

CERS2 Electronic Data Transfer (EDT) Technical Implementation Preview

Prepared by Cal/EPA Unified Program Technology Services, February 2011

This technical document is intended for information technology professionals and others who have direct responsibility for implementing machine-to-machine, electronic data transfer (EDT) to the Cal/EPA Unified Program's California Environmental Reporting System (CERS2). The document provides a preview of and conceptual explanation of the overall approach Cal/EPA intends to use for implementing CERS2 EDT. This document does not reflect all business rules, system data fields, final exchange schemas, or other details which are still being developed by Cal/EPA during the first half of 2011. Detailed and complete documentation of CERS2 EDT will not become available starting summer 2011.

For readers who don't have the time or need to read the entirety of this document, please read the Overview (Section 1) and Next Steps (Section 2). You may also want to reference the Glossary of Key Terms.

The URLs for all links embedded in the text of this document are listed in Appendix A: Key Hyperlinks.

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Section 1: Overview

Listed below is a summary of the technical approach Cal/EPA Unified Program's Technology Services Unit (TSU) is implementing for CERS2 Electronic Data Exchange (EDT). Many of the concepts summarized below are expanded upon throughout the rest of this paper.

Technology: TSU anticipates data exchanges to be based on HTTP POST/GET operations involving complete XML documents based on defined XML Schemas (XSD). TSU intends to not use SOAP based web services to minimize cross platform/technology support issues. Internally, Cal/EPA will most likely be implementing these services using custom-built web services based upon Microsoft .NET technologies; however TSU is analyzing if US EPA Node-based ([NEIEN Node Exchange Network](#)) technologies combined with regulator/organization use of node clients may be cost-effective without adding undue complexity to EDT implementers. Regardless of approach, all web services will be secured using HTTPS/SSL (Secure Sockets Layer).

Organizations: The "**Organization**" entity will be a new CERS concept allowing businesses and/or regulators to manage a group of one or more users (CERS-Keys) to administer a collection of one or more facilities. Every facility (reporting entity) will be associated with one Organization in CERS2. Since facility owners/operators may include businesses, governments, non-profits, etc., the generic term "organization" was adopted by the CERS Change Management Committee, and will be used throughout the remainder of this document to refer to the facility owner/operators who are required to report data into CERS.

For EDT implementers, the impact of organizations will be that whenever an EDT facility submittal requires creation of a new CERS facility/ID, the regulator should attempt to provide the facility's organization information if it exists in CERS (a web service will be provided to look up OrganizationIDs/Names). Otherwise, CERS will establish a new Organization for the new facility.

Exchange Agreement: All regulators and organizations/businesses using CERS EDT will be required to sign an data exchange agreement with Cal/EPA. The agreement will establish roles and responsibilities, key contacts, processes for resolving problems, etc. To get a sense of what the exchange agreement might look like, please see the [SWIS DIP Data Exchange Guidelines](#) document. TSU anticipates the CERS EDT agreement may be somewhat more rigorous than SWIS DIP as the Unified Program and its data exchanges are more complex and have more legal implications. The exchange agreement (or possibly some other interim agreement) will need to be signed by a participating organization/regulator before EDT security credentials will be issued allowing communication to any CERS EDT web services.

Service Authentication: EDT users will be manually issued security credentials by TSU staff before they perform any test and/or production exchanges (most likely a random, lengthy alphanumeric token). EDT security credentials and the data exchanges occurring with that credential will be specific to each regulator/organization. Vendors providing EDT implementations to multiple regulators/organizations will need to ensure the appropriate security credentials are transmitted to CERS for a specific regulator/organization.

Test Environment: A separate test environment for use only by EDT implementers will be available for testing/systems integration with CERS EDT services. Regulators and organizations will be required to

demonstrate their ability to successfully use CERS EDT web services in the test environment before they could submit to the production system. In summer 2011, XML validation services/tools will be provided.

EDT Monitoring Tools: Each regulator and organization\business participating in EDT will have to create at least one CERS-Key account. The EDT-authorized CERS-Key accounts will be able to access a set of secured web pages within CERS providing dashboard and management reports on EDT transmission history, along with any other EDT-specific features that may be needed/helpful to EDT implementers.

Submittal Validation Logic: The CERS user interface and EDT services use the same submittal and validation logic for consistent processing and error reporting.

Immediate/Deferred Processing: TSU anticipates immediate (“real time”) transaction processing for both **single** facility submittals and **single** inspections/enforcements submittals. **Multiple** EDT facility submittals and inspections/enforcements submittals will **always** be queued for deferred processing. TSU understands the importance of providing immediate processing of single transactions, but has not yet confirmed that the many complex validation processes required for each potential submittal element of an entire *Facility Submittal* can realistically occur during immediate processing.

EDT Service Submittal Method Response Results: All immediate processing submission methods will return a XML response with status, error information, and return values. For deferred processing submissions, web service API’s will need to be accessed at some later point in time to acquire submittal status, error information and return values. All XML responses will follow a predefined publically available XML schemas defined by Cal/EPA.

Document Upload Service Methods: To preserve server resources for immediate (“real time”) processing of submittals, document content will need to be loaded to separate web service methods. Before a document can be loaded, its metadata (e.g., title, description, date, unique local identifier) must have been already provided to CERS in a *Submittal Element* as defined by the relevant schema. Documents too large will be rejected.

CERS/Local Identifiers Exchange: Most submission methods will require organizations/regulators to provide unique local identifiers for their data entities (e.g. UST Tank, Inspection, etc.). The relevant web service API will return CERS unique identifiers and any other return values for the submitted data entities.

XML Schema Design: TSU anticipates defining six submittal XML schemas (XSD): one for each type of facility submittal element (i.e. Regulator Submittals and Organization Submittals), one for Submittal Action Notifications, one for Document Submittals, one for Inspection Submittals, and one for Enforcement Submittals. The Facility Submittal schemas will be made up of multiple sub-schemas, each of which describes a single Submittal Element. Each sub schema will be versioned independently. In addition to these 6 core schemas, there will be additional schemas for submittal method responses, and various library/lookup service methods.

Library/Lookup APIs: Many read-only web service APIs will be available to lookup/acquire submittal status and various CERS library datasets such as Violation Library, Chemical Library, Organization Names, Facility Information, etc.

