metadata Standard → Name ISO 19115:2005 → Version DSG SDMP Section 5 v4.5 → Last Update 2020-10-14		Responsible Party Displaying 1 of 1 + - → Organisation → Position Name → Role	
Contact Displaying 1 of 1 + - → Organisation → Position Name → Role		Resource Date Displaying 1 of 1 + - → Value 29/09/2020 → Type creation	
Extent → Bounding Box → West 115.978750 → East 115.983723 → South -31.914264 → North -31.910472		Resource Identification → Citation → Title Defence_CSrsampling_0766 → Abstract Spatial representation of environmental point sampling for → Defence Purpose EA1 → Format → Name *.shp → Version Unknown → Constraints → Security → Classification unclassified → Spatial Representation	
Keywords → Dataset Properties Dataset Properties~GIS Data~Vector → Theme Environment~Contamination~Contamination Monitoring / Points → DEMS Identifier WA~0766~ → Project ID (optional) New Project +		→ Type vector → Resolution → Scale 1500 → Resource Language eng → Resource Character Set utf8 → Topic Category environment	
Data Quality → Dataset Lineage Compiled by following 2020 field			