



Dryden Flight Research Center
Edwards, California 93523

DCP-S-106, Revision A
Expires March 1, 2016

Dryden Centerwide Procedure

Code S

Environmental Management System Restoration Management

Electronically approved by
Assistant Director for Management Systems

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

CONTENTS

1.0	PURPOSE OF DOCUMENT	3
2.0	PROCEDURE SCOPE & APPLICABILITY.....	3
3.0	PROCEDURE OBJECTIVES, TARGETS, METRICS, & TREND ANALYSIS	3
4.0	WAIVER AUTHORITY.....	3
5.0	RESTORATION PROCESS FLOWCHART	4
6.0	RESPONSIBILITIES.....	7
6.1	Safety, Health, and Environmental Office, Code SH.....	7
6.2	Office of Facilities Engineering and Asset Management (FEAMO), Code F	10
7.0	MANAGEMENT RECORDS & RECORDS RETENTION.....	10
8.0	RELEVANT DOCUMENTS	11
8.1	Authority Documents.....	11
8.2	Forms.....	11
9.0	ACRONYMS & DEFINITIONS.....	11
9.1	Acronyms	11
9.2	Definitions	12
	Attachment A – Related Internet Website Links	15
	Attachment B – NASA DFRC Former Areas of Concern and Contaminated Sites.....	16

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

1.0 PURPOSE OF DOCUMENT

This document describes how Dryden Flight Research Center (DFRC) personnel will manage the identification and restoration of contaminated soil and groundwater as part of the DFRC Environmental Management System (EMS).

2.0 PROCEDURE SCOPE & APPLICABILITY

Scope: This procedure applies to all ground disturbing activities at DFRC.

Applicability: This procedure applies to DFRC personnel who have the responsibility to identify, investigate, and remediate contaminated soil and groundwater.

3.0 PROCEDURE OBJECTIVES, TARGETS, METRICS, & TREND ANALYSIS

Objective: Ensure all ground disturbing activities are evaluated for restoration impact on digging permit submittals.

Target: 100% evaluation of digging permits.

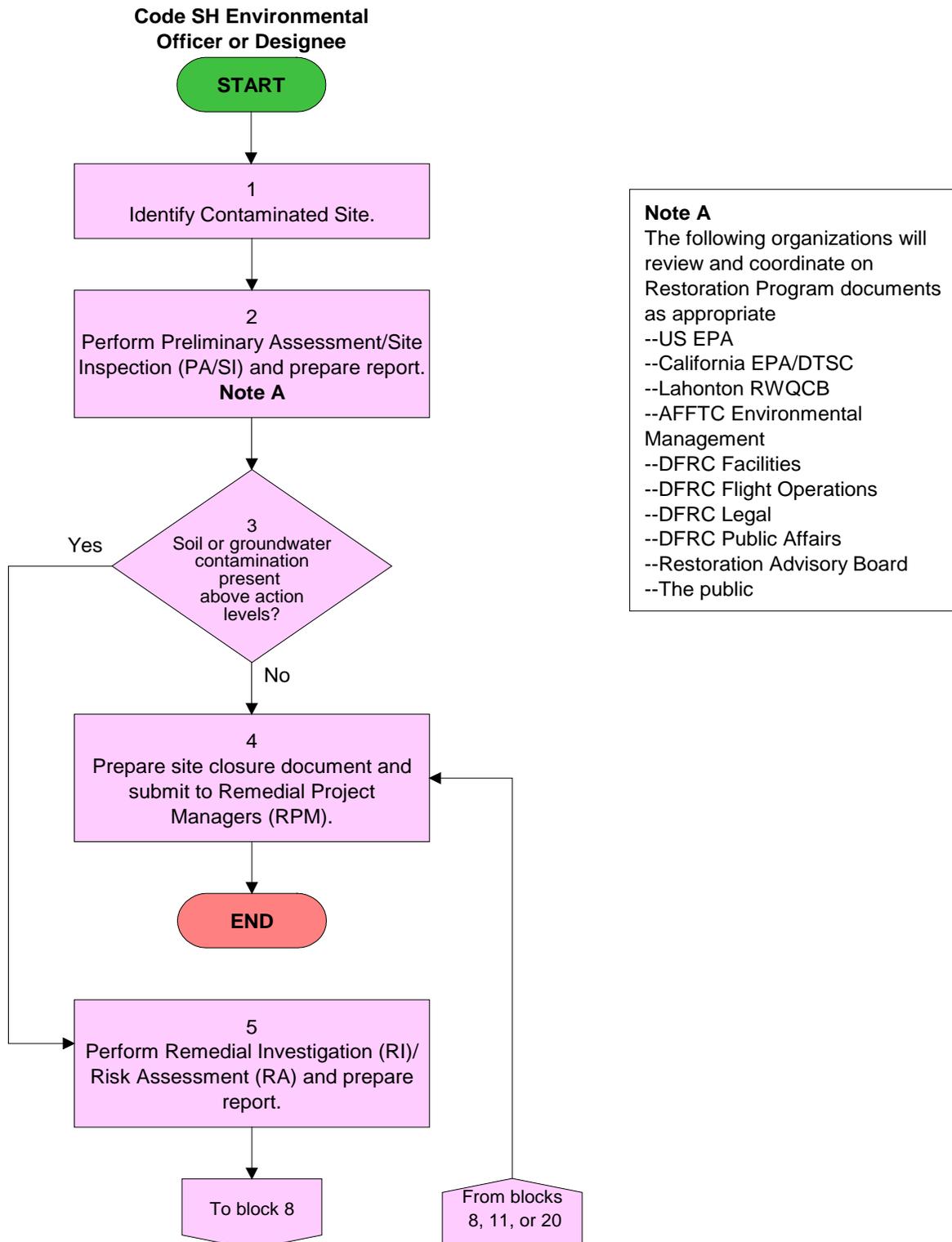
Metric: Percentage of projects completed without digging permit evaluation.

