



2022 Columbia Generating Station Plume Exposure Pathway Exercise

Columbia Generating Station - WA

Plume Exposure Pathway Exercise

Radiological Emergency Preparedness Program

After-Action Report - Abridged

10/25/2022

Approved by: Janet L. Hlavaty-LaPosa,
Regional Assistance Committee Chair



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Executive Summary

The 2022 Columbia Generating Station (CGS) Evaluated Plume Exposure Pathway exercise was successfully conducted on October 25, 2022. The participants demonstrated knowledge of their emergency response plans and procedures and adequately implemented them during the exercise. There were no findings or plan issues identified.

FEMA wishes to acknowledge the efforts of the many individuals from organizations across the States of Washington and Oregon who participated in this exercise. Protecting the health and safety of the public is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during this drill.

In the communities surrounding commercial Nuclear Power Plants (NPP), 44 CFR 350.5(b) directs FEMA's Radiological Emergency Preparedness (REP) Program to review state, local, and tribal radiological emergency plans, and preparedness. Approved plans and procedures "must be determined to adequately protect the public health and safety by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency."

FEMA defines reasonable assurance as a determination that NRC licensee or applicant onsite plans, and state, local, and tribal government and utility offsite plans and preparedness, are adequate to protect public health and safety in the emergency planning areas of a commercial NPP. FEMA will consider plans, procedures, personnel, training, facilities, equipment, drills, and exercises, which are all important to the effective implementation of protective measures offsite in the event of any incident at a commercial NPP.

FEMA uses exercises and drills to determine the adequacy of offsite radiological emergency preparedness for NPP incidents. Exercises are an instrument to train for, assess, practice, and improve performance of prevention, protection, mitigation, response, and recovery capabilities. Exercises can be used for testing and validating policies, plans, procedures, training, equipment, and interagency agreements; clarifying and training personnel in roles and responsibilities; improving interagency coordination and communications; improving individual performance; identifying gaps in resources; and identifying opportunities for improvement. Exercises within the REP Program are required by 44 CFR 350, as is the evaluation by qualified FEMA evaluators. The REP Program exercises traditionally provide the best opportunity to assess the implementation of Offsite Response Organizations (OROs) plans and preparedness.

The qualifying emergency preparedness exercise of record for the Columbia Generating Station was conducted on June 1, 1983.



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Section 1: Exercise Overview

Exercise Name	2022 CGS Evaluated Exercise
Exercise Dates	10/25/2022
Scope	This event was a Plume Exposure Pathway exercise at the Columbia Generating Station - WA.
Mission Area(s)	Protection, Recovery, Response
Core Capabilities	Access Control and Identity Verification, Critical Transportation, Environmental Response/Health and Safety, Health and Social Services, Housing, Mass Care Services, Natural and Cultural Resources, On-scene Security, Protection, and Law Enforcement, Operational Communications, Operational Coordination, Planning, Public Health, Healthcare, and Emergency Medical Services, Public Information and Warning, Situational Assessment
Objectives	Alert and Notification; Detect, Measure, Sample, Analyze, and Assess; Emergency Operations Management; Exposure Control; Operate
Threat or Hazard	
Scenario	
Sponsor	
Participating Organizations	See appendix B for full list of participating organizations.



Section 2: Analysis of Capabilities

2.1 Summary Results of Assessment

Table 1 below includes the assessment activity objectives, capability targets, selected core capabilities, and status of each capability target evaluated during the 2022 CGS EE.

Each jurisdiction and functional entity was evaluated based on the demonstration of core capabilities and capability targets. Capability targets are listed, and the demonstration status of those capability targets are indicated by the use of the following terms:

- **Met (M):** The jurisdiction or functional entity performed all activities under the objective/capability target to the level required per the work plan and/or the extent-of-play agreement, with no Level 1 or Level 2 Findings evaluated under that objective/capability target during the current activity and no unresolved prior Level 2 Finding(s).
- **Level 1 Finding (L1):** An observed or identified inadequacy of organizational performance during an assessment activity that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a NPP.
- **Level 2 Finding (L2):** An observed or identified inadequacy of organizational performance during an assessment activity that is not considered, by itself, to adversely impact public health and safety.
- **Plan Issue (P):** An observed or identified inadequacy in the ORO's emergency plan/implementing procedures, rather than in that of the ORO's performance.
- **Not Demonstrated (N):** For a justifiable reason, the jurisdiction or functional entity did not perform assessment activities under the objective/capability target as specified in the extent-of-play agreement.
- **Not Applicable (N/A):** The objective/capability target does not apply to the jurisdiction.



