Oregon Office of Emergency Management
North Santiam River Cyanotoxin Event
May 30 – June 30, 2018

After-Action Report and Improvement Plan

09/24/2018

This After-Action Report (AAR) is focused solely on the activities of the Oregon Office of Emergency Management (OEM) and Emergency Support Function Partners (ESFs) for the May 30 – June 30, 2018 North Santiam River Cyanotoxin Event. Strengths to maintain and areas needing improvement were gathered from OEM, ESF, and local county and city staff who worked this event.

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EXECUTIVE SUMMARY

On Wednesday at 2:00 p.m. on May 30, 2018, the Oregon Office of Emergency Management (OEM) activated the Emergency Coordination Center (ECC) to assist areas impacted by a water supply contamination concern due to cyanotoxins in the North Santiam River. This after-action report highlights the actions taken during the event and subsequent response involved with the governor's executive order. Highlights of this document include the following:

Overall Successes:
- The ECC coordinated and supported daily operational calls that included interagency planning elements, with calls involving multiple agencies with multiple disciplines.
- Oregon Health Authority (OHA) activated their contact with 2-1-1 to provide information to the public, which provided relief to the Marion County call center in the Emergency Operations Center (EOC) as well as provided translators for translating press releases into Chuukese, Marshallese, and Pohnpeian.
- OEM Public Information Officer (PIO) staff supported the local public affairs efforts, including activity that went beyond the period of ECC activation.
- Department of Human Services (DHS), Oregon Military Department (OMD) and Oregon Food Bank (OFB) worked directly with Marion County Emergency Management and City of Salem Emergency Management to acquire and deliver water to vulnerable populations through Emergency Support Functions (ESFs) 6, 11 and 13 by coordinating direct delivery of water support.
- ESF partners (DHS and OHA PH) and an OEM liaison staffing the Marion County Emergency Operations Center provided a direct coordination capability with the state assets assisting.
- Joint Operations Center (JOC) staff provided updates utilizing the state's OpsCenter crisis management application, which included updates on mission assignments and tracking personnel and equipment deployed.
- Geographic information was shared from the Marion County geographic information systems (GIS) team and Oregon Health Authority (OHA) GIS to the Real-time Assessment and Planning Tool for Oregon (RAPTOR) mapping application.

General Areas of Improvement:
- The intent for continued Emergency Coordination Center (ECC) operations was not effectively developed or articulated.
- A Joint Information Center (JIC) was not effectively established to coordinate relevant information. Daily Public Information Officer (PIO) calls were not always well organized and did not stay within the public affairs spectrum, resulting in crossover efforts and discussions from communications to operational topics.
- There was a lack of consistent coordination and information sharing between the lead state agency and relevant ESF partners.
- Clear goals and objectives for staff deployed to the affected jurisdiction were not communicated with relevant ECC staff.

Bottom Line:
Overall, this incident highlighted the need for coordination with relevant ECC staff. If the ECC is activated, all processes should be communicating through that structure to ensure that all decision-makers are receiving consistent information and have the ability to provide input and direction as necessary for coordinating essential state resources in response to the incident. Even though communications were an issue, support for mass care operations was successful in supplying necessary water for impacted populations.

INCIDENT OVERVIEW

Incident Name	**North Santiam River Cyanotoxin Event**
Incident Dates	**05/30/2018 – 06/30/2018**
Scope	The state Emergency Coordination Center (ECC) was activated at 2:00 p.m. on Wednesday, May 30, 2018. The subsequent governor executive order for support continued through Saturday, June 30, 2018.
Mission Area(s)	Response
Core Capabilities	Planning Public Information and Warning Operational Coordination Mass Care Services Operational Communications Situational Assessment
Objectives	1. Support local response by providing critical state assistance during the event. 2. Coordinate with and support Emergency Support Function partners. 3. Support the governor's executive order.
Threat or Hazard	Unsafe drinking water for vulnerable populations
Lead Agency	Oregon Office of Emergency Management
Participating Organizations	Oregon Department of Administrative Services Oregon Department of Agriculture Oregon Department of Corrections Oregon Department of Human Services Oregon Health Authority Oregon Military Department City of Salem Emergency Management Marion County Emergency Management Marion/Polk Food Share Oregon Food Bank
Point of Contact	Daniel Stoelb 3225 State Street #115, Salem OR 97301 503-378-3234 daniel.stoelb@state.or.us