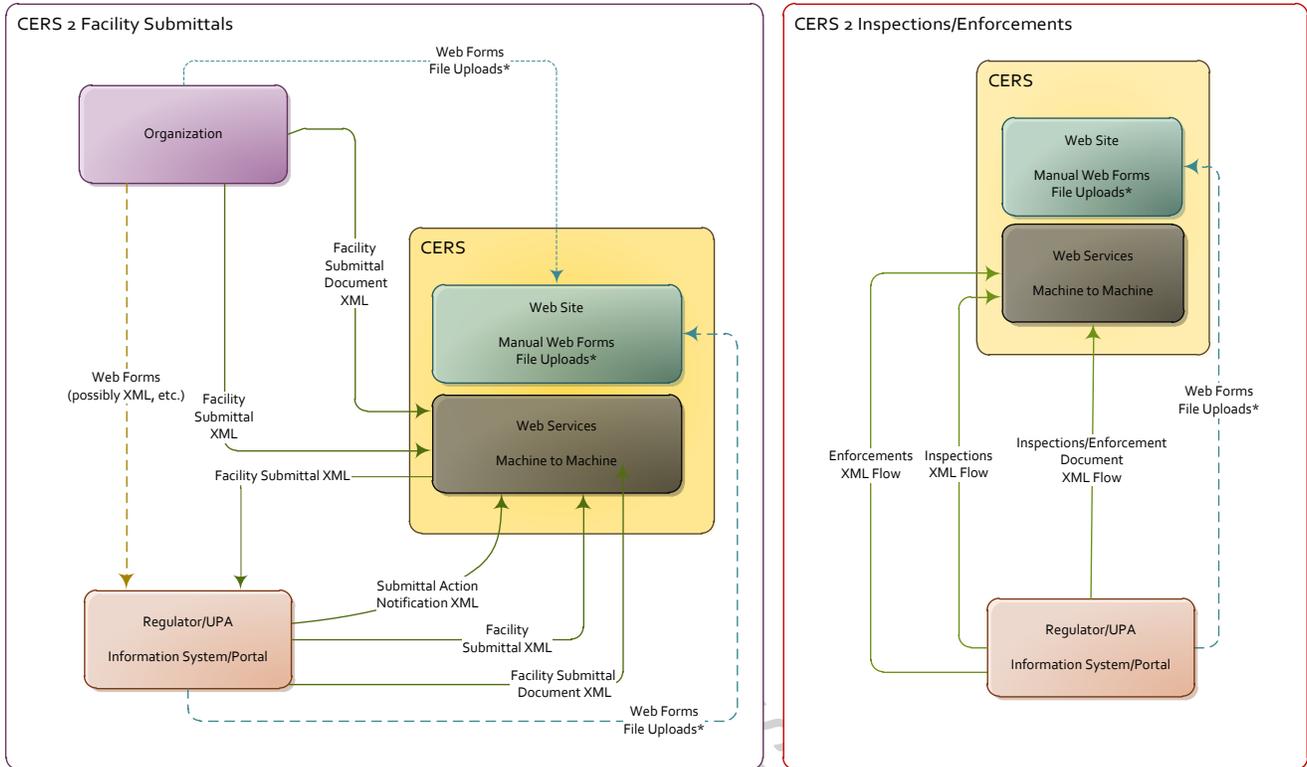
Organization XML Submittals: CERS2 is being designed to allow any organization to directly report their facility data in XML format to CERS2 web services. This is primarily intended for large businesses with multiple facilities spanning multiple regulators. These Facility Submittals would then be available to any appropriate regulators who need to pull that data into their own data systems. Presumably most smaller organizations/businesses will manually enter data and upload documents directly into CERS or the web portals/data systems of their respective regulators.

Seeding Regulator Facility Records in CERS: Some regulators may want to initially load the facility records they have in their local systems into CERS, and/or reconcile facility records that already exist in CERS with local facility records. During summer 2010 TSU will provide guidance to interested EDT implementers on how they can perform this as part of the CERS2 web site rollout in fall 2011. TSU will have a fairly short and specific window where they will accept seeding data for the initial CERS2 rollout, and priorities may be assigned to certain regulators if time/resources are short. However, all regulators will again have the opportunity to seed their data approximately 1 month after the initial rollout and through the rest of 2011 and 2012.

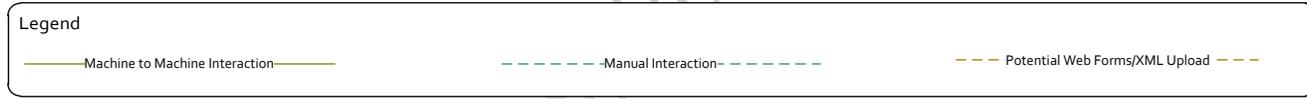
Primary Data Exchanges: Listed below a list of the key CERS data exchanges along with a diagram showing the complex relationship of these exchanges between CERS, organizations, and regulators. These data exchanges are explained in depth throughout the rest of this document. Note that facility submittals are far more complex than inspection/enforcement submittals.

- **Facility Submittal + Facility Submittal Document (Organization → CERS)**
- **Facility Submittal + Facility Submittal Document (Regulator → CERS)**
- **Facility Submittal Action Notification (Regulator → CERS)**
- **Inspection Submittal + Inspection Submittal Document (Regulator → CERS)**
- **Enforcement Submittal + Inspection Submittal Document (Regulator → CERS)**

Figure 1: CERS 2 Data Exchanges Diagram



*File Uploads: XML and Flat (CSV, etc) file formats supported.



Section 2: Next Steps...

This section provides the roadmap and schedule Cal/EPA anticipates for CERS2 EDT implementation. Additionally, it provides a set of suggested steps for EDT implementers.

Cal/EPA's anticipated schedule is very ambitious. If resources/time becomes short, the inspection/enforcement data schemas/exchanges may be delayed to ensure priority and timely implementation of Facility Submittals exchanges.

Anticipated Cal/EPA CERS2 EDT Implementation Schedule

February 2011	<ul style="list-style-type: none"> • Release of Unified Program Data Dictionary (FINAL DRAFT) (Version 3.10) on CERS Data Registry. • Release of CERS2 Locally Collected Fields Data Dictionary. • Release of first draft of CERS2 System Fields Data Dictionary. • Release of this document ("CERS EDT Technical Implementation Preview"). • Launch of CERS EDT Listserv.
Feb.-June 2011	<ul style="list-style-type: none"> • Miscellaneous communications/clarifications sent to EDT implementers subscribed to the CERS2 EDT listserv (especially additions/corrections to system-required fields).
June-July 2011	<ul style="list-style-type: none"> • Release of final XML Schemas for all core data exchanges (Facility Submittals, Submittal Action Notification, Inspections/Enforcements, Document Loads). • Release of Final CERS2 System Required Fields Data Dictionary. • Release of additional guidance documentation on CERS2 EDT. • Release of comment draft of EDT Data Exchange Agreements for Regulators. • Guidance provided to regulators who wish to "seed" their facility data into CERS2 as part of the CERS2 web site launch in Sept./Oct.
August-Sept. 2011	<ul style="list-style-type: none"> • Release of services allowing validation of test XML submissions for well-formedness. • Release of beta processes/services for EDT implementers to establish their EDT authorization/credentials. • Anticipated release of beta versions of some data exchanges web services, along with beta draft documentation of some web services. • Approximately 30 day window will open for regulators to submit their facility "seeding" data to TSU as part of the CERS2 web site rollout in fall 2011.
Sept.-Oct.2011	<ul style="list-style-type: none"> • 8-10 business day "dark" period where CERS1 web site is turned off, data migrated into the CERS2 data structures, and testing is conducted. • Production release of CERS2 web site.
Oct.-Nov. 2011	<ul style="list-style-type: none"> • Release of final drafts of Facility Submittals and related web services documentation.
December 2011	<ul style="list-style-type: none"> • Release of production Facility Submittals and related web services/documentation.
Q1 2012	<ul style="list-style-type: none"> • Likely release of production Inspection and Enforcement Submittals web services.

Suggested Next Steps for EDT Implementers

Subscribe to Cal/EPA's CERS2 EDT Listserv

The CERS Electronic Data Transfer Implementation listserv is a free service; you will receive periodic e-mails with the newest CERS EDT Implementation listings. Subscribe at <http://www.calepa.ca.gov/Listservs/ListSubscribe.asp?LID=110>.

Subscribe to the [CERS Regulator User Group Listserv](#)

Many important discussions of future CERS2 business rules and functionality will occur during meetings of this group and be documented in its [distributed minutes and other meeting documents](#).

Read this "Implementation Preview" document

If you have questions or concerns about anything you have seen in this document, please email Chris Allen at callen@calepa.ca.gov. Due to TSU's heavy workload, you may not receive an immediate or detailed response.

Download [Version 3.10](#) of the Unified Program Data Dictionary

Study and understand this list of data elements as it represents all of the primary/required fields that EDT implementers would exchange via CERS2 EDT. Based upon approvals from the Unified Program's Data Management Steering Committee, EDT implementers need to use Version 3.10 of the Unified Program Data Dictionary (instead of the Data Dictionary for Regulated Activities defined in California Code of Regulations, CCR Title 27, Division 3, Subdivision 1).