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Table 1. Summary Results of Capability Targets

Venue	Target	Core Capability	Status
Objective 1 : Emergency Operations Management			
Oregon DOE AOC - State Emergency Operations Center (Support)	1.1	Planning, Operational Coordination	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	1.1	Planning, Operational Coordination	M
Benton County Emergency Operations Center - County Dispatch Center	1.1	Planning, Operational Coordination	M
Franklin County Emergency Management - County Emergency Operations Center	1.1	Planning, Operational Coordination	M
Umatilla County Emergency Operations Center - Ingestion County Emergency Operations Center (Support	1.1	Planning, Operational Coordination	M
Morrow County Emergency Operations Center - Ingestion County Emergency Operations Center (Support St	1.1	Planning, Operational Coordination	M
Energy Northwest Joint Information Center - Joint Information Center	1.1	Planning, Operational Coordination	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	1.1	Planning, Operational Coordination	M
WA DOH MUDAC at CGS EOF - WA State Dose Assessment Center & Field Tm Mgmt	1.1	Planning, Operational Coordination	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	1.1	Planning, Operational Coordination	M


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WA State Emergency Operations Center - State Emergency Operations Center	1.1	Planning, Operational Coordination	M
Benton County Emergency Operations Center - County Emergency Operations Center	1.1	Planning, Operational Coordination	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	1.1	Planning, Operational Coordination	M
Benton County Emergency Operations Center - County Emergency Operations Center	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
Morrow County Emergency Operations Center - Ingestion County Emergency Operations Center (Support St	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
Franklin County Emergency Management - County Emergency Operations Center	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
WA DOH MUDAC at CGS EOF - WA State Dose Assessment Center & Field Tm Mgmt	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M



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WA State Emergency Operations Center - State Emergency Operations Center	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
Benton County Emergency Operations Center - County Dispatch Center	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
Oregon DOE AOC - State Emergency Operations Center (Support)	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
Umatilla County Emergency Operations Center - Ingestion County Emergency Operations Center (Support)	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
WA State Emergency Operations Center - State Emergency Operations Center	1.2	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Mass Care Services, Public Health, Healthcare, and Emergency Medical Services, Situational Assessment	M
Franklin County Emergency Management - County Emergency Operations Center	1.4	Planning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Situational Assessment	M



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Benton County Emergency Operations Center - County Emergency Operations Center	1.4	Planning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Situational Assessment	M
Franklin County Emergency Management - School District Bus Drivers	1.5	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Health and Social Services, Housing, Natural and Cultural Resources	M
Franklin County Emergency Management - County School District	1.5	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Health and Social Services, Housing, Natural and Cultural Resources	M
Franklin County Emergency Management - County Emergency Operations Center	1.5	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Health and Social Services, Housing, Natural and Cultural Resources	M
Benton County Emergency Operations Center - County Emergency Operations Center	1.5	Planning, Public Information and Warning, Operational Coordination, Critical Transportation, Environmental Response/Health and Safety, Health and Social Services, Housing, Natural and Cultural Resources	M
Objective 2 : Exposure Control			
Benton County Emergency Operations Center - County Emergency Operations Center	2.1	Planning, Operational Coordination, Environmental Response/Health and Safety, Situational Assessment	M
Franklin County Emergency Management - County Emergency Operations Center	2.1	Planning, Operational Coordination, Environmental Response/Health and Safety, Situational Assessment	M
WA DOH MUDAC at CGS EOF - WA State Dose Assessment Center & Field Tm Mgmt	2.1	Planning, Operational Coordination, Environmental Response/Health and Safety, Situational Assessment	M



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Benton County Emergency Operations Center - County Emergency Operations Center	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
Franklin County Emergency Management - County Emergency Operations Center	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
Franklin County Emergency Management - County Traffic and Access Control	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
Benton County Emergency Operations Center - County Traffic and Access Control	2.2	Planning, Operational Coordination, Environmental Response/Health and Safety	M
Objective 3 : Alert and Notification			
Benton County Emergency Operations Center - County Dispatch Center	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Franklin County Emergency Management - County Emergency Operations Center	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Energy Northwest Joint Information Center - Joint Information Center	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M



