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Office of Solid Waste and Emergency Response

Office of Enforcement and Compliance Assurance

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Institutional Controls:

A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites

A. INTRODUCTION

A.1 Purpose

The purpose of this document is to provide guidance[1] to the EPA Regions for developing Institutional Control Implementation and Assurance Plans (ICIAPs) at contaminated sites where the response action includes an institutional controls (ICs) component. An ICIAP is a document designed to systematically: (a) establish and document the activities associated with implementing and ensuring the long-term stewardship of ICs: and (b) specify the persons and/or organizations that will be responsible for conducting these activities.[2] Specifically, an ICIAP focuses on identifying the details of how ICs that are selected in decision documents should be implemented, maintained, enforced, modified, and terminated (if applicable) at a specific site. The ICIAP is normally a stand-alone document that is enforceable through, if incorporated as a requirement in, for example, a consent decree (CD), administrative order on consent (AOC), or federal facility agreement (FFA).

The recommendations in this guidance are designed for cleanup actions taken at Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund); Brownfields; federal facility; underground storage tank (UST); and Resource Conservation and Recovery Act (RCRA) sites. For all of these programs, ICs generally are evaluated and selected in a site decision document, such as a CERCLA Record of Decision (ROD), to help ensure protectiveness of human health and the environment.

A.2 Background

For purposes of this guidance, EPA defines ICs as non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for exposure to contamination and/or protect the integrity of a response action.[3] As response components, IC instruments generally are designed to achieve the precise substantive use restrictions articulated in the decision documents that are needed to help achieve the site's overall cleanup

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[1] This document provides guidance to the Regions on how EPA generally intends to develop an Institutional Control Implementation and Assurance Plan as part of a cleanup project. The guidance is designed to help promote consistent national policy on these issues. It does not, however, substitute for CERCLA, RCRA, or EPA's regulations, nor is it a regulation itself. Thus, it does not impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA, state, tribal, and local decision-makers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate. Any decisions regarding a particular site will be made based on the applicable statutes and regulations.

[2] For more information, see Section 3.3 of *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites*, December 2012 (*PIME IC guidance*). http://www.epa.gov/superfund/policy/ic/guide/index.htm.

[3] See *PIME IC guidance*, Section 2.

objectives. For purposes of this guidance, ICs are divided into four categories: proprietary controls, governmental controls, enforcement and permit tools with IC components, and informational devices. [4]

ICs typically are a subset of Land Use Controls (LUCs). LUCs include engineering and physical barriers, such as fencing and security guards, as well as ICs. The federal facility program may use either term in its decision documents. For purposes of this guidance, the term ICs is used, but the concepts also may be useful for LUCs.

Whereas the PIME IC guidance, referenced above, highlights general considerations related to IC planning, implementation, maintenance, and enforcement, this guidance provides recommendations on how to develop an ICIAP that identifies the details of how and by whom ICs should be implemented, maintained, enforced, modified, and terminated (if applicable) at a specific site.[5]

B. SCOPE

An ICIAP itself is not intended to be a substitute for the thorough evaluation of goals, mechanisms, and stakeholders needed to develop response alternatives. In addition, it is not designed to function as a decision document for a site. In cases where decision documents are not descriptive enough about the specific IC instruments that will be used to meet the intended substantive use restrictions required to ensure the response action is protective of human health and the environment, an ICIAP may be an appropriate tool to describe and document potential alternative IC instruments (that are consistent with the cleanup objectives specified in the relevant decision documents).[6]

Analogous to operation and maintenance (O&M) plans, which generally provide the technical details on engineered components of a response action that are selected in decision documents, the ICIAP similarly is intended to provide the technical details on how and by whom ICs that are selected in the decision documents will be implemented, maintained, enforced, modified, and terminated (if applicable).

B.1 What type of site could benefit from an ICIAP?

Many sites that require ICs as part of the response action can benefit from the development of an ICIAP. Assembling IC information into one document generally can help ensure that all appropriate IC components remain in place and continue to protect human health and the environment and/or protect the integrity of engineering components. On the other hand, an ICIAP may not be as useful for sites that are smaller in scale, rely on ICs for only short-term duration, or those where the roles and responsibilities for the IC life-cycle are already laid out in an O&M plan[7] or other similarly detailed document.[8]

B.2 When is the best time to develop an ICIAP?

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[4] See Section 2.2 of the *PIME IC guidance* for more information on these IC categories.

[5] For purposes of this guidance, the term "maintain" refers to those activities, such as monitoring and reporting, that ensure ICs are implemented properly and functioning as intended.

[6] In describing IC instruments that are consistent with the cleanup objectives called for in the decision document(s), site managers and site attorneys should make sure that various alternative instruments accurately summarize the substantive use restrictions (e.g., restrict the same specified media, and cover those area(s) called for in the decision document(s). Where alternative instruments are subsequently needed to ensure protectiveness for the site, a modification to the response action decision documents would normally be appropriate.

