

Environmental Aspects: How and How Many



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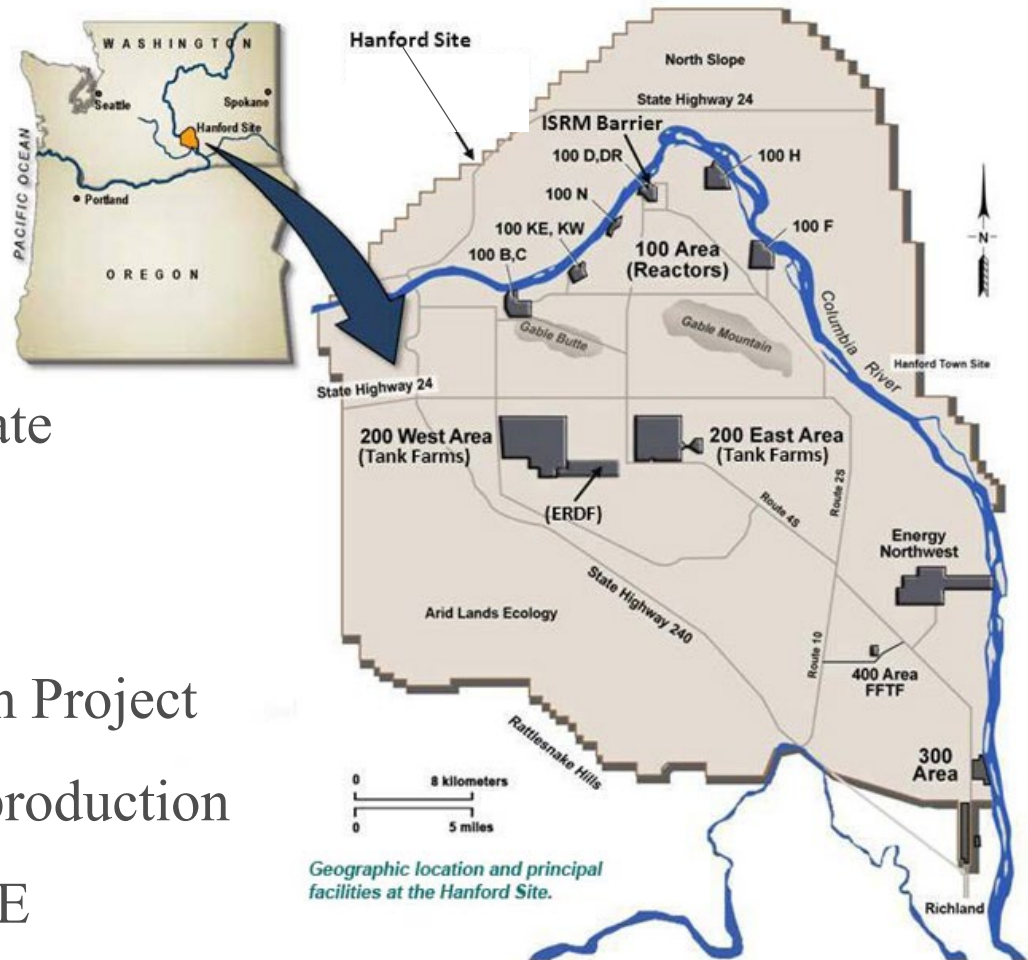


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The Hanford Site

Hanford

- Southeast Washington State
- 580 mi² of desert along the Columbia River
- 1943 – Start of Manhattan Project
- 1947 to 1987 – Defense production
- 1989 – Became a US DOE cleanup site



Hanford EMS Working Group

Hanford Organizations

- US Department of Energy (DOE-RL, DOE-ORP)
- Mission Support Contract (MSA)
- Plateau Remediation Contract (CHPRC)
- Tank Operations Contract (WRPS)
- 222-S Laboratories Contract (WAI)
- Occupational Medical Services Contract (HPMC OMS)
- Pacific Northwest National Laboratory (Battelle)

- Waste Treatment Plant Contract (BNI)



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CHPRC Projects

What We Do

- Remediate soil and treat groundwater
- Manage wastes and nuclear fuels
- K-Reactor Area remediation and D&D
- Risk-based stabilization and demolition
- Clean out and demolish the Plutonium Finishing Plant (PFP)
- Remediate highly contaminated soil under 324 Building
- Environmental Restoration Disposal Facility (ERDF)



The Environmental Restoration and Disposal Facility (ERDF)
Since beginning acceptance of low-level waste, over 18 million tons of waste have been disposed of at ERDF



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Environmental Aspects: How and How Many

Presentation and Discussion

- **How** – Describe two ways to develop and rank aspects
 - Organization versus company
 - Past versus present
- **How Many** – Provide CHPRC aspects
 - Discuss whether there are others