ANALYSIS OF CORE CAPABILITIES

Objective	Core Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)
Support local response by providing critical state assistance during the event.	Planning		X		
	Operational Coordination		X		
	Situational Assessment		X		
Coordinate with and support Emergency Support Function partners.	Mass Care Services	X			
	Public Information and Warning		X		
Support the governor's executive order.	Operational Communications		X		
	Operational Coordination		X		

Ratings Definitions:

- Performed without Challenges (P): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.
- Performed with Some Challenges (S): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.
- Performed with Major Challenges (M): The tasks and activities associated with the capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.
- Unable to be Performed (U): The tasks and activities associated with the capability were not performed in a manner that achieved the objective(s).

Table 1. Summary of Core Capability Performance

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

Core Capability: Planning

Description: Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.

Applicability to Event: The development of planning objectives, tasks assigned to the planning section within the Emergency Coordination Center, and specific planning functions were analyzed based upon how they met this core capability.

Strengths

The partial capability level can be attributed to the following strengths:

Strength 1: The State ECC Planning Section was activated to support the initial ECC activation.

Strength 2: Information was supplied to the ECC Planning Section on time, following established deadlines for situation report information.

Strength 3: The ECC coordinated and supported daily operational calls that included interagency planning elements, with calls involving multiple agencies with multiple disciplines.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: The intent for continued Emergency Coordination Center (ECC) operations was not effectively developed or articulated.

Analysis: Clear goals and objectives for ECC activations should be communicated to relevant ECC staff during the initial activation process and should be reinforced and evaluated throughout the activation. When the Emergency Coordination Center is considered to be activated, ECC command staff should conduct a meeting to discuss overall incident priorities, operational information (to include operational tempo and objectives), relevant emergency support function partners for notification, and establish criteria for continued activation. Based upon this meeting, further coordination can occur to ensure timely transition from OEM Executive Duty Officer (EDO) and OEM Staff Duty Officer (SDO) to ECC activation. Most of the recent actual incidents have not included an EAP or a fully-developed ECC Planning Section. Additionally, there is a lack of understanding for when an EAP may need to be necessary.

Core Capability: Public Information and Warning

Description: Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken and the assistance being made available, as appropriate.

Applicability to Event: The public outreach and other tasks to communicate information to the public were analyzed based upon this core capability.

Strengths

The partial capability level can be attributed to the following strengths:

Strength 1: The OEM Director was available for media interviews and utilized key message points for communicating the initial alert error.

Strength 2: Oregon Health Authority (OHA) activated their contact with 2-1-1 to provide information to the public, which provided relief to the Marion County call center in the Emergency Operations Center (EOC).

Strength 3: OHA provided translators for translating press releases into Chuukese, Marshallese, and Pohnpeian.

Strength 4: OEM Public Information Officer (PIO) staff supported the local public affairs efforts, including activity that went beyond the period of ECC activation, which also included daily coordination calls.

Strength 5: The Oregon Health Authority provided direct support to local and tribal jurisdiction by supplying technical assistance and informative documentation for public dissemination.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: A Joint Information Center (JIC) was not effectively established to coordinate relevant information.

Analysis: When an event requires multiple agencies with multiple responsibilities, creating a unified JIC is necessary. In the event that a JIC is established, Public Information ESF 14 should be involved to ensure timely coordination of public information and to lead the effort of amplifying the messaging. Additionally, local and lead JICs should be in regular contact with ESF 14 to ensure all relevant parties are included and are of one voice.