[7] Different entities may have responsibilities for O&M throughout the cleanup process. For example, under CERCLA, oversight of operating systems at a groundwater restoration site may transfer from EPA to state-lead O&M after the Long-Term Response Action (LTRA) period. Among other things, features found in O&M plans and manuals may describe actions to be taken by a state agency. Descriptions of roles and responsibilities written into ICIAPs may be similar to ones for O&M carried out by a state agency.

[8] However, an ICIAP may be required, for example, through a CERCLA enforcement document. For more information, see *Model RD/RA Consent Decree*, Office of Site Remediation Enforcement, Office of Enforcement and Compliance Assistance, July 2011, http://www.epa.gov/compliance/resources/policies/cleanup/superfund/rdra-2012-amd.pdf. Other waste cleanup programs may have similar requirements regarding ICIAPs.

Although information related to the development of the ICIAP may be generated throughout the cleanup process, it generally is recommended that the ICIAP be developed prior to, or at the same time as, the design of the engineered response (e.g., Remedial Design phase of CERCLA, Corrective Measures Implementation for RCRA, or Brownfields Remedial Work Plans) and finalized with design completion. This approach should allow time for the site managers and site attorneys to complete detailed discussions with parties that are responsible for implementing, maintaining, and enforcing ICs and any other relevant stakeholders.

B.3 Who prepares an ICIAP and participates in its development?

An ICIAP may be prepared, with oversight by EPA or another appropriate regulatory entity, by the party that implements the cleanup or another party with a significant role in IC implementation. For example, at an enforcement-lead site, responsible parties could prepare an ICIAP with oversight by EPA. Other parties that could prepare an ICIAP with oversight by EPA or other appropriate regulators include federal agencies (e.g., Department of Defense), state agencies, local governments, developers, and contractors. EPA's coordination with state, tribal, and/or local governments; the community; responsible parties; and other interested stakeholders throughout the development of an ICIAP can be an effective way to assist in implementation of ICs being considered at the site and can help ensure that these ICs are effective throughout their life-cycles.

Where ICs are being considered as a component of a site response action on tribal lands or lands that may be of tribal interest, the Agency should offer consultation with the appropriate tribal officials consistent with the *EPA Policy on Consultation and Coordination with Indian Tribes*, May 4, 2011[9]. The Agency recognizes that consultation and coordination with federally recognized tribes is critical to ensuring the long-term effectiveness of ICs.

B.4 How will information in the ICIAP be communicated to the public?

Site managers are encouraged to ensure that information on ICs and the ICIAP document itself are publicly available. Specific outreach steps that may be helpful include: informing the public of where ICIAP information has been placed (e.g., information repositories); reaching out to community groups (e.g., civic organizations, and for CERCLA sites, Technical Assistance Groups and Community Advisory Groups); holding availability sessions to outline the roles and responsibilities discussed in the ICIAP and address questions; and posting information on a publicized website. Engaging the public during and after development of the ICIAP typically is important because the community and other interested stakeholders can help ensure that local planning efforts avoid conflicts with selected substantive use restrictions.

B.5 When are ICIAPs reviewed and/or revised?

An existing ICIAP can be reviewed and/or revised by the site manager or site attorney for the lead agency at any time. Generally, an ICIAP should be reviewed and revised (if appropriate) when IC monitoring reports or periodic reviews, such as the CERCLA Five-Year Review (FYR)[10] or RCRA permit renewal processes, show that site conditions or circumstances have changed enough such that modifications to the ICIAP are warranted. For example, changes to reasonably anticipated land use at a site may substantially affect IC maintenance or enforcement activities (e.g., a monitoring frequency that increases the effectiveness of the ICs). Where changes to ICs fundamentally or significantly alter the original remedy with regard to scope,[11] performance, or cost, EPA recommends that the lead agency should prepare the appropriate decision document to document those changes (e.g., ROD amendment or ESD under CERCLA, or revisions to RCRA Corrective Measures Study or Brownfields Remedial Action Work Plan).

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[9] Available at http://www.epa.gov/tribal/pdf/cons-and-coord-with-indian-tribes-policy.pdf.

[10] For additional information on evaluating ICs during the CERCLA FYR process, see *Recommended Evaluation of Institutional Controls: Supplement to the 'Comprehensive Five-Year Review Guidance,'* OSWER Directive 9355.7-18, September 13, 2011. (*IC supplement to the FYR guidance*)

[11] The scope of any selected IC(s) is media-specific and should be selected in a decision document for a specific target area. See Section 4.1 of the *PIME IC guidance*, subsection entitled "Modifying Existing Response Action Decision Documents."

B.6 Is an ICIAP a stand-alone document or part of another document?

