**APPENDIX I: Data, Sharing and Archive Process**

*This appendix describes the different types of incident and related data being created and covered under the Plan to meet* Critical Information Requirements (*CIRs) of the Unified Command (UC). It provides specific details about file types, processing responsibilities, delivery schedule and use restrictions. It also describes who is managing the data, how and when the data will be shared and disseminated to other response staff, if there are any sharing or use restrictions, and how sharing would be managed for the public if appropriate\*.*

*This outline describes the functional sections of this appendix. Each Section provides a description and table to capture the pertinent information being created and the operational cycle that each dataset will support for addressing UC CIRs.*

Section I – DATA MANAGEMENT AND SHARING PROCESS

* GIS Data
* Photography & Video
* Remote Sensing
* Response Sampling
* Response Databases

Section II – DATA PRESERVATION AND PROTECTION

* Short-Term Storage
* Long-Term Storage
* Transfer to Long-Term Storage

Section III – COMMON OPERATING PICTURE

Section IV – DATA INFRASTRUCTURE AND HARDWARE

Section V – METADATA AND FILE NAMING

Section VI – REFERENCES

\* For any data to be released to the public, it must be approved and released by Unified Command.

**SECTION I - DATA MANAGEMENT AND SHARING PROCESS:**

Except as required by law, for any response data to be released to the public during the response, it must be approved and released by the Unified Command.

**GIS Data:**

Data are either gathered from existing work to act as base data for the incident, or created by Data Management/GIS Technical Specialists in the GIS Unit, Environmental Unit, or Situation Unit within the Planning Section. Technical specialists for GIS and Data Management will have the primary responsibility to manage the lifecycle of this data, including processing raw data into maps or products for a COP. The tables below should include all incident related data but this many not be exhaustive. Data may continue to be added to this list throughout the response. The intent is track all relevant data being developed for the response, identify who is managing them and how to access the data.

Static GIS files (e.g. shapefiles, layer packages, and geodatabases) should be uniquely named and include a time/date stamp of the date of creation for version history and to prevent overwriting previous files. Data feeds (e.g. web service and ArcRest) can be used to share data, however due to potential technical issues with respect to data feed stability, changing layer IDs, legend formatting, and external access, a copy of these data shall be transferred in the form of a layer package or geodatabase to the agreed upon response data repository (e.g. secure FTP server, local server, etc.).

**Protocol for Sharing**: *example: GIS Unit transfers through the NOAA SFTP (or other system as determined by Situation Unit) every two hours a GDB with data that has changed. Gathering of RP, RP Contractor, and Federal GIS responders daily before end of day to get on same page and distribute tasks for next Op period.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dataset** | **Data Type & Format** | **Description** | **Temporal Coverage** | **Delivery Schedule** | **Use Restrictions** | **Method of Field Collection** | **Field Collector & P.O.C.** | **Data Processor & P.O.C** | **Short-Term Repository** |
| *Trajectory Forecasts* | *Model Output, Raster* | *Fate and transport forecasts for oil based on oceanographic and weather conditions* | *Forecasts out 48 and 72 hours* | *Once daily* | *Response only* | *Model output and field initialization* |  |  | *RP GIS unit, RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Overflight oil extent* | *GDB, SHP* | *Based on overflight observations this depicts the extent and transport of oil. Helps to initialize trajectory forecasts.* | *Ephemeral* | *Twice daily* | *Response only* | *Overflight observers and GIS analysts* | *RP, NOAA, USCG* | *GIS unit* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *SCAT* | *GDB, SHP* | *Shoreline Cleanup Assessment Techniques* | *Ephemeral* | *Once daily* | *Response only* | *SCAT Teams* | *SCAT Coordinator* | *SCAT Data Managers* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Response locations and boundaries* | *GDB, SHP* | *ICP location, Staging Areas, Saftey Zones, Security Zones* | *Valid until changed* | *As needed* | *Some public* | *Logistics and Operations Sections* | *OSC, LSC* | *GIS Unit* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Operational data* | *GDB, SHP* | *Task Force locations, Operations Assets, Shoreline cleanup* | *Ephemeral* | *As needed* | *Response only* | *Operations Section* | *OSC* | *GIS Unit* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Insitu Burn* | *GDB, SHP* | *Burn locations and InSitu Burn safety zones* | *Ephemeral* | *As needed* | *Response only* | *Operations Section* | *OSC, InSitu Burn unit* | *GIS Unit* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Dispersant Application* | *GDB, SHP* | *Locations of dispersant application both air and on-water based* | *Ephemeral* | *Once daily* | *Response only* | *Operations Section* | *OSC, Dispersant Operations* | *GIS Unit* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Waste Transfer and Management* | *GDB, SHP* | *Locations of waste management transfer stations and final disposal sites* | *Valid until changed* | *As needed* | *Response only* | *Logistics, Planning and Operations Section* | *LSC, OSC, PSC, Waste Management Unit* | *GIS Unit* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
| *Archeological/SHPO* | *SHP* | *Archeologically sensitive sites or state preservation areas* | *Static* | *N/A* | *Highly Sensitive* | *State SHPO, LOSCO* | *State SHPO* | *State SHPO* |  |
| *Fisheries Closures* | *SHP* | *Areas closed to commercial and recreational fishing and harvesting* | *Valid until changed* | *As needed* | *Public* | *State or Federal regulatory agencies* | *USDA, NOAA* | *State or Federal GIS* | *RP COP, ERMA, NOAA SFTP, RP Central Data Server* |
|  |  |  |  |  |  |  |  |  |  |