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WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
WA DOH MUDAC at CGS EOF - WA State Dose Assessment Center & Field Tm Mgmt	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
WA State Emergency Operations Center - State Emergency Operations Center	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Benton County Emergency Operations Center - County Emergency Operations Center	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Franklin County Emergency Management - School District Bus Drivers	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
KORD radio - EAS Radio Station	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Oregon DOE AOC - State Emergency Operations Center (Support)	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Morrow County Emergency Operations Center - Ingestion County Emergency Operations Center (Support St	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M



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Umatilla County Emergency Operations Center - Ingestion County Emergency Operations Center (Support)	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
Franklin County Emergency Management - County School District	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
KONA radio - EAS Radio Station	3.1	Planning, Operational Coordination, Operational Communications, Situational Assessment	M
WA State Emergency Operations Center - State Emergency Operations Center	3.2	Planning, Public Information and Warning	M
Benton County Emergency Operations Center - County Emergency Operations Center	3.2	Planning, Public Information and Warning	M
Franklin County Emergency Management - County Emergency Operations Center	3.2	Planning, Public Information and Warning	M
KORD radio - EAS Radio Station	3.2	Planning, Public Information and Warning	M
KONA radio - EAS Radio Station	3.2	Planning, Public Information and Warning	M
Energy Northwest Joint Information Center - Joint Information Center	3.3	Planning, Public Information and Warning	M
Oregon DOE AOC - State Emergency Operations Center (Support)	3.3	Planning, Public Information and Warning	M
Franklin County Emergency Management - County Emergency Operations Center	3.3	Planning, Public Information and Warning	M
Benton County Emergency Operations Center - County Emergency Operations Center	3.3	Planning, Public Information and Warning	M
Objective 4 : Detect, Measure, Sample, Analyze, and Assess			



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WA DOH MUDAC at CGS EOF - WA State Dose Assessment Center & Field Tm Mgmt	4.1	Planning, Operational Coordination, Environmental Response/Health and Safety	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	4.2	Planning, Environmental Response/Health and Safety	M
WA Dept Of Health Office Of Rad Protection - State Field Monitoring Teams	4.2	Planning, Environmental Response/Health and Safety	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	4.2	Planning, Environmental Response/Health and Safety	M
Oregon Health Authority Radiation Protection Services - State Field Monitoring Teams (Support)	4.2	Planning, Environmental Response/Health and Safety	M
WA DOH MUDAC at CGS EOF - WA State Dose Assessment Center & Field Tm Mgmt	4.5	Planning, Environmental Response/Health and Safety	M
Objective 5 : Operate			
Franklin County Emergency Management - County Traffic and Access Control	5.4	Planning, Operational Coordination, Access Control and Identity Verification, Critical Transportation, Environmental Response/Health and Safety, On-scene Security, Protection, and Law Enforcement, Situational Assessment	M
Benton County Emergency Operations Center - County Traffic and Access Control	5.4	Planning, Operational Coordination, Access Control and Identity Verification, Critical Transportation, Environmental Response/Health and Safety, On-scene Security, Protection, and Law Enforcement, Situational Assessment	M



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Appendix A: Exercise Timeline



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Emergency Classification Level or Event	Time at Utility	Time That Notification Was Received or Action Was Taken										
		Washington State EOC	Oregon DOE AOC	Washington Dept of Health	Field Team # 1, #2	Franklin County ECC	Benton County EOC	SECOMM	Morrow County EOC	Umatilla County EOC	JIC	MUDAC
Unusual Event												
Alert	0808	0817	0825		0814	0823	0816	0816	0846	0845	0819	0814
Site Area Emergency	0952	1000	1007		1014	1004	0959	0959	1005	1016	0959	1015
General Emergency	1125	1134	1131		1130	1137	1133	1133	1153	1142	1133	1121
Simulated Radioactivity Release Began	0945	1000	1007		1014	1000	0959	0959	1056	1044	0959	0945
Simulated Radioactivity Release Terminated	1214	1220	1218			1225	1221	1221	1214	1216	1214	1214
Facility Declared Operational		0918	1055		1010	0901	0856	0856	0848	0800	0856	0950
Declaration of State of Emergency		1213				1047	1221	1221				
Exercise Terminated		1315	1327		1330	1312	1310	1310	1320	1326	1323	1305
Precautionary Actions:		1000				1010	1007	1007				
Ag. Advisory		1048/1136				1038/1148	1045	1045		1046	1037/1045	1015
1 st A&N Decision						1009	1007	1007				
1 st Siren Activation						1010	1010	1010			1010	
1 st EAS Message						1010	1015	1015			1010	
2 nd A&N Decision						1140	1139	1139				
2 nd Siren Activation						1141	1141	1141			1133	
2 nd EAS Message						1145	1145	1145			1133	
KI Decision:												