More complex sites with overlapping roles and responsibilities relating to ICs may benefit from a separate ICIAP document. As stated previously, the ICIAP is normally a stand-alone document that is enforceable through, if incorporated as a requirement in, for example, a CD, AOC, or FFA. For federal facilities on the National Priorities List (NPL), ICIAP information typically is placed in a primary document as described in B.8.

B.7 What other model documents include provisions relating to ICIAPs?

Some cleanup programs have developed model documents that include suggestions regarding specific language for the ICIAP. For example, at PRP-lead CERCLA sites, the model Remedial Design/Remedial Action Consent Decree (RD/RA CD) contemplates the use of an ICIAP at a site and provides model language on its form and content.[12] Site managers and site attorneys should be aware of any model ICIAP language discussed in these guidance documents that are related to the recommendations in Section C, below. The PIME IC guidance also includes suggestions for ICIAP contents and encourages ICIAP development to ensure effective implementation of ICs.[13] For federal facilities on the NPL, refer to the *Sample Federal Facility Land Use Control ROD Checklist*, October 2006.[14]

B.8 How should this guidance be considered at federal facilities?

For federal facilities on the NPL, ICIAP information typically is placed in a primary document, such as the ROD), Remedial Design (RD), or Remedial Action Workplan (RAWP), all of which are key deliverables of a FFA, or in a Land Use Control Implementation Plan (LUCIP) that is part of one of those documents. Thus, at federal facilities there is flexibility in where IC information is placed (e.g., a stand-alone document or part of another primary document) so long as the document is enforceable.

For specific recommended LUC/IC language for federal facilities, refer to the *Sample Federal Facility Land Use Control ROD Checklist*, October 2006, sometimes referred to as the *LUC Checklist*. The *LUC Checklist* describes recommended minimum LUC implementation details for federal facility RODs and post-ROD primary documents. The ICIAP information included in Section C of this guidance generally addresses the same kind of LUC/IC content as the *LUC Checklist*, although the *LUC Checklist* contains federal facility-specific language regarding property transfer.

C. RECOMMENDED ICIAP COMPONENTS

This section describes the recommended contents of an ICIAP. Table 1 summarizes these components. Each recommended ICIAP section is described in detail in subsequent sections of this guidance.

Table 1: Recommended Contents of an ICIAP

Report section:	Should address or discuss these topics when appropriate:
1.0 Introduction	□ Entity that prepared the ICIAP □ Name and location of site requiring ICs (including any site aliases) □ Agency responsible for IC oversight

[12] See *Model RD/RA Consent Decree*, Sections IV & IX. Section IV defines an ICIAP and includes specific requirements to be incorporated into the Statement of Work (SOW), a document that delineates how work is to be achieved at the site. Section IX explains how settling parties shall follow the requirements, restrictions, and schedules set forth in the ICIAP.

[13] See Section 3.3 of the *PIME IC guidance* for more information.

[14] Available at http://www.epa.gov/compliance/resources/policies/federalfacilities/enforcement/cleanup/checklist-draft-aug06.pdf.

2.0 Site Details	□ Site description ▪ Site identification ▪ Location ▪ Site area and affected resources □ Brief site history ▪ Previous site uses ▪ Contaminants of concern (COCs) ▪ Risk exposure pathways ▪ Response action summary ▪ Cleanup objectives ▪ Substantive use restrictions identified in the decision document(s) (i.e., IC objectives) ▪ Current and reasonably anticipated future land use □ Property information and stakeholder contacts ▪ Parcel ownership/occupancy information ▪ Property interest and resource ownership ▪ Responsible parties and other stakeholders ▪ Tribal, state, and/or local government contacts ▪ Other relevant stakeholders □ Accurate mapping of residual contamination, IC boundaries, and other site features ▪ Location of contamination ▪ Location of impacted parcels ▪ Location of engineering controls ▪ Location of restricted areas ▪ Other relevant features
3.0 Key Elements for all Planned/Implemented ICs	□ General elements ▪ Instrument name ▪ Instrument type ▪ Entity responsible for implementation ▪ Implementation event and date ▪ Substantive use restrictions achieved by this IC ▪ Legal description of restricted area(s) ▪ IC instrument lifespan ▪ Potential barriers to IC implementation □ Elements specific to instrument category ▪ Proprietary controls ▪ Governmental controls ▪ Enforcement and permit tools with IC components ▪ Informational devices □ IC relationship matrix (see Appendix B)
4.0 IC Maintenance Elements	□ IC assurance monitoring ▪ Entity responsible for IC monitoring ▪ Frequency of site inspections and IC monitoring ▪ Activities that constitute monitoring ▪ Events and activities to be monitored □ Reporting ▪ Reporting procedures ▪ Reporting frequency ▪ Events and activities to be reported ▪ Location and procedures for accessing records ▪ Entity responsible for reporting ▪ Stakeholder/regulatory entity contact

5.0 IC Enforcement Elements	□ Enforcement entities and procedures ▪ Enforcement triggering events ▪ Responsible entity ▪ Procedure and time frame ▪ Enforcing entity and notification procedures ▪ Legal authority for enforcing ICs ▪ Contingency plans ▪ Financial assurances
6.0 IC Modification & Termination Elements	□ Entity responsible for deciding whether modification may occur □ Entity responsible for deciding whether termination may occur □ Modification process □ Conditions for termination (if applicable) □ Termination process (if applicable)
7.0 Appendices	□ Copies of any relevant documents (e.g., deed notices, enforcement documents)

1.0 Introduction

The introduction section of the ICIAP should include: the name and organization of the document preparer; the site name and location, including the EPA Region; and the agency responsible for IC oversight.