**Photography & Video:**

Once photography comes to the ICP it should be managed in the designated data repository. The GIS Unit will process and upload photography and associated GPS files to this location.

Field teams must ensure they are following appropriate protocols for field photo and video collection by coordinating with the photo and video data managers (Technical Specialists) before going into the field. These data are more valuable to the response when collected with corresponding location information from a GPS. The processing software used varies, but the purpose is to catalogue and organize response photos and video that are specific to a geographical location. Below is a documentation of where data exists within the response infrastructure and who is managing it.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dataset** | **Data Type & Format** | **Description** | **Temporal Coverage** | **Delivery Schedule** | **Use Restrictions** | **Method of Field Collection** | **Field Collector & P.O.C.** | **Data Processor & P.O.C** | **Short-Term Repository** |
| *RP Aerial Imagery* | *Photo and Video* | *Response photography and video from a UAV* |  |  |  | *Registered Quadcopter* |  |  | *RP Central Server, NOAA SFTP, Local Hard drives* |
| *Wildlife Observations* | *Photo* | *Opportunistic wildlife sightings from daily overflights* |  |  |  | *Helicopter* | *RP, NOAA, USFWS* | *Response Data Management Unit* | *RP Central Server, NOAA SFTP, Local Hard drives* |
| *Overflight Oil Observations* | *Photo* | *Photos of oil on water from daily overflights* |  |  |  | *Helicopter* | *RP, USCG, NOAA* | *Response Data Management Unit* | *RP Central Server, NOAA SFTP, Local Hard drives* |

**Remote Sensing:**

Remote sensing products will largely come from external organizations and not normally from direct efforts within the response organization. Examples are commercial satellite companies, federal remote sensing offices, and private remote sensing companies. The raw data will more than likely be managed and stored with the owner’s infrastructure. The response organization would receive the final analysis products to utilize in response. Below is a documentation of what remote sensing efforts are being used, what products are being requested, and primary contact information.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dataset** | **Data Type & Format** | **Description** | **Temporal Coverage** | **Delivery Schedule** | **Use Restrictions** | **Method of Field Collection** | **Field Collector & P.O.C.** | **Data Processor & P.O.C** | **Short-Term Repository** |
| *Oil Extent Imagery* | *Remote Sensing: SAR, Multi-Spec, IR* | *Oil extent imagery from either satellite based platforms or fixed wing.* | *Best Available* | *Best Available* |  | *Logistics Section (213RR)* | *NOAA NESDIS, External Remote Sensing* |  | *RP Central Server, NOAA SFTP* |

**Response Sampling:**

During a response multiple sampling efforts may be developed and implemented for a variety response endpoints. This table is meant to document what efforts are being pursued, what products are being developed, product schedule, use considerations and primary contact information.