Area for Improvement 2: Daily Public Information Officer (PIO) calls were not always well organized and did not stay within the public affairs spectrum, resulting in crossover efforts and discussions from communications to operational topics.

Analysis: When daily PIO calls are established, a set agenda and purpose should be communicated and followed. If there are other relevant information from operations needed, there should be a set agenda item to cover these topics to ensure the purpose of the call is maintained.

Core Capability: Operational Coordination

Description: Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.

Applicability to Event: The messages and communications sent between OEM ECC and ESF staff for coordinating the initial response and initially staffing the Emergency Coordination Center were analyzed based upon how they met this core capability.

Strengths

The partial capability level can be attributed to the following strengths:

Strength 1: Operations and Public Information calls were established to coordinate operational and public information issues.

Strength 2: The ECC was quickly staffed and operationally engaged once the decision was made to activate in support of the local jurisdiction needs.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: There was a lack of consistent coordination and information sharing between the lead state agency and relevant ESF partners.

Analysis: When the OEM ECC is activated, all emergency support functions should follow consistent objectives as defined by the ECC Manager. In cases to where the ECC is not activated, a lead agency should be identified to ensure objectives of the response are met. In this case, the lead state agency should provide relevant operational information with responding ESF and ECC partners.

Area for Improvement 2: Operational calls and Public Information calls were established, but there was a lack of integration with the two groups. Operational calls were discontinued early on in the event, so there was a lack of communication after the first week of the event.

Analysis: When daily PIO calls are established, a set agenda and purpose should be communicated and followed. If there are other relevant information from operations needed, there should be a set agenda item to cover these topics to ensure the purpose of the call is maintained. Additionally, ensuring consistency with operational calls is important. When the calls are established, set goals and benchmarks should be made so that operations can continue sharing relevant information for the duration of the event.

Core Capability: Mass Care Services

Description: Provide life-sustaining and human services to the affected population, to include hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies.

Applicability to Event: The response and delivery of water for the general public were analyzed based upon how they met this core capability.

Strengths

The full capability level can be attributed to the following strengths:

Strength 1: Direct and engaging mass care services to the impacted jurisdictions was immediately available through the coordination of the Oregon Department of Human Services, Oregon Food Bank and Oregon Military Department - Emergency Support Functions (ESFs) 6, 11 and 13 by coordinating direct delivery of water support.

Strength 2: The governor's executive order allowed Oregon National Guard troops to assist supplying water to the general public.

Strength 3: ESF 11 Food and Water coordinated closely with Marion County Emergency Management, Marion-Polk Food Share, Department of Human Services, Oregon Food Bank to ensure the delivery of bottled water to homebound populations.

Core Capability: Operational Communications

Description: Ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impact area and all response forces.

Applicability to Event: The messages and communications sent between OEM ECC and ESF staff and local agencies for supporting the response were analyzed based upon how they met this core capability.

Strengths

The partial capability level can be attributed to the following strengths:

Strength 1: Having an OEM liaison in the Marion County Emergency Operations Center provided the ability to directly interface with the state.

Strength 2: ESF partners staffing the Marion County Emergency Operations Center provided a direct coordination capability with the state assets assisting.

Strength 3: OEM and Oregon Military Department (OMD) liaisons were included in all county advanced planning meetings, which provided an opportunity for OMD to prepare for the worst case scenario.

Strength 4: OEM staff had access to Marion County's Homeland Security Information Network (HSIN) site for coordinating the response.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: There was a lack of communication to relevant ECC and OEM staff as decisions being made were managed outside the ECC structure.

Analysis: When the Emergency Coordination Center is considered to be activated, OEM Executive Leadership and ECC command staff should conduct a meeting to discuss overall incident priorities, operational information (to include operational tempo and objectives), relevant emergency support function partners for notification, and establish criteria for continued activation. In the event that military assets are involved and the ECC is activated, a coordination meeting is required to ensure that all relevant ECC staff are involved in the decision-making process.