Trend analysis: Metrics will be analyzed to determine whether procedural objectives have been met.

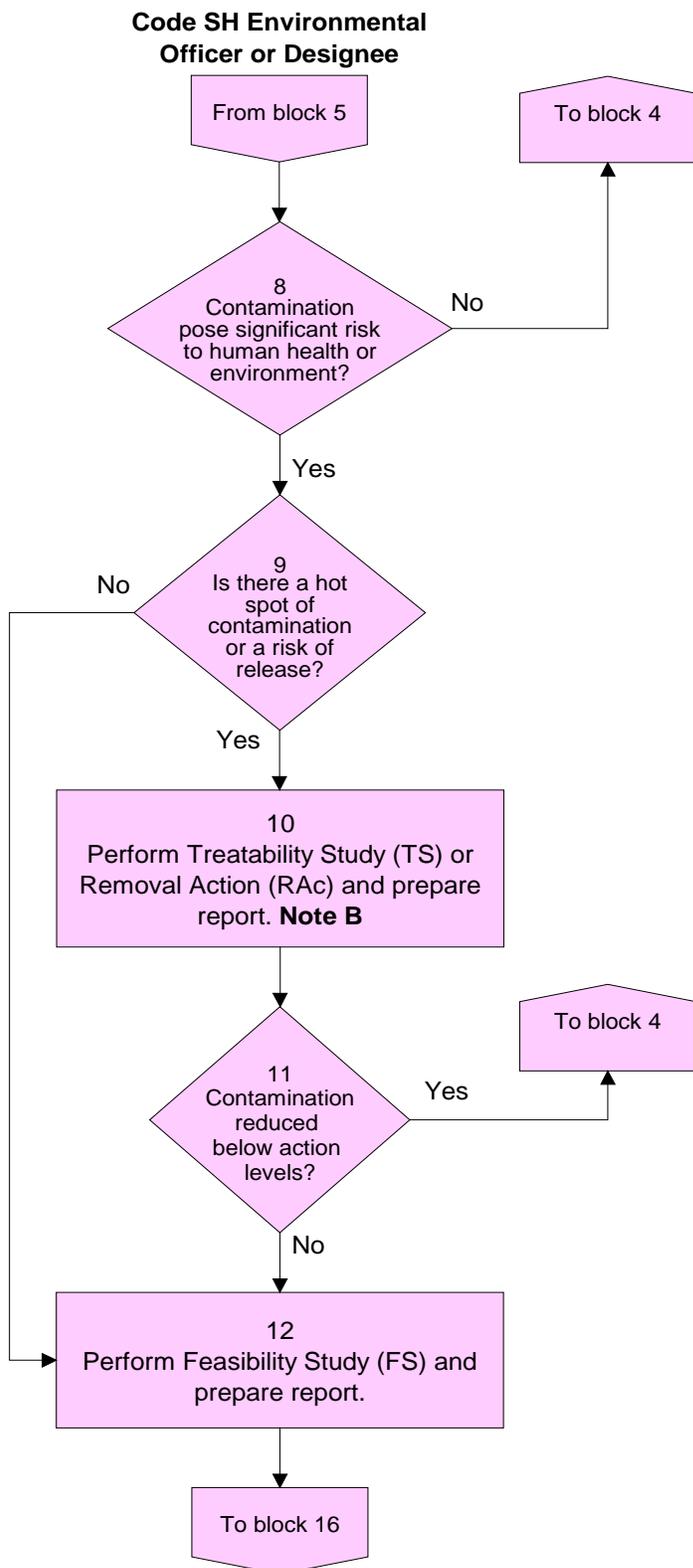
4.0 WAIVER AUTHORITY

This procedure may not be waived.