**Protocol for Sharing**: *example: As response sampling is done and databases are linked or shared with the RP Central Data Server a copy will be provided to NOAA’s DIVER and to a system LOSCO agrees to. As updates are made to any databases copies will be shared with both Federal and State systems (NOAA’s DIVER and State system). The vice versa is true if Federal agencies or State representatives take samples for response related work.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dataset** | **Data Type & Format** | **Description** | **Temporal Coverage** | **Delivery Schedule** | **Use Restrictions** | **Method of Field Collection** | **Field Collector & P.O.C.** | **Data Processor & P.O.C** | **Short-Term Repository** |
| *Real-Time Air Monitoring* | *Field samples* | *Operational air sampling. Metadata and physical parameters of samples.* |  |  |  | *Log Book and Mobile App* |  | *Delivery: Sync to SQL Server* | *RP central Data Server, NOAA DIVER* |
| *Personal Sampling* | *Field samples* | *Operational sampling. Metadata and physical parameters of samples.* |  |  |  | *Log Book and Mobile App* |  | *Delivery: Sync to SQL Server* | *RP central Data Server, NOAA DIVER, SCRIBE* |
| *Personal Sampling* | *Analytical results* | *Results data for samples* |  |  |  | *Lab EDD* |  | *Delivery: Lab EDD verified RP Data Managers and imported to SCRIBE* | *RP central Data Server, NOAA DIVER, SCRIBE (Not published)* |
| *Personal Sampling* | *Validated analytical data* | *Validation data from third party validators* |  |  |  | *Lab EDD edited by Validation personnel to change flags for specific fields* |  | *Delivery: Lab EDD verified by third party and imported to SCRIBE* | *RP central Data Server, NOAA DIVER, SCRIBE (Not published)* |
| *Environmental Sampling* | *Field samples* | *Operational sampling. Metadata and physical parameters of samples.* |  |  |  | *Log Book and Mobile App;*  *Delivery: Sync to SQL Server* |  |  | *RP Central Data Server, NOAA DIVER, SCRIBE Respository / Field Documents* |
| *Environmental Sampling* | *Analytical results* | *Results data for samples* |  |  |  | *Lab EDD; Delivery: Lab EDD verified RP Data Managers and imported to SCRIBE* |  | *Delivery: Lab EDD verified RP Data Managers and imported to SCRIBE* | *RP Central Data Server, NOAA DIVER, SCRIBE Respository* |
| *Environmental Sampling* | *Validated analytical data* | *Validation data from third party validators* |  |  |  | *Lab EDD edited by Validation personnel to change flags for specific fields* |  | *Delivery: Lab EDD verified by third party and imported to SCRIBE* | *RP Central Data Server, NOAA DIVER, SCRIBE Respository* |
| *Water Column Monitoring* | *Field Samples* | *Operational sampling. May incorporate SMART monitoring. Metadata and physical parameters of samples.* |  |  |  | *SMART monitoring* |  |  | *RP Central Data Server, NOAA DIVER, SCRIBE Respository* |
| *Oil Characterization Sampling* | *Field Samples* | *Operational sampling. Metadata and physical parameters of samples.* |  |  |  | *Physical samples, COC forms* | *RP, NOAA, USCG,* | *RP Lab, , USCG Lab,* | *RP Central Data Server, NOAA DIVER, SCRIBE Respository, State system* |
| *Oil Characterization Sampling* | *Analytical results* | *Results data for samples* |  |  |  |  | *RP, NOAA, USCG,* |  |  |