Area for Improvement 2: Clear goals and objectives for staff deployed to the affected jurisdiction were not communicated with relevant ECC staff.

Analysis: The decision to send the OEM employee to liaise with the affected jurisdiction to provide situational awareness and further enhance coordination with relevant ESF partners was made outside the ECC established structure. In cases to where the ECC is activated, relevant ECC staff should be involved in the decision-making process, with proper goals and objectives defined. If any questions arise pertaining to the intent of the deployment, they shall be addressed in morning briefings or planning meetings.

Core Capability: Situational Assessment

Description: Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.

Applicability to Event: The communications sent between staff, leadership, and local agencies for supporting the state response were analyzed based upon how they met this core capability.

Strengths

The partial capability level can be attributed to the following strengths:

Strength 1: The State ECC Planning Section was activated and produced three situation reports – May 30, 31, and June 1 following the established template.

Strength 2: While many sources were off-site and not physically located at the ECC, information was still able to be gathered for inclusion within the situation report.

Strength 3: Joint Operations Center (JOC) staff provided updates utilizing the state's OpsCenter crisis management application, which included updates on mission assignments and tracking personnel and equipment deployed.

Strength 4: Geographic information was shared from the Marion County geographic information systems (GIS) team and Oregon Health Authority (OHA) GIS to the Real-time Assessment and Planning Tool for Oregon (RAPTOR) mapping application.

Areas for Improvement

The following areas require improvement to achieve the full capability level:

Area for Improvement 1: There were conflicts in the locations of the water distribution points, with some being indicated on the Marion County GIS data layer and others not found within the City of Salem's GIS layer.

Analysis: When an incident occurs that covers multiple jurisdictions, identifying a primary data provider allows for consistent information sharing.

Area for Improvement 2: There was a lack of consistency and integration with information shared in two places – Marion County's HSIN application and the state's OpsCenter crisis management application, which lead to frustration within the ECC.

Analysis: Currently, Marion County utilizes the HSIN software platform for coordinating resources and listing relevant information pertaining to the response. For uploading situation report information, a copy of the situation log from the HSIN application was loaded as opposed to using the local tribal input form for inclusion in the statewide situation report. There is a lack of identified process for inclusion of relevant situation reporting data as well as how that data is identified.

EMERGENCY SUPPORT FUNCTION ACTIONS

ESF 3 – Public Works: United States Army Corps of Engineers (USACE)

- Coordinated with the City of Salem to delay one week the dam spillway operations that would normally be done due to river temperature.

ESF 5 – Information and Planning: Oregon Office of Emergency Management (OEM)

- Daily coordination calls facilitated by OEM at 11:00 a.m.
- Coordinated with relevant GIS data providers for inclusion of water supply distribution points within Marion County and the City of Salem.

ESF 7 – Resource Support: Oregon Department of Administrative Services (DAS)

- Procurement services researched water availability in the event the state needed to purchase water for state staff and identified multiple sources for procurement.

ESF 8 – Health and Medical: Oregon Health Authority (OHA)

- OHA Community Partnerships worked with local partners and tribes to address their needs.
- OHA fielded concerns from hospitals and health systems as well as food processors and brewers.
- OHA activated the Agency Operations Center with the Incident Management Team activated at the Portland State Office Building.
- OHA continued coordination with the Governor's Office, OEM, and state, local, and tribal partners and Department of Agriculture subject matter experts on messaging to food retailers and manufacturers.
- OHA did an on-camera interview in Spanish for the Univision station.
- OHA shared the "Drinking Water Incident" sign for food service with Marion, Polk and Linn counties, as well as the Confederated Tribes of Siletz Indians and Confederated Tribes of Grand Ronde.
- OHA deployed staff to the State ECC as the ESF 8 representative to monitor resource requests and share information.
- OHA issued additional guidance on drinking water on their drinking water website.
- OHA contracted with 2-1-1 to take calls from the public.
- OHA created a frequently asked questions sheets and distributed them to all public agencies, hospitals, the Confederated Tribes of Grand Ronde, and the Confederated Tribes of Siletz Indians.
- OHA Health Security, Preparedness and Response Program coordinated with the Oregon Department of Education Early Learning Division to pull information related to child care facilities for priority water distribution.
- Women Infants and Children worked with the State Health Officer to update guidance for pregnant and breastfeeding women.