Review the [CERS Locally Collected Fields for Electronic Exchange](#) Data Dictionary

Review the 9 data elements currently approved (by the Unified Program's Data Management Steering Committee) that regulators can electronically collect in CERS which are NOT defined in the Unified Program's Title 27 Data Dictionary but are required for local programs. This list was adopted after extensive polling of regulators during fall 2010. If you identify other locally collected fields that are critically needed in electronic data exchanges, your regulator should contact the Unified Program Data Management Steering Committee as soon as possible.

Map local data system fields to Unified Program Data Dictionary and CERS Locally Collected Fields

Begin mapping your data system fields to the Version 3.10 *Unified Program Data Dictionary* and the *CERS Locally Collected Fields for Electronic Exchange* data dictionary.

Begin reviewing the [CERS2 System Fields Data Dictionary](#)

This listing is probably 50-70% complete and not yet fully stable, but includes many fields you will need to provide. The document provides a fair amount of guidance on why/how these fields will be used. The CERS2 EDT Listserv will announce updates to this data dictionary as they become available.

Begin reviewing the [CERS2 Supplemental Fields Data Dictionary](#)

This listing is in the early stages of development and not yet full stable.

Section 3: Facility Submittals EDT

This following section on Facility Submittals EDT discusses likely business rules that Cal/EPA has identified to date, as well as the likely system fields and conceptual XML schemas structures. Terms in italics are specific terms.

Facility Submittals EDT Business Rules and Features

1. A **Facility Submittal** consists of the data for a **SINGLE** facility that an organization intentionally submitted to CERS (or a regulator portal) to meet their legal reporting requirements for that facility. An organization reporting on their multiple facilities would result in multiple *Facility Submittals*.
2. A **Facility Submittals Transmission** represents an XML package composed of at least one *Facility Submittal* submitted by an authorized regulator or organization to a CERS Facility Submittal web service.
3. A **Facility Submittal** is made up of one or more *Submittal Elements*.
4. A **Submittal Element** represents the data elements an organization would report about their facility on one or more related/dependent paper forms. Some *Submittal Elements* will be equivalent to a single independent UPCF (e.g., Hazardous Waste Tank Closure Certification) or uploaded document (e.g., UST Certification of Installation/Modification). Other *Submittal Elements* will be equivalent to several related forms (e.g., UST Tank and Monitoring Plan). *Submittal Elements* will each be defined by their own sub-schema.
5. **Submittal Elements** represent the unit of approval/rejection in CERS EDT. If a *Submittal Element* does not pass schema and/or other validations, CERS will reject the *Submittal Element*. For example, a *Facility Submittal* consisting of three *Submittal Elements* could have two elements accepted and one element rejected. The rejected *Submittal Element* would then need to be resubmitted inside of a new *Facility Submittal* at some later point in time.
6. Based upon agreements between Cal/EPA and UPAs, CERS will assign a single regulator (CUPA/PA) to each *Submittal Element* for a specific geographic region. CERS business logic will demand that one and only one regulator can accept/approve/deny a specific *Submittal Element* for each facility in the state.
7. The initial Facility Submittal for a **new** facility (no CERS ID) must minimally include the **Common Data Submittal Element** (Business Activities and Owner/Operator Information). Any *Submittal Elements* (or *Facility Submittals*) for a **new** facility that are received before (or not accompanying) the initial *Common Data Submittal Element* will be rejected.
8. A **Facility Submittal** and its various **Submittal Elements** can NEVER be “updated” in CERS once submitted. A **Facility Submittal** must reflect the data provided by the organization for their facility in its entirety to meet their legal reporting requirements (even if an individual **Submittal Element(s)** is rejected by the regulator and/or CERS).
9. If an organization needs to “update” or “correct” a submitted *Submittal Element(s)*, an entirely new *Submittal Element(s)* must be generated inside of a new *Facility Submittal*.
10. Each *Submittal Element* for a Facility is associated with one and only one regulator in CERS. Generally Submittal Elements **roughly** map to Unified Program program elements (e.g., Business Plan, UST, etc.).
11. **Submittal Action Notifications** are a separate data exchange allowing regulators to change the status (but not the *Submittal Element* data) of a submitted *Submittal Element*. This will allow regulators to transmit to CERS in a timely manner the facility submittal data they have received/accepted, while allowing them to defer reporting to CERS whether they have approved/rejected the submittal data.
12. Some *Submittal Elements* may involve loading a scanned or other electronic document into CERS. The schemas for these *Submittal Elements* will include the **metadata** for such a document(s) (e.g., title, description, date, etc.). However, the document itself will need to be loaded into CERS via a separate “back-channel” EDT web service (described later in this document).
13. To control the processing load on Cal/EPA servers, some maximum XML payload size limits will be established for *Facility Submittals*. The web service methods accepting a single *Facility Submittal* will be designed to handle a *Facility Submittal* consisting of **all** *Submittal Elements*, including a very large

chemical inventory (inventories are difficult to predict an upper size limit). However, an EDT submitter attempting to submit **multiple Facility Submittals** with very large chemical inventories could potentially run up against XML payload size limits, and would need to break up the *Facility Submittals* into smaller XML payloads.

Facility Submittal Documents EDT

Some *Submittal Elements* will involve loading a PDF Forms, scanned forms, or other electronic document (e.g. UST Certification of Financial Responsibility) into CERS. The schemas for these *Submittal Elements* will include the **metadata** for such a document(s) (e.g., title, description, date, etc.). However, the document itself will need to be loaded into CERS via a separate “back-channel” EDT web service.

The reason for providing the document’s metadata in the *Submittal Element* in advance of loading the document is to: 1) allow the organization/business to show their intent to provide the document, and 2) allow CERS to validate the *Submittal Element* and specifically the *Facility Submittal* as a whole.

To ensure the *Submittal Element* document metadata is correctly mapped to the later back-channel loading of the document, Regulators/Organizations will need to provide a unique local identifier (DocumentID) to CERS both in the *Submittal Element* metadata, and then later to the Facility Submittal Documents web service to actually load the document.

Cal/EPA (in consultation with the CERS Regulator and Business user groups) will need to establish a number of business rules regarding when a *Submittal Element* (and an associated *Facility Submittal*) is deemed “complete” in relation to document loads, i.e., what happens if an organization or regulator does not load a document in a timely manner.

Facility Submittal Documents Business Rules and Features

1. Calls to the document load web service will be rejected if they reference a local DocumentID that has not been already identified via metadata in a Facility’s *Submittal Element*, or has been previously uploaded/used.
2. Only one document instance is allowed to be uploaded for each document (DocumentID) specified in the Facility Submittal. Similar to the principle that *Facility Submittals* can’t be “changed”, document uploads cannot be updated either. All attempts to upload another document with a previously used DocumentID will be rejected.
3. If a “new” document needs to be added to a submitted *Facility Submittal Element* (e.g., one of the documents was too large to be successfully uploaded and needs to be uploaded as two separate documents), the entire *Submittal Element* and all of its documents must be resubmitted in a new *Facility Submittal*. [Cal/EPA is trying to find a better solution to this issue].
4. There will be a maximum document load size and it may possibly be less than the current 40MB allowed in CERS1. Organizations/regulators would be responsible for breaking up a large document into smaller loadable chunks and each chunk will need separate metadata.
5. Cal/EPA will be exploring with the CERS user groups the possibility of *Submittal Elements* involving documents including fields indicating a document won’t be loaded into CERS because it is: 1) available at a public URL, 2) stored on the facility’s premises based upon regulations and/or an agreement with their regulator, 3) stored on the regulator’s premises.

Facility Submittal EDT Conceptual Schemas

The table below shows the various System-Required Fields that will be required for Facility Submittal-related data exchanges. Following the table are diagrams **outlining** the anticipated schema structure for each exchange. These outlines do not show all submittal elements or all fields—they are only intended to provide a general sense of how the schemas will be structured. Formal XSDs will be provided for all of these at a later point in time (see Section 8: Next Steps).