**Response Databases:**

During a response multiple databases may be used for various types of data. This table is meant to document what efforts are being used, what products are being developed, product schedule, use considerations and primary contact information.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Database** | **Data Type & Format** | **Description** | **Temporal Coverage** | **Delivery Schedule** | **Use Restrictions** | **Method of Field Collection** | **Field Collector & P.O.C.** | **Data Processor & P.O.C** | **Short-Term Repository** |
| *RP Central Data Server* | *Data Warehouse* |  |  |  |  |  |  |  |  |
| *NOAA DIVER* | *Data Warehouse* | *NOAA’s data warehouse capable of storing and querying both structured and unstructured data and analytical chemistry.* |  |  |  |  | *NOAA* | *NOAA* | *Amazon Cloud* |
| *NOAA SFTP* | *Secure File Transfer Protocol* | *Secure File Transfer Protocol setup by NOAA as a working repository for responders.* |  |  |  |  | *All responders* | *All responders* | *Federal Servers* |
| *CTEH File Transfer* |  |  |  |  |  |  |  |  |  |
| *SCAT Database* |  | *The database for managing daily SCAT observations. Also includes all forms and field documents.* |  |  |  |  |  |  |  |

**SECTION II - DATA PRESERVATION & PROTECTION:**

**Short-Term Storage (incident start to end of response):**

There are three constructs for short-term storage during an incident:

1. Data backup – In order to protect data from accidental modifications, deletions, or disaster events, each data manager is required to ensure a backup method for their daily work, such as an external hard drive or external server.
2. Primary GIS or database storage - Data managers may have systems in place to store the working copy of their daily data collections and products, such as ArcGIS Server, SCRIBE sampling database, or SCAT database. The final daily product from these working directories would be shared in the repository described next.
3. Shared Response Data Repository - A designated response data repository will act as a working environment for all data managers so data can be shared without needing to grant access to firewalled proprietary systems. This is critical to sharing data across different private, state, and federal agencies. This repository will eventually be transferred to the final archive.

**Long-Term Storage (end of response to indefinite):**

The incident archive will be managed and maintained by the United States Coast Guard Incident Historian according to agency policy; a copy of the incident archive can be made in its entirety upon request. Additionally, other agencies may set up their own data archive to ensure it meets their agency requirements.

|  |  |  |
| --- | --- | --- |
| **Archive Owner** | **Storage Location** | **P.O.C.** |
| *USCG (Federal Copy)* | *USCG Archive Facility* | *USCG* |
|  |  |  |
|  |  |  |

**Transfer to Long-Term Storage**:

|  |  |
| --- | --- |
| **Data type** | **Transfer method** |
| GIS Data |  |
| Photography and Video |  |
| Remote Sensing |  |
| Response Sampling | *Validation of both RP and NOAA databases to ensure they are the same* |
| Response Databases | *Final transfer of file structure copies to all Archive Owners* |
|  |  |

**SECTION III - COMMON OPERATING PICTURE:**

*This section serves to catalogue and describe the Common Operating Pictures (COP) involved during an incident.*

A designated COP does not preclude the use of other viewers for individual responder or organizational use, provided that everyone has access to consistent, up-to-date data. A daily exchange cycle should be described for data delivery requirements. The following points should be discussed:

* Data must be interoperable with appropriate systems
* Situation Unit oversight/QA of data to ensure continuity and access during the response
* Timelines of data delivery, communication for sharing data in other data viewers
* Basic metadata on file creation (who, what, where, when)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **COP** | **Description** | **Response Function** | **Method of data access** | **POC** |
| *ERMA* | *Web-based visualization tool for response data and critical information* | *Response COP* | *Requested user account; web-based* |  |
| *RP COP* |  |  |  |  |
|  |  |  |  |  |

**SECTION IV - DATA INFRASTRUCTURE AND HARDWARE:**

*This section outlines the designated, centralized, data storage applications used during the response.*

The response data repository is a working environment where daily operational period data are to be shared between GIS analysts and other designated responders. A data repository is critical to sharing GIS data across different private, state, and federal agencies.