5.0 RESTORATION PROCESS FLOWCHART

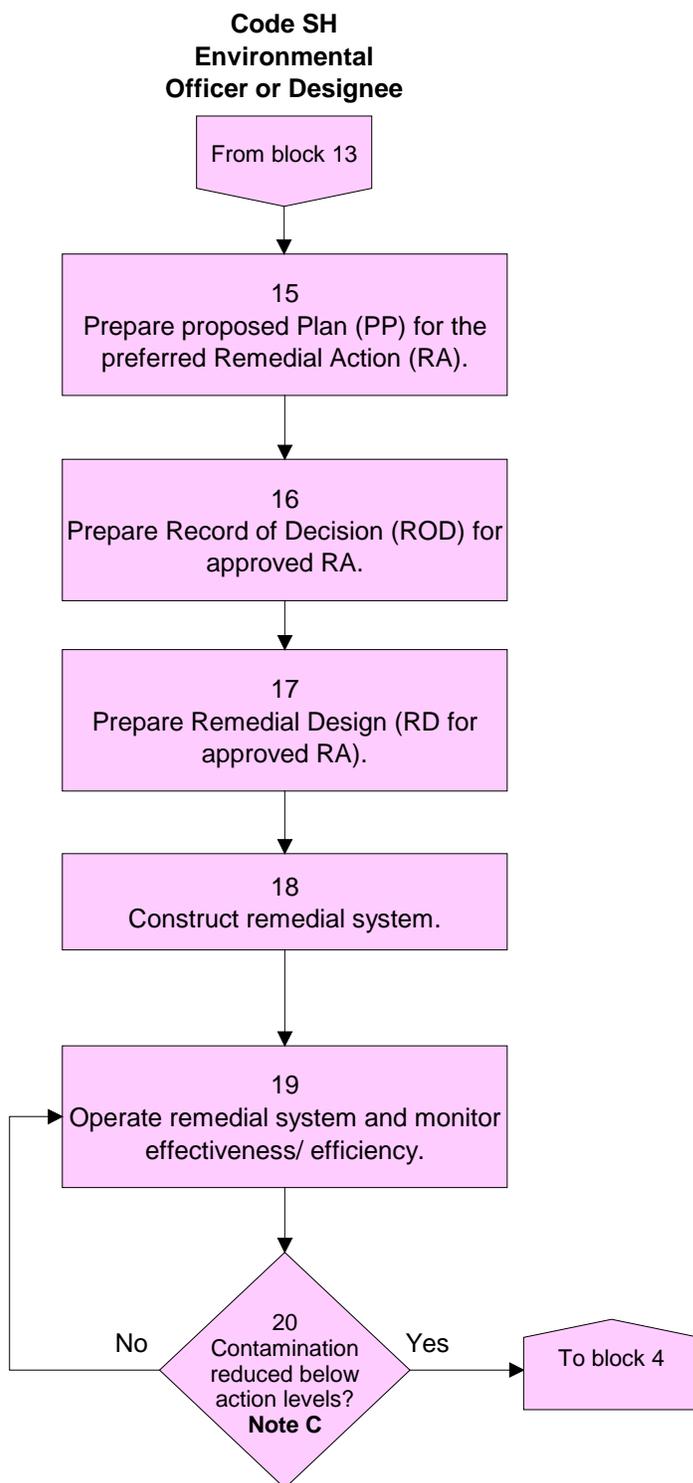


Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.



Note B

Treatability Studies (TS) can be used to remove hot spots of contamination and determine the effectiveness/ efficiency of remedial technologies on a relatively small scale. Removal Actions (RAc) can be used to quickly remove contaminated soil or groundwater if the contamination poses an immediate and significant risk to human health or the environment. Both of these actions can accelerate the clean up process.



Note C

A remedial technology review is performed every five years to see if a more effective remedial solution is available and whether or not it should be implemented. If diligent efforts to remediate soil/ groundwater contamination are not effective and the contamination does not pose a significant risk, a case may be made with the RPMs that remediation is technically infeasible.

6.0 RESPONSIBILITIES

6.1 Safety, Health, and Environmental Office, Code SH

A. Operational controls

- 1) Manage the restoration program to meet the primary document delivery schedule specified in the Federal Facility Agreement (FFA) and its amendments.
- 2) Procure remediation services contract support through the most appropriate source [e.g., local contracting or a joint services center such as the Air Force Center for Environmental Excellence (AFCEE)] to investigate and clean up sources of historical soil and groundwater contamination.
- 3) Facilitate and monitor the activities of the remediation services contractor (e.g., data gathering, work plans, site access, utility clearances, and digging permits, field work, waste disposal, reports) during all phases of the restoration process.
- 4) Implement Interim Removal Action (RA) if necessary to mitigate substantial risk to human health or the environment from an actual or threatened release of contamination.
- 5) Prepare and submit for RPM review and agreement, documentation for all phases of the restoration process to demonstrate the decision-making process in selecting the method(s) of remediating contaminated soil or groundwater. (See Appendix A for links to restoration process web sites.)
- 6) Submit FFA primary and secondary documents (e.g., field work plans and reports) to the Remedial Project Managers (RPMs) for review and comment.