Organization Facility Submittals	Regulator Facility Submittals	Submittal Action Notifications	Facility Submittal Documents
<p>This exchange originates from an Organization/Business and is directed to CERS (although regulators could adopt this schema as well for Organization→Regulator portal exchanges). This transfer would include the following data elements:</p> <p>CERS ID Submittal ID Submitter ID Submittal Source Submittal Date OrganizationRepName OrganizationRepEmail OrganizationID OrganizationName</p> <p>See Figure 2: Organization Facility Submittals Schema Layout</p>	<p>This exchange originates from a Regulator and is directed at CERS. This transfer would include the following data elements:</p> <p>CERS ID Submittal ID Submitter ID Submittal Source Submittal Date Submittal Action Date Submittal Action Comments Submittal Action SubmittalActionAgentName SubmittalActionAgentEmail SubmittalActionRegulatorID OrganizationID [Optional] OrganizationName [Optional] OrganizationRepName OrganizationRepEmail</p> <p>See Figure 3: Regulator Facility Submittals Schema Layout</p>	<p>This exchange originates from the Regulator and is directed at CERS, and is only used to change the status of one or more Submittal Elements. This transfer would include the following data elements:</p> <p>CERS ID Submittal ID Submitter ID Submittal Action Date Submittal Action Comments Submittal Action SubmittalActionAgentName SubmittalActionAgentEmail SubmittalActionRegulatorID</p> <p>See Figure 4: Submittal Action Notifications Schema Layout</p>	<p>This exchange originates from either a Regulator or an Organization/Business. The transfer would include the following data elements:</p> <p>SubmitterID EntityID → SubmittalID EntityType → FacilitySubmittal DocumentID Content</p> <p>See Figure 7: Document Upload Schema Layout</p>