ESF 11 – Food and Water: Oregon Department of Human Services (DHS)

- DHS deployed staff to the Marion County EOC to coordinate ESF 11 activities with local government.
- DHS organized a public-private partnership meeting to conduct advanced planning the potential of a whole community scenario.
- DHS Emergency Management worked closely with community partners and DHS Aging and People with Disabilities to address their needs.
- DHS activated continuity of operations to provide bottled water to vulnerable populations accessing services in 25 DHS office affected by the water advisory.
- Oregon Food Bank delivered 110 pallets of water to Marion/Polk Food Share, who worked with Marion County Emergency Management to distribute the water to vulnerable populations.
- Oregon Food Bank began process of receiving donations so that the supply was maintained as long as necessary.
- All assets were provided through Oregon Food Bank and Marion/Polk Food Share.
- Oregon Food Bank worked on sourcing additional water as they utilized all emergency water they had on hand.
- Coordinated with Oregon National Guard to provide water for water distribution sites in the area.

ESF 13 – Military Support: Oregon Military Department (OMD)

- Provided large storage water tanks (HIPPOs) for supporting water operations.
- Provided staffing for 5 water distribution sites.
- Provided OMD liaison to the Marion County Emergency Operations Center for coordinating assistance.

ESF 14 – Public Information: Oregon Office of Emergency Management (OEM)

- Participated in multiple media interviews pertaining to the initial alert message.
- Participated in ESF 8 coordination calls as well as ESF 14 Joint Information Center (JIC) calls.
- Created talking points for the alert system information and error created, reached out to Salem and Marion County partners for talking points on messaging for water distribution and availability.
- Participated in calls with Governor's Office and the Adjutant General (TAG), attended news conferences coordinated by the City of Salem, facilitated response to inquiry from the Federal Communications Commission's Public Safety and Homeland Security Bureau.
- Coordinated with Oregon National Guard and Governor's Office to assist news conference to announce the Governor's activation of the National Guard to provide water storage tanks to provide water to residents in need.

ESF 15 – Volunteers and Donations: Oregon Office of Emergency Management (OEM)

- American Red Cross recruited volunteers to assist staffing the water points of distribution.

ESF 16 – Law Enforcement: Oregon Department of Corrections (DOC)

- Provided water to 500 inmates in the Salem institutions that were vulnerable.
- Adjusted meal preparation until water advisory was lifted.

ESF 17 – Agriculture and Animal Protection: Oregon Department of Agriculture (ODA)

- Determined toxins at these levels were not harmful to livestock.

APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the Oregon Office of Emergency Management as a result of May 30 – June 30, 2018 North Santiam River Cyanotoxin Event.