**Response Repository:** [organization] has provided an On-scene Response Server or accessible, offsite storage location to act as a repository for all data governed by this plan. It is being managed by the [organization] and access will be provided to the Unified Command (including the RP) and to NOAA.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data Storage Application** | **Description** | **Location** | **Method of data access** | **POC for access** |
| *NOAA Secure FTP* | *NOAA Secure FTP* | *Sftp.orr.noaa.gov* | *internet* |  |
| *RP File Transfer* |  |  |  |  |

**SECTION V - Metadata and File naming:**

**Minimum Metadata requirements5:**

* Source of the information
* Date of capture
* Contact
* Description of the information
* Any processing done to change the source information
* Any known limitations or issues with the information
* Geographic area of coverage
* Quality of data

**Filename convention:**

* Shapefile names must include the type, date of publication (if applicable), and time of observation (if applicable). Note there is a 50 character limit for shapefile names.
* *Example: WildlifeObservations\_2012\_0504\_1300hrs.shp*

**Filing Standards/best practices:**

* All folder names in Spatial\_Data should use underscores not spaces, dashes, or any other character to split naming description.
* GPS data (.GDB, .GPX or Shapefile) should be included with the photos under the Name level in the Photos file structure.
* Personal folders are for “working” versions of data or GIS project templates, but should be transferred over to the main filing structure when finished.
* Filenames must include the type, date of publication (if applicable), and time of observation (if applicable).
* *Example: WildlifeObservations\_2012\_0504\_1300hrs.pdf*

**Filing Structure Template examples:**

* Spatial\_Data
  + Type (Ex. Wildlife\_Observations)
    - Date (YYYY\_MMDD)
* Maps
  + Type (Ex. Overflight Observations)
    - Date (YYYY\_MMDD)
* Documents
  + Type (Ex. Resources\_at\_Risk)
    - Date (YYYY\_MMDD)
* Photos
  + Type (Ex. SCAT)
    - Date (YYYY\_MMDD)
      * Team
        + Name
* Personal\_Folders
  + Name
* Tools\_Software

**SECTION VI – REFERENCES:**

1. USCG Incident Management Handbook. 2014
2. USCG Records Management. [CG-611 Management Programs and Policy Division](mailto:1)%09http://www.uscg.mil/records/).
   1. The primary purpose of the Coast Guard's records management program is to promote the maintenance and security of records, to ensure we have accurate and timely information to accomplish our missions, allow accessibility to information to staff and the public as appropriate, and preserve official records in accordance with applicable statutory and regulatory requirements.   
        
      The term "record" is not limited to paper documents, but includes all media, e.g., audiovisual, cartographic, electronic, etc. Records can be either temporary or permanent; temporary records are destroyed after a specified/approved period of time while permanent records are preserved by the National Archives for the life of the republic. Typically, for any government agency, less than five percent (5%) of the records are scheduled as permanent; the Coast Guard has almost 25% scheduled as permanent records.   
        
      All Coast Guard personnel have basic Records Management responsibilities. Originators and recipients of both paper and electronic records (including e-mail) must label and archive information per approved dispositions schedules outlined in:   
        
      [Information and Life Cycle Management Manual, COMDTINST M5212.12A](http://www.uscg.mil/directives/cim/5000-5999/CIM_5212_12A.pdf)., and   
      [NARA Approved Changes to COMDTINST M5212.12A](http://www.uscg.mil/records/docs/NewNARA.pdf) (updated June 7, 2013)
3. NOAA Environmental Data Management Committee (EDMC) [Data Management Planning Procedural Directive](mailto:https://www.nosc.noaa.gov/EDMC/PD.DMP.php), Version 2.0.1, February 11, 2015.
4. [National Oil and Hazardous Substances Pollution Contingency Plan (NCP)](http://www2.epa.gov/emergency-response/national-oil-and-hazardous-substances-pollution-contingency-plan-ncp-overview)
5. IPIECA-IOGP. Work Package 5: Common Operating Picture, IPIECA – IOGP Oil Spill Joint Industry Project. 2015.