- 7) Determine the most feasible method(s) of remediating contaminated soil or groundwater and document in a Record of Decision (ROD). Obtain RPM concurrence on the ROD.
- 8) Monitor the performance of remediation systems and determine if sites qualify for closure. When appropriate, prepare site closure documentation and obtain RPM concurrence.
- 9) Review facility projects and DFRC form [D-WK 808-8](#), Facilities Engineering Excavation Permit (commonly called a digging permit), to determine appropriate personal protective equipment, safety procedures, and/or ambient air sampling requirements when excavating in areas of soil or groundwater contamination. Consult with Code SH Occupational Health for specific requirements. Submit data on number and type of digging permits

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

reviewed and/or copies of form D-WK 808-8 to EAFB Environmental Management annually.

- 10) Prepare annual restoration budgets and submit to Headquarters, track expenditures, review contractor submissions, and approve contractor invoices, etc.
- 11) Ensure that the Land Use Control measures in the OU-6 Record of Decision are maintained in the DFRC Master Plan.
- 12) Keep the DFRC Unfunded Environmental Liabilities database (IDEAL or equivalent) updated in response to annual Headquarters data calls. Participate in Unfunded Environmental Liabilities audits conducted by Government Accounting Office contractors. (See Appendix B for a list of restoration liabilities that have been removed or mitigated.)
- 13) Ensure the appropriate documents are included in the Administrative Record (AR) that is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and is maintained by AFFTC/EM. Documentation of the following activities and phases of the restoration process, as required by CERCLA, is typically included in the AR:
 - a) Preliminary Assessment
 - b) Site Inspection
 - c) Remedial Investigation
 - d) Interim Removal Action
 - e) Risk Assessment (for Human Health and Ecological Impacts)
 - f) Feasibility Study
 - g) Proposed Plan
 - h) Record of Decision
 - i) Remedial Design
 - j) Remedial Action
 - k) Long Term Operation (of remedial systems)
 - l) Long Term Monitoring (of contamination)
- 14) Retain records of external regulatory inspections and associated findings of non compliance.