Issue	Core Capability	Recommendation	POETE Element	Responsible ESF	Timeframe
1: ECC continued operations intent not developed or articulated	**Planning**	Develop procedure and training for ensuring OEM leaders and ECC command staff coordinate to determine overall priorities, operational information, and other relevant data (to include relevant ESFs and criteria for continued activation). Whenever the ECC is activated for continued operations (to exceed a single operational period), an ECC Action Plan shall be developed.	**Planning, Training, Exercise**	**ESF 5/OEM**	**Q 2, 2019**
1: JIC not effectively established	**Public Information and Warning**	Develop procedure and training for development of JICs and integration with a statewide JIC. Documentation should include responsible parties at the state and responsibilities for all parties.	**Planning, Training, Exercise**	**ESF 14/OEM**	**Q 4, 2018**
2: Lack of PIO call organization		Develop procedures and training for consistent PIO calls, to include agenda items and standard purpose for calls. Conduct training and exercises on calls to validate procedures.	**Planning, Training, Exercise**	**ESF 14/OEM**	**Q 4, 2018**
1: Lack of coordination and info sharing between lead state agency and relevant ESF partners	**Operational Coordination**	Reinforce function of the ECC and the purpose for coordinating state response with all ESF partners. This should include responsibilities for each ESF, prioritization of response capabilities, and who is the ECC supervisory authority.	**Planning, Training, Exercise**	**ESF 5/OEM**	**Q 4, 2019**
2: Lack of integration with public information		Develop procedure and training for incorporation of public information within the ECC as well as organization of PIO calls. Integration should include how the PIO role functions within the ECC and how data/information/intelligence flows throughout the ECC structure.	**Planning, Training, Exercise**	**ESF 5 and ESF 14 /OEM**	**Q 4, 2018**
1: Lack of communication between ECC and	**Operational Communications**	Develop procedure and training for ensuring OEM leaders and ECC command staff coordinate to determine overall priorities, operational information, and other relevant data (to include relevant ESFs and criteria for continued activation). Reinforce	**Planning, Training, Exercise**	**ESF 5/OEM**	**Q 4, 2019**

Issue	Core Capability	Recommendation	POETE Element	Responsible ESF	Timeframe
decision-making entities		purpose of the ECC to ensure proper communication channels are maintained.			
2: Clear goals and objectives for staff deployed were not communicated with relevant ECC staff		Develop procedure and training for ensuring OEM leaders and ECC command staff coordinate to determine overall priorities, operational information, and other relevant data (to include relevant ESFs and criteria for continued activation). This should be conducted at morning briefings and planning meetings. Reinforce purpose of planning meetings and morning briefings to ensure communication opportunities are available.	**Planning, Training, Exercise**	**ESF 5/OEM**	**Q 4, 2019**
1: GIS data conflicts between different sources of data	**Situational Assessment**	Develop list of GIS data providers across the state and procedure for determining proper points of contact pertaining to incidents. Inform and train all GIS data providers of new procedures.	**Planning, Training, Exercise**	**ESF 5/OEM**	**Q 1, 2019**
2: Lack of integration with HSIN and OpsCenter		Coordinate with ECC staff to determine proper methods to track the status of an incident within existing systems (OpsCenter) as well as improvements to how internal information is processed and tracked and how these systems (OpsCenter and HSIN) can share information.	**Planning, Training, Exercise**	**ESF 5/OEM**	**Q 4, 2020**

APPENDIX B: INCIDENT PARTICIPANTS

Participating Organizations
Federal
United States Army Corps of Engineers
State
Oregon Department of Administrative Services
Oregon Department of Agriculture
Oregon Department of Corrections
Oregon Department of Human Services
Oregon Health Authority
Oregon Military Department
Oregon Office of Emergency Management
Counties
Marion
Cities
Salem
Non-Governmental Organizations
Marion/Polk Food Share
Oregon Food Bank

ACRONYMS

AAR	After Action Report
DAS	Oregon Department of Administrative Services
DHS	Oregon Department of Human Services
DOC	Oregon Department of Corrections
EAP	Event Action Plan
ECC	Emergency Coordination Center
EDO	Executive Duty Officer
EOC	Emergency Operations Center
ESF	Emergency Support Function
GIS	Geographic Information Systems
HSIN	Homeland Security Information Network
IP	Improvement Plan
ODA	Oregon Department of Agriculture
OEM	Oregon Office of Emergency Management
OHA	Oregon Health Authority
OMD	Oregon Military Department
PIO	Public Information Officer
RAPTOR	Real-time Assessment and Planning Tool for Oregon
SDO	Staff Duty Officer
TAG	The Adjutant General
USACE	United States Army Corps of Engineers