Figure 2: Organization Facility Submittals Schema Layout

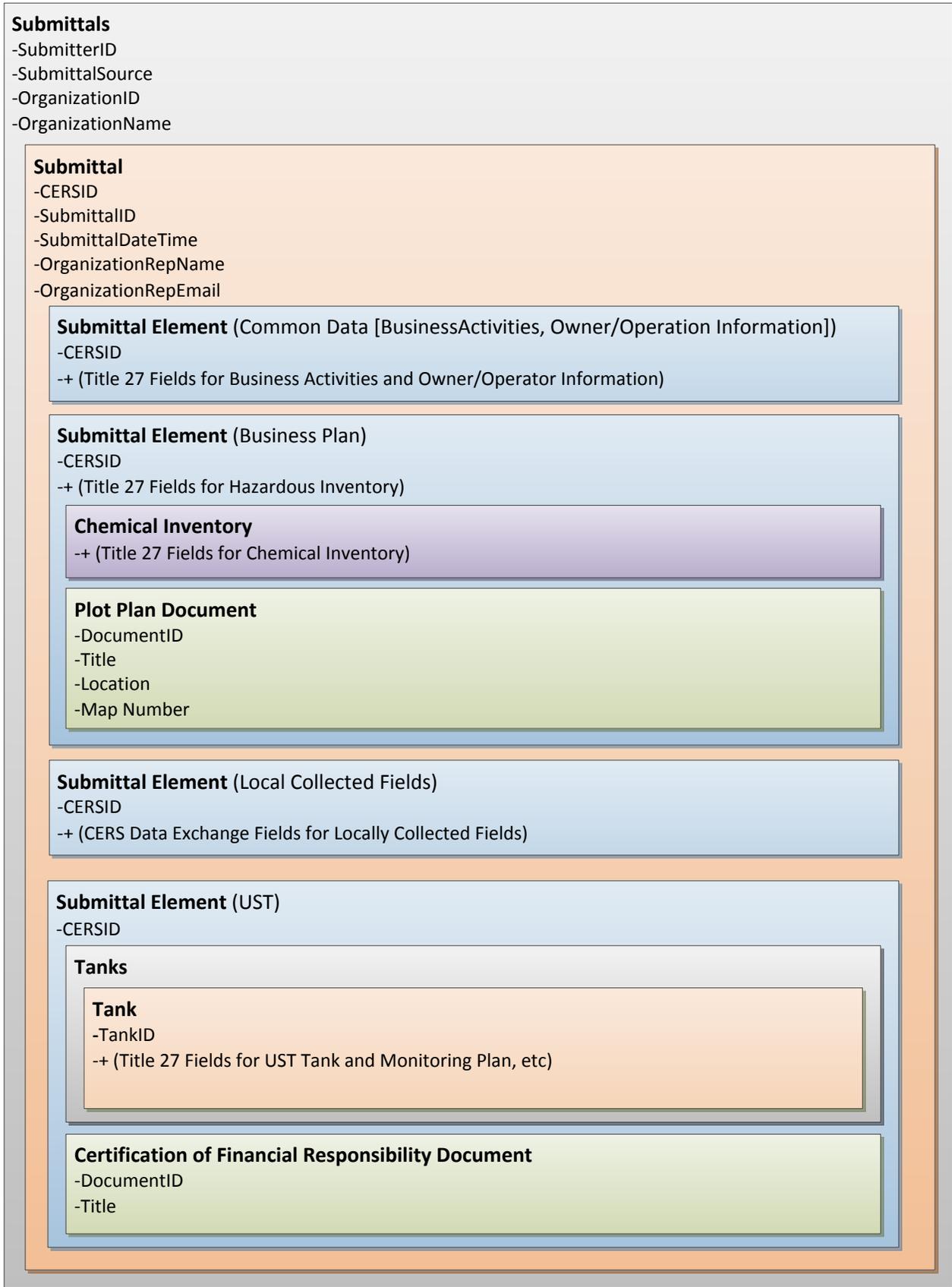


Figure 3: Regulator Facility Submittals Schema Layout

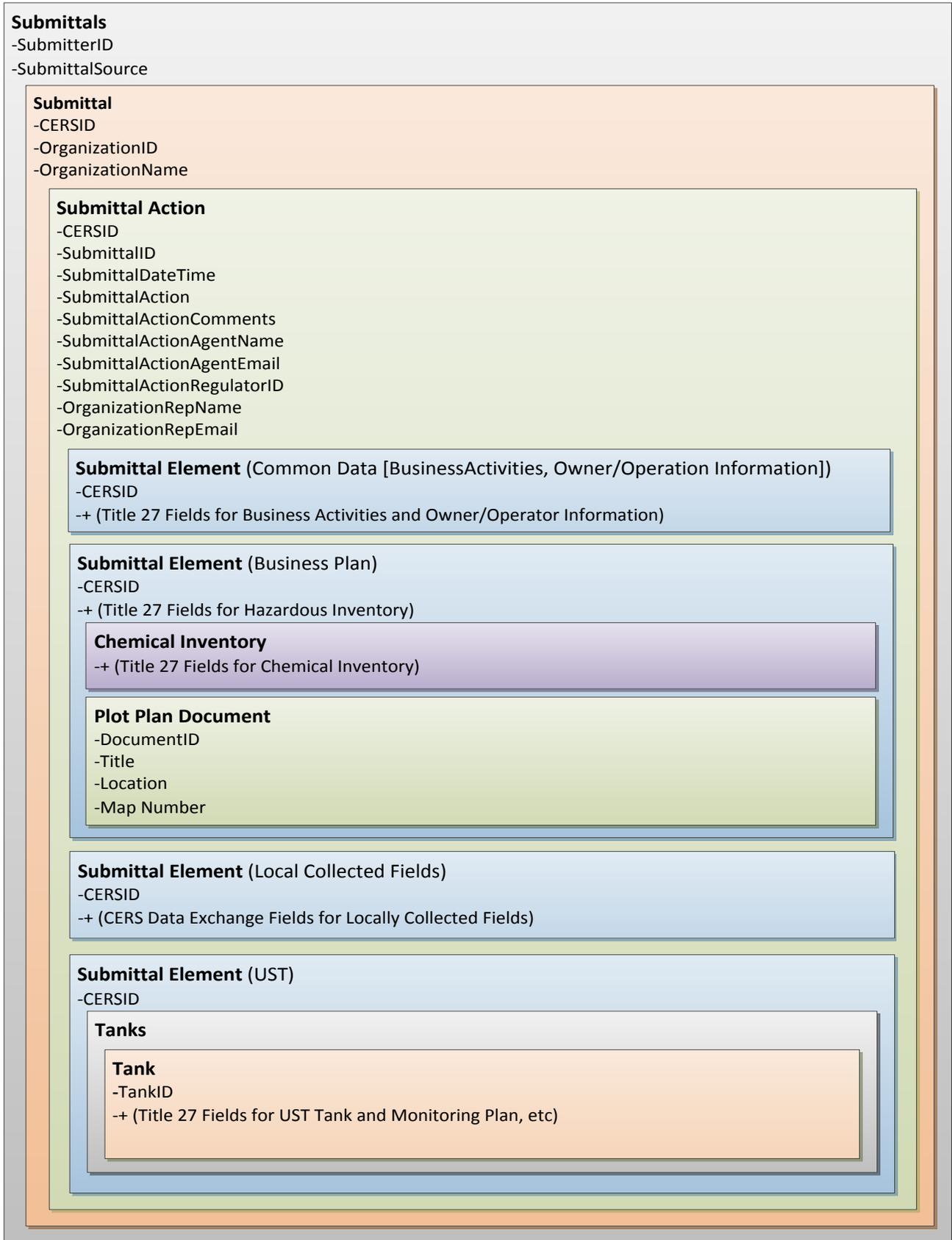


Figure 4: Submittal Action Notifications Schema Layout

Superceded - See <http://cers.calepa.ca.gov/EDT/>

Submittals

- SubmitterID
- SubmittalSource

Submittal

- CERSID
- OrganizationID
- OrganizationName

Submittal Action (e.g a submittal from a CUPA)

- CERSID
- SubmittalID
- SubmittalDateTime
- SubmittalAction
- SubmittalActionComments
- SubmittalActionAgentName
- SubmittalActionAgentEmail
- SubmittalActionRegulatorID
- OrganizationRepName
- OrganizationRepEmail

Submittal Element (Common Data [BusinessActivities, Owner/Operation Information])

- CERSID
- SubmittalElementID

Submittal Element (BusinessPlan)

- CERSID
- SubmittalElementID

Submittal Action (e.g a submittal from a PA)

- CERSID
- SubmittalID
- SubmittalDateTime
- SubmittalAction
- SubmittalActionComments
- SubmittalActionAgentName
- SubmittalActionAgentEmail
- SubmittalActionRegulatorID
- OrganizationRepName
- OrganizationRepEmail

Submittal Element (UST)

- CERSID
- SubmittalElementID

Section 4: Inspection and Enforcement Submittals EDT

This section discusses general business rules, data flows, system fields, and conceptual XML schemas structures needed for electronic data transfer of Inspections and Enforcements. In general, Inspections/Enforcements EDT is MUCH simpler than Facility Submittal EDT because it is a one-way flow from regulators to CERS (Cal/EPA). One of the key differences between Inspections/Enforcements and Facility Submittals EDT is that updates ARE allowed to be submitted for existing Inspections/Enforcements records (e.g., to provide a Return To Compliance Date). Presently both Inspections and Enforcements can be transmitted with or without Violations, although Cal/EPA has indicated its desire to mandate collection of Violation detail information from regulators at some point in the next few years.

Business Rules and Features for Inspections and Enforcements EDT

1. Enforcements/Inspections are only transmitted one-way, from Regulator to CERS. However, read-only library services will be available for regulators to pull this data back down into their systems if necessary.
2. Updates can be submitted to CERS for existing Inspections and Enforcements.
3. Inspections/Enforcements submittals must be for an existing CERS facility or will be rejected.
4. Each *Submittal Element* for a Facility is associated with one and only one regulator in CERS. Generally Submittal Elements **roughly** map to Unified Program program elements (e.g., Business Plan, UST, etc.). Inspections and Enforcement submissions will only be accepted into CERS from regulators authorized in CERS for the relevant *Submittal Elements*.
5. Submittals updating existing inspection/enforcement records must include the **entire** inspection and/or enforcement record (including all violations details if those were originally provided). The CERS copy of the inspection or enforcement would be replaced by the update. The old version would be archived, except possibly for uploaded documents.
6. Updates must be submitted using the same InspectionID, EnforcementID (and ViolationIDs) provided.
7. The Inspection and Enforcement schemas will support loading an associated document into CERS (e.g., map or photo of a facility, relevant correspondence, etc.). Inspection/enforcement document loads will operate similarly to facility submittal documents, with **metadata** for the document(s) (e.g., title, description, date, etc.) being provided in the actual inspection/enforcement submittal and the document itself being loaded into CERS via a separate “back-channel” EDT web service.
8. The only way to associate a document with a specific violation will be “manually” via the document’s metadata (e.g., title, description).
9. To control the processing load on Cal/EPA servers, some maximum XML payload size limits will be established for inspection/enforcement submittals. However, because inspection/enforcement submittals are much smaller and less complex than facility submittals, the size limits are unlikely to be problematic.
10. There will be a maximum document load size for inspection/enforcement documents, but it is likely to be less somewhat less stringent than the limits for facility submittals since there will be fewer document loads of this type.
11. Cal/EPA will be exploring with regulators the possibility of adding document metadata fields to inspection/enforcement submittals that indicate a document won’t be loaded into CERS because it is: 1) available at a public URL, 2) stored on the facility’s premises based upon regulations and/or an agreement with their regulator, 3) stored on the regulator’s premises.

Inspection/Enforcement EDT Submittals Conceptual XML Schemas

The table below shows the various System-Required Fields that will be required for inspection and enforcement-related data exchanges. Following the table are diagrams **outlining** the anticipated schema structure for each exchange. These outlines do not show all submittal elements or all fields—they are only intended to provide a general sense of how the schemas will be structured. Formal XSDs will be provided for all of these at a later point in time (see Section 8: Next Steps).

Inspection Submittals	Enforcement Submittals	Inspection Submittal Documents	Enforcement Submittal Documents
<p>This exchange allows Regulators to submit Inspections to CERS. The transfer would include the following System-Required Fields:</p> <p>SubmitterID InspectionID</p> <p>Would also include the Title 27 data for Inspections, and zero or more Violations.</p> <p>*See Figure 5: Inspection Submittals Schema Layout</p>	<p>This exchange allows Regulators to submit Enforcement Submittals to CERS. The transfer would include the following System-Required Fields:</p> <p>SubmitterID EnforcementID</p> <p>Would also include the Title 27 data for Enforcements, and zero or more Violations.</p> <p>*See Figure 6: Enforcement Submittals Schema Layout</p>	<p>This exchange allows Regulators to submit Inspection Submittal Documents to CERS. The transfer would include the following System-Required Fields:</p> <p>SubmitterID EntityID → InspectionID EntityType → Inspection DocumentID Content</p> <p>*See Figure 7: Document Upload Schema Layout</p>	<p>This exchange allows Regulators to submit Enforcement Submittal Documents to CERS. The transfer would include the following System-Required Fields:</p> <p>SubmitterID EntityID → EnforcementID EntityType → Enforcement DocumentID Content</p> <p>*See Figure 7: Document Upload Schema Layout</p>