2.0 Site Details

This section should describe the fundamental aspects of the site, providing a clear, succinct description of site characteristics. Typically, most general site information may be drawn from previous site documents, such as response investigations, decision documents, or enforcement documents.

2.1 Site description

This section should provide a description of basic site characteristics, including:

- *Site identification:* the name of the site and any site descriptors (e.g., CERCLIS, RCRA, or other cleanup program identification numbers).
- *Location:* the parcel number(s), coordinates, and/or street address of the site.
- *Site area and affected resources:* the size (e.g., in acres) of the entire site as well as the size of the contaminated area(s) if they extend beyond site boundaries. This section, to the extent possible, also can describe the area or volume of each medium that contains, or is expected to contain, residual contamination and a description of necessary restrictions designed to help ensure protectiveness.

2.2 Brief site history

This section should provide a brief discussion of historical activities that led to contamination, including the types of activities or processes, when those activities took place, the specific type of hazardous substances or hazardous constituents, how contamination was discovered, and the scope of the response action(s). This information may be drawn from site documents.

- *Previous site uses:* a brief description and history of previous site operations and land uses.
- *COCs:* the contaminants of concern for each contaminated medium.
- *Risk exposure pathways:* identification of primary health threats and/or impacted resources that have been or potentially could be affected.
- *Response action summary:* a summary of all response actions already conducted or planned in the future at the site, including the implementation status of ICs.
- *Cleanup objectives*: a list of goals or objectives that the overall response action will achieve, as defined in the site decision documents.

- *Substantive use restrictions identified in the decision document(s) (i.e., IC objectives):* summary of land and/or resource use restrictions that IC(s) are meant to achieve in order to meet the overall cleanup objectives for the site.
- *Current and reasonably anticipated future land use:* a summary of the current and reasonably anticipated future land uses for the site.[15]

2.3 Property information and IC stakeholder contacts

This section should provide property and contact information for all relevant IC stakeholders. This list of stakeholders may vary depending on site-specific circumstances and the types of ICs that are implemented at the site.

- *Parcel ownership/occupancy information:* the person recorded in the local land records, including title and property tax records, as the property owner of each impacted parcel and current lessees/sub-lessees.
- *Property interest and resource ownership:* identity of any recorded real property interests (e.g., easements, liens) and resource interests in the property that may affect ICs (e.g., surface, mineral, and water rights).
- *Responsible parties and other stakeholders:* contact information for responsible parties.
- *Tribal, state, and/or local government contacts:* contact information of relevant governmental organizations, such as municipalities, health agencies, or zoning boards.
- *Other relevant stakeholders:* any other persons or organizations that have IC responsibilities, are potentially impacted by their use, or are otherwise interested in their status (e.g., community organizations).

2.4 Accurate mapping of residual contamination, IC boundaries, and other site features

A visual representation of the extent of IC boundaries[16] often will help site mangers determine whether ICs appropriately restrict areas with residual contamination or protect engineering controls. A land survey or other means, such as global positioning system (GPS) technology, typically can accurately locate the boundaries of contaminated material, engineering controls, areas defined in the decision documents as requiring substantive use restrictions, and the boundaries of any planned and/or implemented ICs. If possible, EPA recommends that a map should be incorporated into the ICIAP itself to visually portray the following information:

- *Location of contamination:* the spatial extent of all areas of residual contamination as described in the decision documents.
- *Location of impacted parcels:* the impacted parcels(s) with the corresponding parcel or tax identification number.
- *Location of engineering controls:* the spatial extent of engineering controls (e.g., pump-and-treat system piping, landfill cap) that may require restrictions to ensure the integrity of the selected response.
- *Location of restricted areas:* the planned and/or implemented IC(s) selected in the decision document(s) that are intended to address the residual risks posed by any contaminated media and/or protect the engineering controls.
- *Other relevant features:* can include, among other things, environmentally sensitive areas (e.g., wetlands), underlying zoning, or existing infrastructure.

3.0 Key Elements for all Planned/Implemented ICs

EPA recommends that an ICIAP generally should identify each IC instrument, the substantive use restriction(s) achieved by each IC, and the legal description of the restricted area(s). Site-specific circumstances may warrant a discussion of additional elements for all planned and/or implemented ICs.