B. Communication

- 1) Coordinate restoration issues within DRFC and serve as point of contact with the following external agencies and organizations:

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

- a) US Environmental Protection Agency (US EPA)
 - b) California Environmental Protection Agency - Department of Toxic Substances Control (DTSC)
 - c) State Water Resources Control Board - Lahontan Regional Water Quality Control Board (LRWQCB)
 - d) NASA Headquarters Environmental Management Division (NASA EMD)
 - e) Air Force Flight Test Center/Environmental Management (AFFTC/EM)
 - f) Air Force Center for Environmental Excellence (AFCEE)
- 2) Communicate program funding requirements with NASA EMD through the annual Program Operating Plan Call and the NASA Environmental Tracking System database.
 - 3) Coordinate program implementation with AFFTC/EM to maintain uniform application of regulatory requirements across Edwards Air Force Base (EAFB).
 - 4) Communicate annual program requirements to AFCEE in procuring the services of a remediation services contractor.
 - 5) Coordinate program implementation with the remediation services contractor(s).
 - 6) Coordinate field activities (e.g., installation of groundwater monitoring wells and remediation systems) with DFRC organizations (e.g., Codes F and O) to prevent operational impacts.
 - 7) Communicate the results of field work and other programmatic requirements to the Remedial Project Managers and NASA EMD as necessary.
 - 8) Communicate biannually to DFRC personnel the opportunity to serve as the DFRC member of the Restoration Advisory Board (RAB).
- C. Documentation & document control
Perform program activities per the site restoration schedule in the Edwards Air Force Base Federal Facility Agreement.
- D. Training
None identified.
- E. Emergency preparedness and response
Review and approve site specific Health and Safety Plans for remediation services contractors.

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

6.2 Office of Facilities Engineering and Asset Management (FEAMO), Code F

A. Operational Controls

- 1) Review and approve field activity (e.g., subsurface drilling, chemical injection, utility connections) work plans for remediation services contractors.
- 2) Locate underground utilities for remediation services contractors prior to conducting field activities (e.g., subsurface drilling, chemical injection) to avoid damaging DFRC infrastructure.
- 3) Identify appropriate areas and utility connection points for remediation equipment. Make utility connections when it is necessary to tie in to DFRC infrastructure.
- 4) Retain form [D-WK 808-8](#), Facilities Engineering Excavation Permit.

B. Communication

Coordinate facility projects and form D-WK 808-8, Facilities Engineering Excavation Permit, with Code SH to determine appropriate personal protective equipment when excavating in areas of soil or groundwater contamination.

C. Documentation and document control

None Identified.

D. Training

None Identified.

7.0 MANAGEMENT RECORDS & RECORDS RETENTION

Reference the Code SH Records Log (form DFRC 79) for retention requirements for the following management record associated with this procedure.

- Form D-WK 808-8, Facilities Engineering Excavation Permit
- Administrative Record documents required by the Comprehensive Environmental Response, Compensation, and Liability Act
- External regulatory inspections and associated findings of non compliance

Records are preserved, maintained, and disposed of in accordance with NPR 1441.1, NASA Records Retention Schedules, and DFRC records management procedures. Destruction of any records, regardless of format, without an approved schedule is a violation of Federal law.