Figure 5: Inspection Submittals Schema Layout

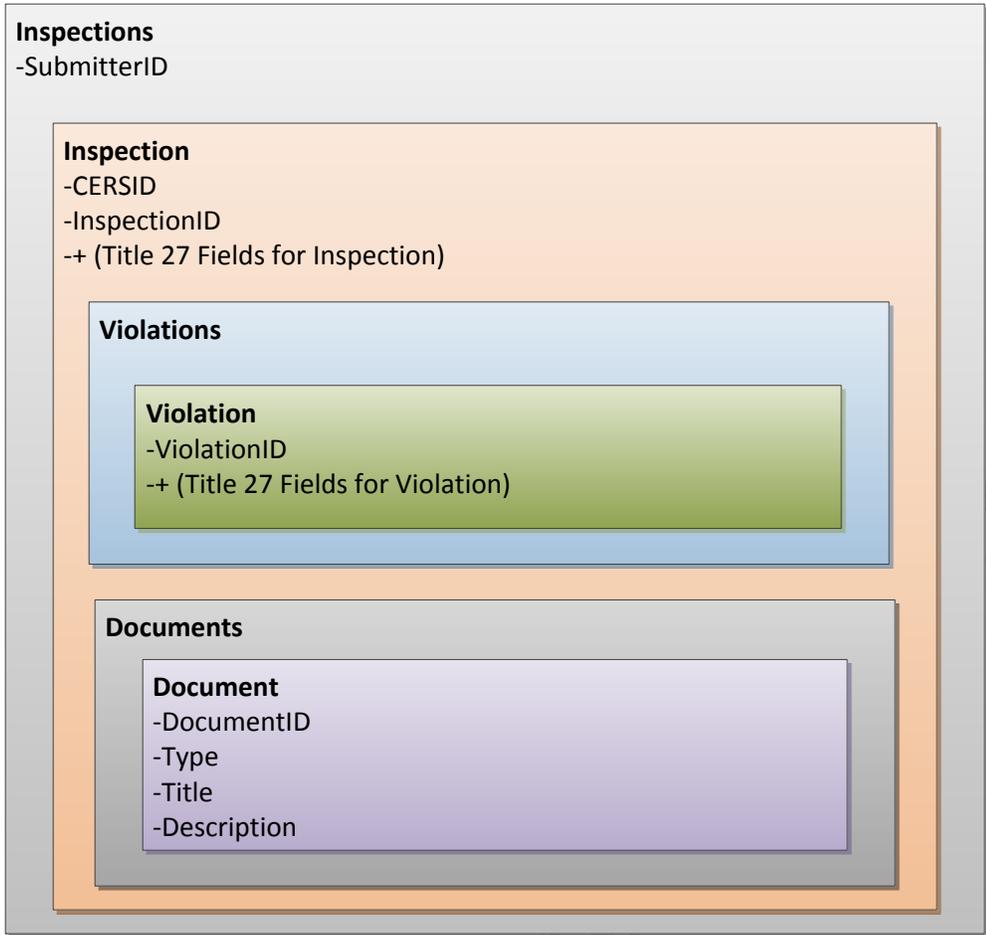
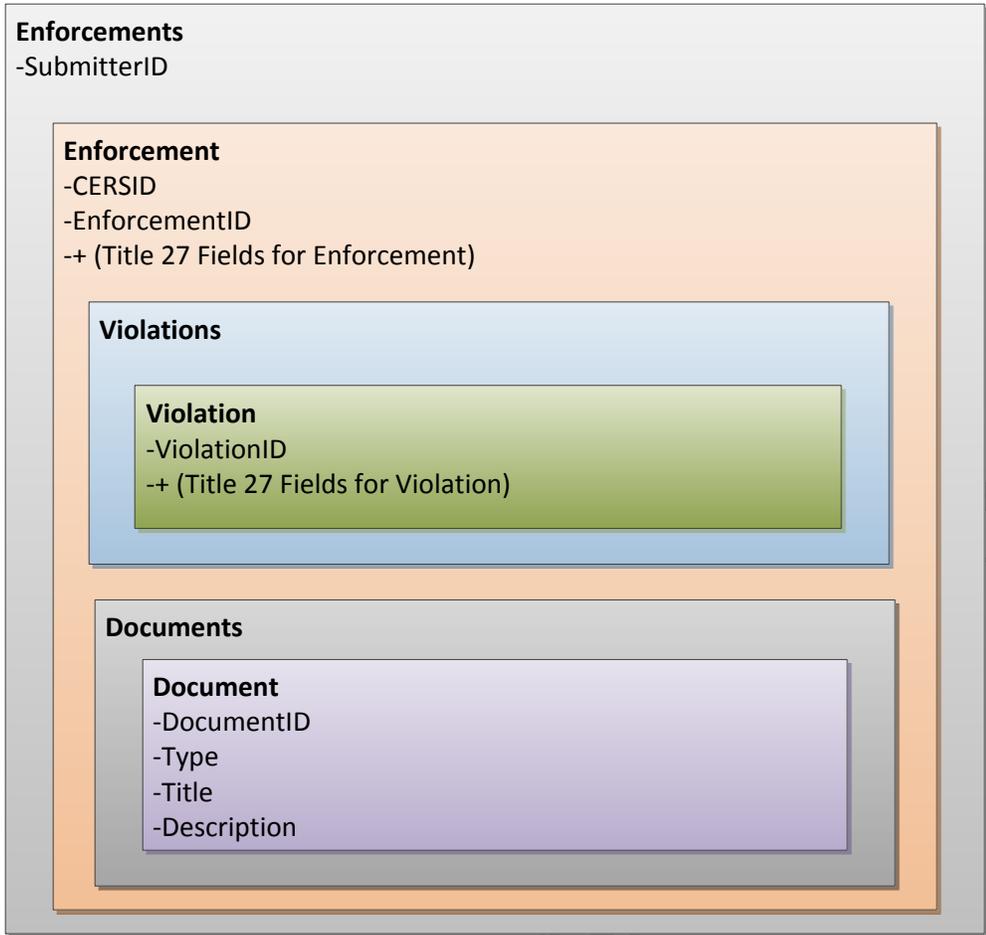


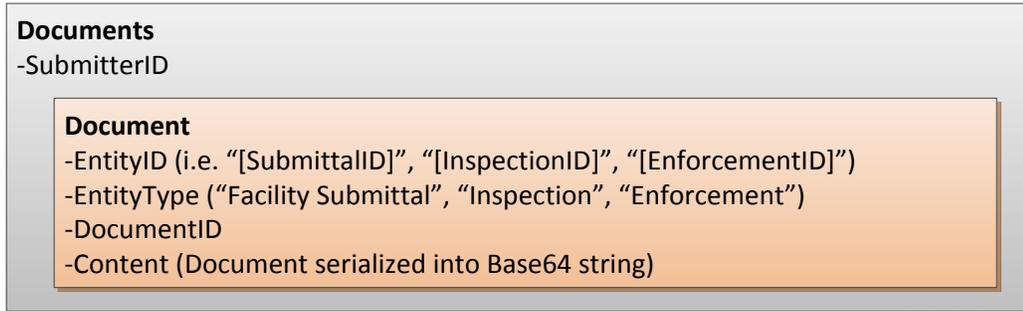
Figure 6: Enforcement Submittals Schema Layout



Section 5: Document Uploads EDT

Documents are uploaded to separate web service methods for the Facility Submittals, Inspection Submittals, and Enforcement Submittals they were described in. However, TSU anticipates using the common document upload XML schema shown below for all of these data exchanges. Please note that the actual document will need to be serialized into a Base64 string in the XML payload.