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[15] See *Land Use in the CERCLA Remedy Selection Process*, OSWER Directive 9355.7-04, May 25, 1995 and *Considering Reasonably Anticipated Future Land Use and Reducing Barriers to Reuse at EPA-lead Superfund Remedial Sites*, OSWER Directive 9355.7-19, March 2010 for more information.

[16] It may be appropriate to include a disclaimer on all maps that notes that the map itself and any boundary lines within the map are approximate and subject to change. While the map does not purport to be a survey, it may be used for informational purposes regarding EPA's response actions at the site, and is not intended for any other purpose.

3.1 General elements

The recommended elements listed below generally should be included in the ICIAP regardless of IC category used:

- *Instrument name:* the formal title of the planned/implemented IC (e.g., "Declaration of Environmental Restrictive Covenant").
- *Instrument type:* the specific type of planned/implemented IC instrument (e.g., an easement, administrative order, or fish consumption advisory).
- *Entity responsible for implementation:* contact information of the person(s) and/or organization responsible for implementing the IC.
- *Implementation event and date:* a schedule of events that are intended to effectuate implementation of the IC (e.g., recording of a covenant with the County Register of Deeds for a proprietary control) with planned or actual implementation dates and the location where the IC is recorded (if applicable).
- *Substantive use restrictions achieved by this IC:* the specific substantive use restrictions highlighted in the decision documents (e.g., prohibit groundwater well installation over contaminated plume) that are achieved by implementation of this specific IC.
- *Legal description of restricted area(s):* a description of all restrictions using, for instance, a metes and bounds or lot and block survey system.
- *IC instrument lifespan:* whether the IC instrument is expected to be permanent or temporary. If temporary, the conditions for termination.
- *Potential barriers to IC implementation:* for ICs that have not yet been implemented, any legal, administrative, or procedural issues that may need to be addressed in order to implement the IC.

3.2 Elements specific to instrument category

The recommended elements listed below are described by instrument category. If the planned/implemented ICs fall into the categories listed below, site managers and site attorneys should consider including the following additional information in the ICIAP.

3.2.1 Proprietary controls

The ICIAP should attach a copy of the planned or executed instrument (bearing the recorder's stamp, if applicable). For example, if pursuant to a Consent Decree,[17] the United States requires title evidence as part of a proprietary control, the ICIAP should attach any recent existing title evidence provided by the responsible party (e.g., a title commitment). For draft or final IC instruments, Regions should consider identifying the following additional information in the ICIAP:

- *Grantor/covenanter:* the person or entity conveying the property interest, if required by the authorizing state statute. The ICIAP should include a copy of the document provided to the Agency showing that the person or entity has title and authority to convey the proprietary control (typically via a title commitment) and discussing the entity's willingness to execute such a proprietary control.
- *Grantee/covenantee:* the person or entity receiving the property interest, if required by the authorizing state statute.[18]
- *Statement of intent:* a statement of intent between the grantor and grantee taken from the proprietary control instrument, if required by the authorizing state statute.

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[17] See, e.g., *Model RD/RA Consent Decree*, Section IX.

[18] Some states have enacted IC statutes modeled after the Uniform Environmental Covenants Act (UECA). These state statutes may introduce unique parties to this type of proprietary control. For instance, the model UECA (found here: http://www.uniformlaws.org/shared/docs/environmental%20covenants/ueca_final_oct03.pdf) introduces a party known as a "holder" who is defined to mean the grantee of a UECA environmental covenant. Other states have similar statutes not modeled after UECA that may have their own unique terminology. Site attorneys are encouraged to become familiar with the requirements and authority granted to parties for enforcing proprietary controls in the particular jurisdiction. For more information, see *PIME IC guidance* Sections 2.2, 5.5, and 9.2.

- *Signatories:* persons or entities who have signed the proprietary control instrument other than the grantor and grantee.
- *Third party beneficiary:* any person or entity who possesses a third party beneficiary right to enforce the proprietary control.
- *Agency:* the lead agency to the proprietary control, if applicable.
- *Conflicting/coexisting property interests:* any property interests, such as mortgages, liens, existing easements, existing covenants, uncooperative landowners who refuse to implement the proprietary control, inability to convey interest because of defunct property owners, or other interests.
- *Notice to conflicting property interest holders:* any notices given to persons or entities that hold conflicting property interests.

3.2.2 Government controls

- *Summary of state/local/tribal governmental processes and authorities:* as appropriate, the legal citation to the governmental control relied upon as an IC instrument (e.g., the relevant section of an ordinance, code, or regulation) and a description of applicable legal or administrative rules and procedures governing its application (e.g., building or water use permitting processes).
- *State/local/tribal governmental department contact information:* the state/local/tribal government department (e.g., city building department) with authority and responsibility for the control.
- *Active federal facilities (if applicable):* the particular facility procedures, such as specific instructions, base master plans, facility construction review process, facility digging permit system, or the facility well permitting system.