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

8.0 RELEVANT DOCUMENTS

8.1 Authority Documents

- 40 CFR 300 Comprehensive Environmental Response, Compensation, and Liability Act
- NPD 8500.1 NASA Environmental Management
- NPR 8553.1 NASA Environmental Management System

8.2 Forms

- [D-WK 808-8](#) Facilities Engineering Excavation Permit (Digging Permit)

9.0 ACRONYMS & DEFINITIONS

9.1 Acronyms

AFCEE	Air Force Center for Environmental Excellence
AOC	Area of Concern
AR	Administrative Record
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
EAFB	Edwards Air Force Base
EMS	Environmental Management System
FFA	Federal Facility Agreement
FS	Feasibility Study
IRA	Interim Removal Action
LRWQCB	Lahontan Regional Water Quality Control Board
OU	Operable Unit
PA	Preliminary Assessment
RA	Remedial Action
RAB	Restoration Advisory Board
RAc	Removal Action
RAs	Risk Assessment
RD	Remedial Design

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SI	Site Inspection
TCE	Trichloroethylene
US EPA	United States Environmental Protection Agency

9.2 Definitions

Administrative Record	A compilation of program documentation (e.g., PA, SI, RI, RAs, FS, RD, RAc, ROD), prepared according to CERCLA requirements, that demonstrates the process for determining and implementing the preferred remediation alternative.
Area of Concern	A discrete area of contamination or suspected contaminated site in the preliminary assessment phase that has not been fully investigated.
Contaminated Site	An area that has been confirmed as contaminated above regulatory limits by chemical analyses of the air, soil, surface water, or groundwater. Sites identified as potentially contaminated because of past activities; air, soil, or water odor; discoloration; stressed vegetation, etc., are candidates for further investigation to determine if they are contaminated.
Environmental Restoration Program	Originally established in 1984 as the Installation Restoration Program to help identify, investigate, and cleanup contamination on DoD properties; conducted under the auspices of CERCLA as amended. The DoD equivalent to the US EPA Superfund program.
Feasibility Study	A study undertaken by the lead agency to develop and evaluate options for remedial action. The FS recommends the most feasible cleanup strategy. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation, using data gathered during the remedial investigation.
Federal Facility Agreement	An agreement between the AFFTC and the US EPA, CA EPA, and the LRWQCB that establishes a strategy and schedule for investigating and remediating soil and

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

	groundwater contamination at a Federal facility (i.e., Edwards AFB).
Interim Removal Action	A near-term remedial action taken in response to a release or threatened release of contamination. IRAs can be initiated on an emergency time critical or non-time critical basis.
Long Term Monitoring	Monitoring that occurs at sites that have hazardous substances, pollutants, or contaminants remaining after completion of a remedial action or confirms that the remedial action continues to be effective.
Operable Unit	A geographical portion of an area where specific site problems have been identified and initial phases of an action, or any set of actions are performed. Edwards AFB is organized into 10 operable units. DFRC is designated under OU6.
Preliminary Assessment	A review of existing information and offsite reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A preliminary assessment may include an on-site reconnaissance if appropriate.
Record of Decision	A legal document that describes the remedial decision selected and gives the rationale for the specific decision chosen for the site. The record of decision is also intended to give the public and the regulatory agencies an opportunity to comment on the proposed actions for the site.
Remedial Action	Actions consistent with a permanent remedy taken instead of, or in addition to, removal actions in the event of a release or threatened release of a hazardous substance into the environment in order to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health, welfare, or the environment.
Remedial Design	The technical analysis and procedures that follow the selection of a remedy for a site and results in a detailed set of plans and specifications for implementation of the remedial action.
Remedial	A process undertaken by the lead agency to determine

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

Investigation	the nature and extent of the problem presented by the release. The remedial investigation emphasizes data collection and site characterization. It is generally performed concurrently and in an interactive fashion with the feasibility study.
Remedial Project Manager	The principle representatives of the agencies responsible for implementing the Federal Facility Agreement.
Restoration Advisory Board	A working group established to serve as a focal point for the exchange of clean-up information between a military installation and the local community. Members of the RAB include the military representative, US EPA officials, appropriate State and local authorities, Federal and State natural resources trustees, and representatives of the affected communities.