Figure 7: Document Upload Schema Layout



Document Upload Schema Element Information

Element Name	Type	Description
EntityID	String	The local SubmittalID, InspectionID or the EnforcementID the document belongs to.
EntityType	String	The qualifying identifier that specifies what the EntityID is. Possible values would be "Facility Submittal", "Inspection", or "Enforcement".
DocumentID	String	The local identifier of the document that matches the local identifier provided in document metadata for a Facility Submittal Element, Inspection or Enforcement.
Content	String	The content of the document serialized into a Base64 string.

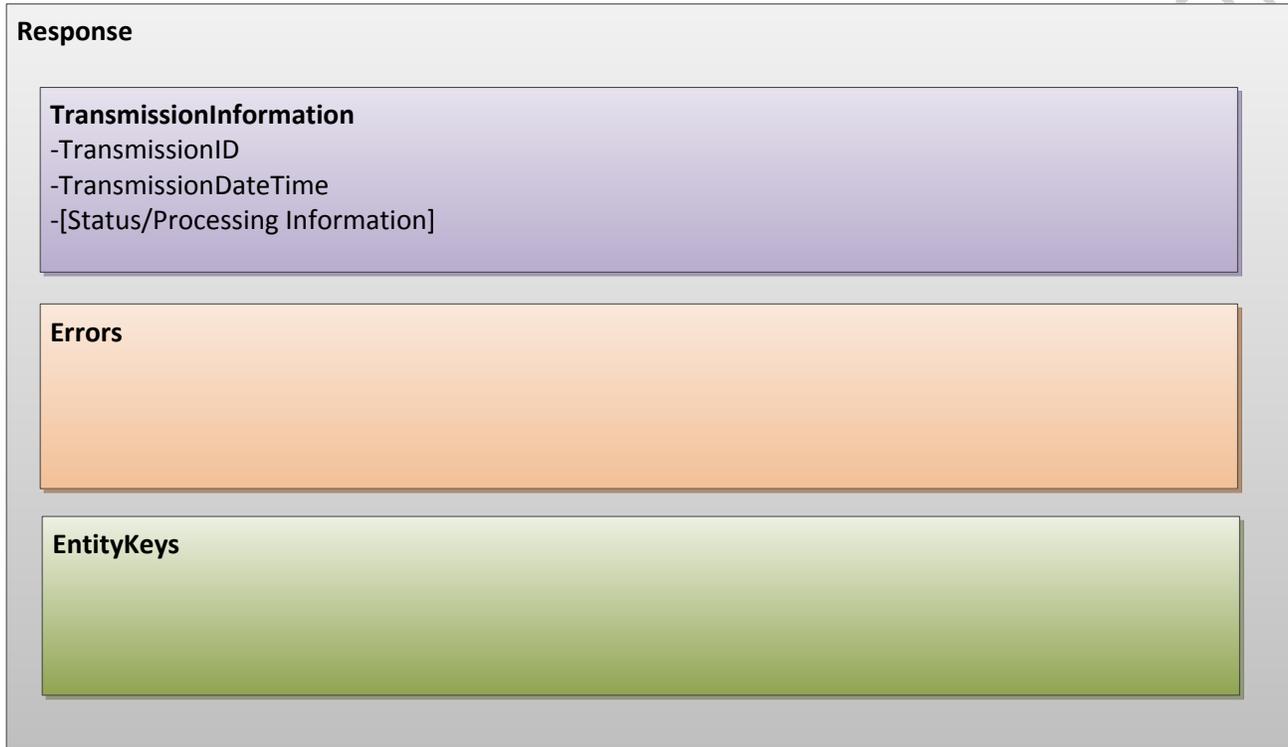
Section 6: Web Service Method Responses

Every web service method will return an XML response containing at a minimum a result status of the operation.

Submittal Response XML Schema

Methods that submit submittals will return a Submittal Response XML schema that includes transmission information (status, TransmissionID, TransmissionDateTime, etc.), errors and return values.

Figure 8: Submittal Service Method Response Schema Layout



Section 7: Web Service Methods

The list below is comprised of conceptual service method names Cal/EPA anticipates providing to clients using CERS Web Services. Cal/EPA anticipates that methods starting with SubmitOne... will be processed immediately ("real time"), whereas methods that start with SubmitMany... will always be deferred (even if only one submittal is submitted to a method named SubmitMany...). SubmitOne... service methods will always return a response XML schema including status, errors and return values. Cal/EPA has not yet determined the likely response schema for SubmitMany... service methods.

Facility Submittals

Method Name:	Inputs:	Outputs:
SubmitOneOrganizationFacilitySubmittal	Organization Facility Submittals XML	Submittal Response XML
SubmitManyOrganizationFacilitySubmittals	Organization Facility Submittals XML	Submittal Response XML

SubmitOneRegulatorFacilitySubmittal	Regulator Facility Submittals XML	Submittal Response XML
SubmitManyRegulatorFacilitySubmittals	Regulator Facility Submittals XML	Submittal Response XML
SubmitFacilitySubmittalDocument	Facility Submittal Documents XML	Submittal Response XML
GetRegulatorFacilitySubmittals	Regulator Facility Submittal Query XML Required Field: RegulatorID Optional Fields: Date Range, CERS ID, Submittal ID, Status	Facility Submittal Result XML
GetOrganizationFacilitySubmittals	Organization Facility Submittal Query XML Required Field: OrganizationID Optional Fields: Date Range, CERS ID, Submittal ID, Status	Facility Submittal Result XML
GetFacilitySubmittalStatus	Facility Submittal Status Query XML Required Fields: CERS ID, Submittal ID	Facility Submittal Status Result XML.
SubmitSubmittalActionNotification	Submittal Action Notifications XML	Submittal Response XML
GetSubmittalDocuments	Facility Submittal Document Query XML Required Fields: SubmittalID Optional Fields: DocumentID	Facility Submittal Document Result XML

Inspections

Method Name	Inputs	Outputs
SubmitOneInspection	Inspections Submittals XML	Submittal Response XML
SubmitManyInspections	Inspections Submittals XML	Submittal Response XML
SubmitInspectionDocument	Inspection Submittal Documents XML	Submittal Response XML
GetInspections	Inspection Query XML Required Fields: RegulatorID Optional Fields: Date Range, CERS ID, InspectionID, Status	Inspection Query Result XML
GetInspectionDocuments	Inspection Documents Query XML Required Fields: RegulatorID, InspectionID	Inspection Documents Result XML

	Optional Fields: DocumentID	
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Enforcements

Method Name	Inputs	Outputs
SubmitOneEnforcement	Enforcement Submittals XML	Submittal Response XML
SubmitManyEnforcements	Enforcement Submittals XML	Submittal Response XML
SubmitEnforcementDocument	Enforcement Submittal Documents XML	Submittal Response XML
GetEnforcements	Enforcement Query XML Required Fields: RegulatorID Optional Fields: Date Range, CERS ID, EnforcementID, Status	Enforcement Query Result XML
GetEnforcementDocuments	Enforcement Documents XML Required Fields: RegulatorID, EnforcementID Optional Fields: DocumentID	Enforcement Documents Result XML

Section 8: Library/Lookup Service Methods

Cal/EPA intends to expose several web service methods that will allow EDT implementers to access information from CERS such as the Violation dictionary, Chemical Library, etc. Some examples of these service operations are listed below.

- GetViolationDictionary
- GetStorageContainerList
- GetChemicalByCASNumber
- GetChemicalByCommonName
- GetOrganizationName

Glossary of Key Terms

Submittal: One or more *submittal elements*.

Facility Submittals Transmission: An XML package composed of at least one *Facility Submittal* submitted by an authorized regulator or organization to a the CERS Facility Submittal web service.

Submittal Element: A collection of fields defined in the Unified Program Data Dictionary that represents a single stand-alone form, or a group of dependent/related forms, or a collection of other data fields specifying a program reporting activity (e.g. UPCF forms, Inspection and/or Enforcement data) at a specific facility. *Submittal elements* can be approved by separate Regulators, but only one *regulator* per element per facility. A submittal element is also the data transfer unit of rejection in CERS (roughly equivalent of a database transaction in a database management system like SQL Server or Oracle). This means that if a submittal consisting of three submittal elements were to be sent and two submittal elements pass validation and one doesn't, only the one submittal element would be rejected for the submittal.