3.2.3 Enforcement and permit tools with IC components

- *Agency issuing enforcement document:* the name and department of the regulatory oversight agency that issued the document.
- *Parties bound by the enforcement document:* the parties who are legally bound by the terms of the enforcement document.
- *Summary of specific obligations in enforcement document:* describe the specific provisions in the enforcement document that limit certain site activities or require the performance of specific activities (e.g., the Model RD/RA Consent Decree requires that settling defendants provide access to implement, monitor, maintain, report on, and enforce any ICs).[19]

3.2.4 Informational devices

- *General description:* summary of the information conveyed within any informational devices and the anticipated behavioral modifications that will result.
- *Informational device assurance:* identify the entity responsible for ensuring that the informational device operates as planned (e.g., entity that will ensure continued education, or maintain site registries).
- *Population to be addressed:* identify the group(s) that would benefit most from notification of residual contamination at a site (e.g., recreational fishermen in the case of fish consumption advisory).
- *Issues:* describe any issues or evidence of breaches that may adversely impact the effective implementation or maintenance of the informational device (e.g., tourists ignoring notices to keep out of a contaminated area of parkland).

3.3 IC relationship matrix

In order to illustrate the properties of each IC identified for a site, developing an IC relationship matrix is recommended. An IC relationship matrix generally is a useful tool to help clarify the narrative description and rationale for the ICs, particularly at sites with layered ICs, where there are different combinations of ICs to address

[19] Note that certain model documents include suggestions for specific ICIAP requirements. See Section B.7 of this guidance.

contaminated media. This technique of listing all of the use restrictions by media in a matrix is designed to help ensure that the use restrictions appropriately meet the overall cleanup objectives for the response action. For an example IC relationship matrix, see Appendix B of this guidance.

4.0 IC Maintenance Elements

ICs generally are most effective when they are maintained over time. IC maintenance activities, such as monitoring and reporting, typically help ensure that ICs are in place and functioning as intended at the site so that response actions remain protective. Monitoring and reporting activities[20] can provide information and data that helps demonstrate a continued need for ICs that have already been implemented (e.g., residual contamination in groundwater continues to present unacceptable risks to the drinking water pathway) or a need for changes to existing IC instruments (e.g., residual contamination in groundwater has spread to additional areas requiring an expansion of existing restrictions).

4.1 IC assurance monitoring

IC assurance monitoring generally is designed to help evaluate whether IC instruments remain in place, operate in the manner envisioned during response action selection, and continue to be effective in preventing unacceptable exposures or protecting the integrity of the response action components.[21] This type of monitoring typically is performed by a responsible party (including federal agencies at sites under their jurisdiction, custody, or control), or in certain cases, an environmental regulatory agency. A third party service provider may assist in monitoring at a site. IC assurance monitoring typically involves, at a minimum, a site inspection and a document review. A site inspection normally should include an inspection that, among other things, is designed to: (1) ensure that the engineering controls selected and implemented remain intact and undamaged; (2) verify that the use of the property has conformed to any applicable use restrictions; and (3) determine whether any potential IC deficiencies have been identified and are being addressed in a timely manner. The document review generally should address whether the ICs were implemented and confirm whether the owners and state and local agencies were aware of the use restrictions and controls affecting the property. The documents reviewed often depend on the type of IC instruments employed at any given site. For example, a zoning ordinance may be checked through periodic review of zoning ordinances or variance requests while a covenant may be checked through periodic review of property records.

The following IC assurance monitoring elements should be identified in an ICIAP:

- *Entity responsible for IC monitoring:* contact information of the person(s) and/or organization responsible for monitoring ICs.
- *Frequency of site inspections and IC monitoring:* how often site inspections and/or IC monitoring events will be conducted.
- *Activities that constitute monitoring:* the discrete activities that would be considered IC monitoring (e.g., site inspections, title searches).
- *Events and activities to be monitored:* specific events that should be monitored, including changes in land use, property transfers, and breaches to implemented ICs.[22]

4.2 Reporting

One of the most important functions of the ICIAP generally is to describe the procedures and persons or organizations responsible for keeping records and reporting information to the appropriate regulatory authorities. The monitoring reports typically should evaluate the status of the ICs and whether any IC deficiencies or inconsistent uses exist. For property that has been transferred to subsequent owners, the reports also may evaluate

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[20] For example, State one-call systems may be useful in protecting the public and environment from uncontrolled excavation that could cause a breach to existing ICs. For more information about state one-call systems, see http://www.epa.gov/oswer/docs/iwg/onecall_systems.pdf.