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Advisory re- ceived at loca- tion											
Action taken at location				1030/ 1010							



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Appendix B: Additional Information

Participating Organizations

Federal Emergency Management Agency
Nuclear Regulatory Commission
National Weather Service
US Department of Energy
Oregon Department of Agriculture
Oregon Department of Energy
Oregon Health Authority
Oregon National Guard
Washington Department of Agriculture
Washington Department of Health
Washington Emergency Management Division
Washington National Guard
Washington State Patrol
Benton County Emergency Management
Benton County Emergency Services
Benton County Sheriff
Benton-Franklin Health District
Benton-Franklin Sheriff's Posse
Franklin County Emergency Management
Franklin County Emergency Services
Franklin County Sheriff
Morrow County Emergency Management
Umatilla County Emergency Management
Kennewick Fire Department
Kennewick Police Department
Pasco Fire Department
Pasco Police Department
Pasco School District
Richland Fire Department
Richland Police Department
Edwin Markham Elementary School
Energy Northwest
Townsquare Media



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Evaluation Team

Name	Organization
Alberto Sifuentes	FEMA
Bart Ray	FEMA (Contracted)
Bonne Sheffield	FEMA (Contracted)
Carol Shepard	FEMA (Contracted)
Cheryl Weaver	FEMA
Cody McKown	FEMA (Contracted)
Dennis Wilford	FEMA (Contracted)
Elena Joyner	NRC
Henry Christiansen	FEMA (Contracted)
James Greer	FEMA (Contracted)
Janise Stoliarova	FEMA
Kenneth Wierman Jr	FEMA
Kevin Reed	FEMA (Contracted)
Lisa Rink	FEMA (Contracted)
Lynn Steffensen	FEMA
Marcy Campbell	FEMA (Contracted)
Marynette Herndon	FEMA (Contracted)
Meg Swearingen	FEMA (Contracted)
Miriam Weston	FEMA
P.J. Nied	FEMA (Contracted)
Richard Smith	FEMA (Contracted)
Roy Smith	FEMA (Contracted)
Ryan Alexander	FEMA (Contracted)
Stephen Watts	FEMA (Contracted)



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Teresa Engelhart	FEMA (Contracted)
Thomas Essig	FEMA (Contracted)
Thomas Hegele	FEMA (Contracted)
William McDougall	FEMA



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Acronyms and Abbreviations

Acronym	Description
AAR	After Action Report
ANS	Alert Notification System
AOC	Agency Operating Center
ARES	Amateur Radio Emergency Service
AWC	Alert/Warning Center
BC	Benton County
CBC	Columbia Basin College
CFR	Code of Federal Regulations
CGS	Columbia Generating Station
CNF	Classification Notification Form
cpm	Counts Per Minute
CST	Civil Support Team
DCF	Dose/Dosimetry Correction Factor
DOE	Department of Energy
DOH	Department of Health
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
ECL	Emergency Classification Level
EE	Evaluated Exercise
EM	Emergency Management



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ENW	Energy Northwest
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ESF	Emergency Support Function
EW	Emergency Worker
EWAC	Emergency Worker/Assistance Center
FC	Franklin County
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FTC	Field Team Coordinator
GE	General Emergency
IC	Incident Commander
IPAWS	Integrated Public Alert/Warning System
JIC	Joint Information Center
KI	Potassium Iodide
MC	Morrow County
MUDAC	Meteorological Unified Dose Assessment Center
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
ODA	Oregon Department of Agriculture



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ODOE	Oregon Department of Energy
OERS	Oregon Emergency Response System
OHA	Oregon Health Authority
ORO	Offsite Response Organization
OSL	Optically Stimulated Luminescence (dosimeter)
OSU	Oregon State University
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
RACES	Radio Amateur Civil Emergency Service
REP(P)	Radiological Emergency Preparedness (Program)
RERT	Radiological Emergency Response Team
SAE	Site Area Emergency
SCO	State Coordinating Officer
SECOMM	South-East Communications (911 call center)
SEOC	State Emergency Operations Center
TACP	Traffic and Access Control Point
UC	Umatilla County
UCG	Unified Coordination Group



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VoIP	Voice over Internet Protocol
WDOH	Washington Department of Health
WEMD	Washington Emergency Management Division
WSDA	Washington State Department of Agriculture



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Extent-of-Play Agreement(s)

Maintained as a separate document.



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Appendix C: Improvement Plan

This section not used.



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