Common Data Submittal Element: *Common Data* is a *submittal element* required to exist for facility in CERS before or accompanying any other *Submittal Element* can be submitted and be considered for approval. *Common Data* can only be approved by the facility's CUPA (never by a PA). This information presently is represented on the Business Activities form, and the Business Owner/Operator form.

Submittal Action: A set of system fields needed that describe who is submitting the *submittal*, the status of the *submittal*, business and/or *regulator* contacts acting/submitting the *submittal*, and other meta-data that drives the process of approving/rejecting submittals.

Regulator: Local or state regulating agency that has authority for one or more *submittal elements* for a specific geographic region. The initial CERS 2 implementation will focus on CUPA's and PA's, but the CERS 2 infrastructure will be designed to support additional programs/regulator types in the future.

Validation: Ensures that data inserted into an application satisfies defined formats and other input criteria. There are two types of validation, schema validation which is validated first, and assuming it passes, data validation occurs. Data validation validates that required fields have values, fields values are in the correct ranges, etc.

Facility: A physical location that is regulated by the one or more regulators in CERS (e.g. CUPAs or PAs). A facility is always associated with only *Organization* at any given point in time.

Electronic Data Transfer: Refers to the process of the exchange of data electronically between two or more parties, in this case Cal/EPA Unified Program, Regulatory Entities (local governments), and Businesses.

CUPA: Certified Unified Program Agency.

PA: A Participating Agency in the Unified Program.

Organization: The "[Organization](#)" entity will be a new CERS concept allowing businesses and/or regulators to manage a group of one or more users (CERS-Keys) to administer a collection of one or more facilities.

Organization is roughly synonymous with the term “Business” although Organizations can also be government agencies, non-profit organizations, and other entities that own/operate regulated facilities.

CERS System Fields: A [list of data elements](#) used by CERS for electronic data exchange and regulator-to-state reporting that are not defined in the Unified Program Data Dictionary or via Locally Collected Fields. Regulators and organizations performing data exchanges will typically need to provide most of these data fields.

CERS Supplemental Fields: A [list of data elements](#) used by CERS that represent “optional” data that may be provided by regulators or business such as geographic data (latitude, longitude, value indicating how accurate provided data is), FRSID, etc.

Locally Collected Fields: A [list of data elements](#) that Unified Program Agencies (UPAs) can electronically collect in CERS that are NOT defined in the Unified Program's Title 27 Data Dictionary but are required for local programs. UPAs are free to collect other facility data elements as allowed by regulations, but only the fields in this list will be captured/exchanged via CERS. The initial list of locally collected fields was approved by the Unified Program Data Management Steering Committee in November 2010.

Technology Services Unit (TSU): Cal/EPA Unified Program Technology Services Unit is responsible for designing, developing, implementing, and maintaining the California Environmental Reporting System (CERS) as well as other key Unified Program technology products.

NEIEN: National Environmental Information Exchange Network.

NEIEN Node: Over engineered XML web service for NEIEN

Node Client: A simple way to submit information to a NEIEN Node.

Appendix A: Key Hyperlinks

CERS Regulator User Group Listserv

<http://www.calepa.ca.gov/listservs/ListSubscribe.asp?LID=101>

CERS Regulator User Group Meeting Documents

<https://cers.calepa.ca.gov/help/RegulatorUsersGroup.RegUserGroupMtgs.ashx>

CERS Data Registry

<https://cers.calepa.ca.gov/Data/Registry/>

Unified Program Data Dictionary (FINAL DRAFT) (Version 3.10)

<https://cers.calepa.ca.gov/Data/Registry/DataElements?dataSourceID=39>

CERS Locally Collected Fields for Electronic Exchange

<https://cers.calepa.ca.gov/Data/Registry/DataElements?dataSourceID=40>

CERS2 System Fields

<https://cers.calepa.ca.gov/Data/Registry/DataElements?dataSourceID=49>

CERS2 Supplemental Fields

<https://cers.calepa.ca.gov/Data/Registry/DataElements?dataSourceID=51>

CalRecycle's SWIS DIP (Digital Inspections Program) Guidance Document (i.e., exchange agreement)

<http://www.calrecycle.ca.gov/SWFacilities/Inspections/DIP/Documentation/WebGuide.pdf>

CERS EDT Listserv

<http://www.calepa.ca.gov/Listservs/ListSubscribe.asp?LID=110>

Appendix B: Organization/Regulator Transmission Fields

The fields listed below are fields (XML elements) that apply to all transmissions which describe who is submitting the data contained in the package, the source, and the Organization identification information.

Field Name	Type	Length	Description
Submitter ID *	AN	30	The identifier code that identifies which Regulator or Business is submitting the data to the service.
Submittal Source *	N		Regulator or Business
OrganizationID	N		The identifier of the Organization that the Facility belongs to. Required for Business to directly submit via EDT.
OrganizationName	AN	75	The name of the Organization that the Facility belongs to. (AT&T, Verizon etc.) Mostly needed for the Multi Facility Businesses. Required for Business to directly submit via EDT.

* Indicates fields that are required for both Organization/Regulator Transmissions.

Submittal Action Fields

Field Name	Type	Length	Description
CERS ID	N		The Primary Key and Primary identifier of a Facility within CERS. This field will not be required for some service operations because a submission could be sent for a new facility.
Submittal ID	AN	30	A serial number that uniquely identifies a submission for a given regulator. Generally this should be a piece of information provided by the Regulator when submitting via EDT. This field would allow mapping from the CERS record to the Regulator data systems' record. In CERS, when a submittal is submitted via the user interface and not submitted via EDT, this field will be generated automatically based on some algorithm specific to the Regulator.
Submittal Date Time	D		The date the submittal was submitted to the Regulator.
Submittal Action Date **	D		This is the date the Regulator acted upon the submittal, used in conjunction with the Submittal Action.
Submittal Action **	N		The action that was taken on a submittal, Approved, Rejected, or Accepted
Submittal Action Comments **	AN	300	Comments provided by the Regulator user about the submission, probably details about why a submittal was rejected.
SubmittalActionAgentName **	AN	70	The name of the Regulating Agency's user that acted upon the submission (Accepted it, approved it, or rejected it)
SubmittalActionAgentEmail **	AN	250	The email address of the Regulating Agency user that acted upon the submission (Accepted it, approved it, or rejected it)
SubmittalActionRegulatorID **	N		The identifier of the Regulating Entity that is responsible for managing/approving a submittal element.
OrganizationRepName	AN	70	The name of the business representative that is actually submitting the submittal. This is equivalent to the signature required on the HMBP Unidocs form.
OrganizationRepEmail	AN	250	The email address of the business user that submitted the submittal to the Regulator.

** Indicates fields only supplied in Regulator Facility Submittal and Submittal Action Notification schema's.

System required fields for Inspection EDT

Field Name	Type	Length	Description
Submitter ID *	AN	30	The identifier code that identifies which Regulator is submitting the data to the service.
CERS ID	N		The CERS ID
InspectionID	AN	30	A unique identifier provided by the Regulator that uniquely identifies the Inspection, needed to reconcile updates in CERS.
ViolationID	AN	30	

System required fields for Enforcement EDT

Field Name	Type	Length	Description
Submitter ID *	AN	30	The identifier code that identifies which Regulator is submitting the data to the service.
CERS ID	N		The CERS ID
EnforcementID	AN	30	A unique identifier provided by the Regulator that uniquely identifies the Enforcement, needed to reconcile updates in CERS.
ViolationID	AN	30	