[21] For a more detailed discussion on IC maintenance, including monitoring and reporting activities, see section 8 of the *PIME IC guidance.* Another resource for IC maintenance considerations during the CERCLA FYR process may be found in the *IC supplement to the FYR guidance.*

[22] For purposes of this guidance, an IC breach means a violation of a use restriction or any other provision set forth within an IC instrument or any other situation that may interfere with the effectiveness of the IC.

whether the use restrictions and controls referenced above were communicated in the deed(s) and whether the owners and state and local agencies were notified of the use restrictions and controls affecting the property.

The ICIAP can describe the reporting process by including a number of items, such as:

- *Reporting procedures:* how IC information should be recorded, including media and format.
- *Reporting frequency:* how often IC reporting should take place.
- *Events and activities to be reported:* specific events that should be reported, including changes in land use, property transfers, and breaches to implemented ICs.
- *Location and procedures for accessing records:* address of records repository and any potential procedures that should be followed to access this repository.
- *Entity responsible for reporting:* person or organization that should report IC information to the appropriate regulatory authority.
- *Stakeholder/regulatory entity contact:* contact information for the person or organization that should receive IC reports.

5.0 IC Enforcement Elements

IC enforcement can occur in several ways depending upon the type of IC instrument, the authority being used, the party attempting to compel an activity, and the party responsible for taking an action. For instance, activities associated with governmental controls (e.g., zoning and ordinances) generally are governed by a defined administrative process. On the other hand, the requirements for enforcing proprietary controls vary considerably between states. Environmental regulatory agencies may be able to enforce ICs based on their general authority over the environmental cleanup or by enforcing IC obligations specified in enforceable documents such as CDs, administrative orders, FFAs, other agreements, and permits. Site managers and site attorneys should familiarize themselves with the enforcement processes, authorities, and jurisdictional requirements specific to the ICs that are relied upon in their site cleanups.[23]

Enforcement-related information in the ICIAP can be useful for addressing various events including: (1) improper or incomplete IC implementation; (2) improper or incomplete IC maintenance; or (3) reports of IC breach/violation. An ICIAP also may contain information (e.g., inspection schedule) that can help identify when there is a breach of an IC (e.g., soil excavation in violation of an environmental covenant's use restriction or groundwater pumping without securing a state water use permit).

5.1 Enforcement entities and procedures

An enforcement action may be appropriate to enforce obligations contained in the IC instruments (as described in the ICIAP) to help ensure that the use restrictions are met. The ICIAP may identify the following information specifically contained in the enforcement document itself:

- *Enforcement triggering events:* specific events that trigger enforcement actions to take place (e.g., breach/violation of IC, improper maintenance, failure to report, etc).
- *Responsible entity:* the entity responsible for rectifying the breach/violation.
- *Procedure and time frame:* specific tasks and intended deadline for rectifying an IC breach/violation.
- *Enforcing entity and notification procedures:* the entity charged with enforcing each IC for each triggering event and the procedures for notifying that entity in the event of a breach (depending on the IC instruments that apply and the authority retained by the environmental regulatory agency, a given triggering event may implicate more than one entity).
- *Legal authority for enforcing ICs:* the specific statutory or contractual authority (e.g., state IC laws, agency order or agreement, voluntary cleanup program agreement) authorizing an entity to enforce implementation and maintenance of an IC.

[23] See Section 9 of the *PIME IC Guidance* for details on enforcement considerations specific to the various categories of IC instruments.

- *Contingency plans:* the specific plans to prevent unacceptable exposures if ICs cannot be implemented or are otherwise not sufficient in protecting human health and the environment (e.g., need to amend the decision documents).
- *Financial assurances:* any entities that have provided financial assurances to implement and maintain ICs throughout their intended lifespan.[24]

6.0 IC Modification & Termination Elements

For purposes of this guidance, modification includes legal or administrative steps taken to modify IC instruments (e.g., changing the area that the IC restricts or modifying monitoring requirements). If site conditions change over time (e.g., changes in cleanup standards, exposure assumptions), it may be necessary to modify ICs through a decision document; these changes also should be reflected in an ICIAP. For example, a site with a migrating groundwater plume may now require groundwater use restrictions in areas that did not previously require them. In order to expand the scope of existing ICs at the site and help ensure continued protectiveness of the remedy, EPA recommends that a change generally should be documented in a decision document for the site, consistent with existing EPA guidance.[25]

Termination of ICs may occur when cleanup objectives, cleanup goals, and/or other conditions have been met such that substantive use restrictions are no longer required to ensure protectiveness or protect the integrity of the response action. For some response actions, ICs may be selected as a permanent measure to prevent unacceptable exposures to contamination that remains in place. In these cases, termination of the ICs generally will not be appropriate unless site conditions have changed significantly (e.g., additional cleanup work has eliminated the need for ICs). EPA recommends that site decision documents generally should contain information on how long ICs are necessary to ensure protectiveness at a site before they can be terminated. Including these descriptions in the ICIAP can help identify future actions that might be needed and should help avoid misunderstandings in how to undertake such actions.