Attachment A – Related Internet Website Links

California Code of Regulations

<http://www.calregs.com/>

CERCLA overview

<http://www.epa.gov/superfund/policy/cercla.htm>

CERCLA regulatory text

<http://www4.law.cornell.edu/uscode/42/ch103.html>

Defense Environmental Restoration Program

<http://www.e-publishing.af.mil/shared/media/epubs/AFI32-7020.pdf>

Porter-Cologne Water Quality Control Act

http://ceres.ca.gov/wetlands/permitting/tbl_cntnts_porter.html

Superfund Amendments and Reauthorization Act regulatory text

<http://www.epa.gov/superfund/policy/index.htm>

Attachment B – NASA DFRC Former Areas of Concern and Contaminated Sites

Site or AOC Number	Site Name and Location	Major Contaminants and Media	Site Status
Site N1 (AOC 205)	Main Taxiway – 200 feet wide x 2000 feet long – Northern Stormwater Retention Pond	None (Trichloroethene (TCE) in groundwater at 422 ppb is from Site N2)	NFI 12/12/96
Site N2 (AOC 206)	Building 4801 – Auxiliary Power Unit Drainage Area	TCE in groundwater	Final Action Pending the ROD
Site N3 (AOC 207)	Buildings 4886 and 4889 – Gas Station and Drum Storage Area	TCE, Benzene, Toluene, Ethylbenzene, Xylenes in soil and groundwater	Final Action Pending the ROD
Site N4 (AOC 208)	Main Ramp - Southern Retention Pond and Liquid Oxygen, Petroleum, Oil, & Lubricants, Washrack	None	NFI 2/24/95
Site N5 (AOC 363)	Building 4982 – IRA for a 1500 gallon diesel fuel underground storage tank used for Auxiliary Power Unit at CATSITE	None (no groundwater found)	NFI 3/19/96
Site N6 (AOC 210)	Building 4821 – Drum Storage Area	None (TCE in groundwater at 22 ppb is from Site N2)	NFI 12/12/96
Site N7 (AOC 211)	Building 4827 – Drum Storage Area	TCE in groundwater	Final Action Pending the ROD
Site N8 (AOC 212)	Building 4826 – Hazardous Waste Accumulation Point	None	NFI 3/19/96
Site N9 (AOC 213)	Building 4845 – Removed Wastewater Underground Storage Tank	None	NFI 3/19/96
Site N10 (AOC 214)	Building 4833 – Hazardous Waste Accumulation Point	None	NFI 3/19/96
Site N11 (AOC 215)	Building 4892 – Electrical Substation 3	None	NFI 3/19/96
Site N12 (AOC 216)	Building 4850 – Electrical Substation 16	None	NFI 3/19/96
Site N13 (AOC 217)	Building 4888 – Electrical Substation 4	None	NFI 12/12/96
Site N14 (AOC 209)	Building 4855 –Space Shuttle Fuel Farm	None	NFI 12/12/96
Site N15 (AOC 307)	Former Disposal Site – Site was thought to contain wood, paint, lube oils	None	NFI 12/12/96
Site N16 (AOC 308)	Building 4853 – Removed Diesel (two 500 gallon Aboveground Storage Tanks)	None	NFI 3/19/96
Site N17 (AOC 309)	Building 4838 – Aboveground Storage Tank Diesel Fuel Spill	None	NFI 3/19/96
Site N18 (AOC 310)	Northeast of Building 4810 – Stormwater Drainage Pit (lined)	None	NFI 12/12/96
Site N19 (AOC 311)	Building 4809 – Stormwater Drainage Ditches	None	NFI 3/19/96

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.

Document History Log
IPRP Review Date: 02-02-2011

This page is for informational purposes and does not have to be retained with the document.

Status Change	Document Revision	Effective Date	Page	Description of Change
Baseline		08-09-05		
Admin Change	Baseline-1	02-11-08		<ul style="list-style-type: none"> • Page 3: Removed Section 4.2, Reference Documents, (reference deleted) and Section 4.3, Informational Documents (unused section) • Attachment A: Updated links • Moved text from Section 9.0, Metrics & Trend Analysis, to Section 3.0, Procedure Objectives & Metrics • Created new table of contents
Revision	A	03-01-11	All	<ul style="list-style-type: none"> • Updated format to current template and completed new sections. • Deleted historical information from Section 2.0.

Before use, check the Master List to verify that this is the current version.
This document may be distributed outside of Dryden.