The ICIAP can provide the following useful information on modification and termination for each IC instrument, including the following:

- *Entity responsible for deciding whether modification may occur:* the person or organization responsible for modifying ICs.
- *Entity responsible for deciding whether termination may occur:* the person or organization responsible for terminating ICs.
- *Modification process:* the process for modifying ICs and notifying the appropriate regulatory authorities if site conditions or other circumstances change. A modification process may already be laid out in the decision documents for the site.
- *Conditions for termination:* role of ICs when waste is left in place above cleanup levels or when needed as a temporary measure until cleanup levels are reached for all media.
- *Termination process:* the process for terminating ICs may involve a number of factors, including site-specific conditions. Terminating ICs themselves may involve a more formalized administrative or legal process that is separate and different from EPA's cleanup or enforcement process. For example, many proprietary controls contain provisions that describe how they can be modified or terminated. Similarly, modifying or terminating a zoning ordinance likely will be defined by a local government's administrative process.

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[24] See, for example, 40 CFR § 264.101 for financial assurance requirements for corrective action at RCRA-permitted facilities.

[25] For more information, see *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and other Remedy Selection Decision Documents*, EPA 540-R-98-031, OSWER 9200.1-23, July 1999, at http://www.epa.gov/superfund/policy/remedy/rods/pdfs/guide_decision_documents_071999.pdf.

7.0 Appendices

This section may provide copies and/or references to any relevant documents with information on ICs or that are discussed in the ICIAP. This can include, for example, planned or executed consent decrees with IC components, environmental covenants, decision documents, periodic reviews, monitoring reports, or deed notices.

D. SUMMARY

This guidance document provides EPA Regions a recommended approach for developing ICIAPs at contaminated sites where the response action includes an IC component. Some things to consider when developing an ICIAP at a contaminated waste site include:

- An ICIAP is a document designed to systematically: (a) establish and document the activities associated with implementing and ensuring the long-term stewardship of ICs; and (b) specify the persons and/or organizations that will be responsible for conducting these activities.
- It generally is recommended that the ICIAP be developed prior to, or at the same time as, the design of the engineered response (e.g., Remedial Design phase of CERCLA, Corrective Measures Implementation for RCRA, or Brownfields Remedial Work Plans) and finalized with the design completion.
- In order to illustrate the properties of each IC identified for a site, developing an IC relationship matrix is recommended. An IC relationship matrix generally is a useful tool to help clarify the narrative description and rationale for the ICs, particularly at sites with layered ICs, where there are different combinations of ICs to address contaminated media.
- If site conditions change over time and changes to the IC portion of the remedy become necessary, the modified role of ICs contained in the amended decision document generally should be addressed in an ICIAP.

APPENDIX A. ADDITIONAL REFERENCES

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APPENDIX B. HYPOTHETICAL SAMPLE IC RELATIONSHIP MATRIX

Parcel Number	Area of Interest (See Map)*	Contaminants Remaining	Contaminated Media	Engineering Controls+	Cleanup Objective+	Use Restriction/IC Objective+	Conditions for Termination+	IC Instruments (Planned or Implemented):	
0001	Area 1-A	Lead TCE	Surface Soil Subsurface Soil	Landfill cap Vapor extraction	Prohibit dermal contact Prevent damage to cap	No excavation may occur unless approved by state environmental agency.	ICs needed in perpetuity; levels allowing for unlimited use and unrestricted exposure (UU/UE) will not be met by response actions.		
					Utilize existing zoning designation of industrial or commercial use	Prevent unacceptable risks due to residential exposures.	ICs needed in perpetuity; levels allowing for UU/UE will not be met by response actions.	Environmental Covenant recorded with the [xxx] County Register of Deeds on September 23, 2003	Local zoning designation of area as C-1.
	Areas 1-A and 1-B	TCE	Groundwater	Pump and treat system	Prohibit drinking of contaminated groundwater	No drinking water supply wells may be installed at this parcel.	Once MCLs are attained.		State law, section [xx.xx], prohibiting construction of new drinking water wells when groundwater is above MCLs (planned).
0002	Area 2-B	TCE	Groundwater	None, monitored natural attenuation (MNA)	Prohibit pumping (plume movement)	No water extraction well, of any type, may be installed without prior approval by the environmental agency.	Once MCLs are attained.	Environmental Covenant recorded with the [xxx] County Register of Deeds on September 23, 2003	
0003	Area 3-A	TCE	Groundwater	None, MNA	Prohibit pumping (plume movement)	No water extraction well, of any type, may be installed without prior approval by the environmental agency.	Once MCLs are attained.	Environmental Covenant recorded with the [xxx] County Register of Deeds on September 23, 2003	

*Areas of interest could be located on a map to be included in the ICIAP or to a GIS reference; + As discussed in the decision document.