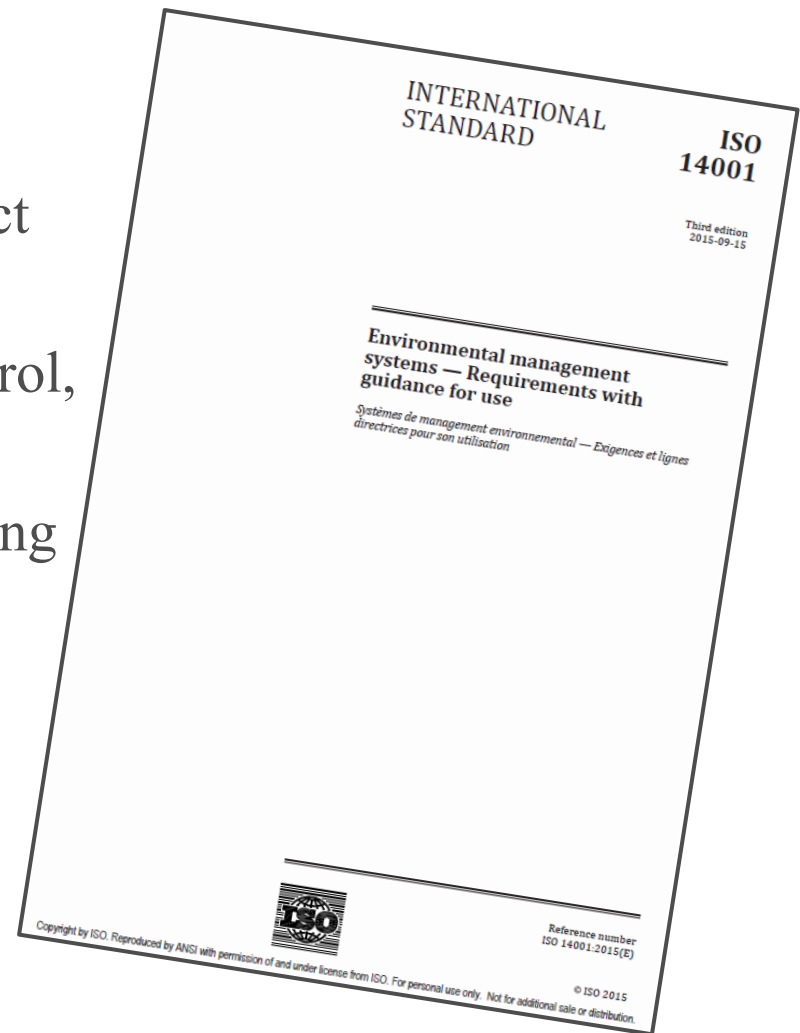


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Environmental Aspects

ISO 14001:2015 Standard

- Activity, product, or service - interact with the environment
- Determine aspects that you can control, and those you can influence
- Determine significant aspects by using established criteria
- Document aspects, impacts, ranking criteria, and significant aspects
- Communicate significant aspects as appropriate



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CHPRC Methods of Ranking Aspects

Past Method

- Develop a list of all processes and activities across the company
- Determine aspects based on activity
- Rank aspects by organization
- Results in several sets of significant aspects



CHPRC Methods of Ranking Aspects

Past Method

ORGANIZATION		
DEPARTMENT 1		
PROCESS	ACTIVITY	ASPECT
Process 1	Activity 1	Aspect 1
Process 2	Activity 1	Aspect 6
		Aspect 7
	Activity 2	Aspect 1
		Aspect 2
		Aspect 3
		Aspect 4
		Aspect 5
		Aspect 11
	Activity 3	Aspect 11
		Aspect 18
<div></div>		
Process X	Activity 1	Aspect 20
DEPARTMENT 2		
PROCESS	ACTIVITY	ASPECT
Process 1	Activity 1	Aspect 1
Process 2	Activity 1	Aspect 6
		Aspect 7
	Activity 2	Aspect 1
		Aspect 2
		Aspect 3
		Aspect 4
		Aspect 5
		Aspect 11
	Activity 3	Aspect 11
		Aspect 18
<div></div>		
Process X	Activity 1	Aspect 20
<div></div>		
DEPARTMENT X		
PROCESS	ACTIVITY	ASPECT



CHPRC Methods of Ranking Aspects

Past Method

Project Name: ADMINISTRATION		
DEPARTMENT 1		
Process	Activity	Aspect
Facilities Management	Fleet Management	Petroleum/Chemical Use
		Air Emissions
	Mobile Office Removal	Petroleum/Chemical Use
	Mobile Office Relocation	Petroleum/Chemical Use
	Dumpster Review	Generation of Solid Waste
		Petroleum/Chemical Use
	Consolidating Warehouse Materials	Petroleum/Chemical Use
		Air Emissions
	Removal of Self Contained Restrooms	Petroleum/Chemical Use
		Materials Consumption
Office Work	Facility Modification	Generation of Solid Waste
		Energy Use
	Personal Travel	Energy Use
		Air Emissions
	Training & External Events	Energy Use
		Air Emissions
		Generation of Wastewater
		Materials Consumption
		Generation of Solid Waste
		Water Use
	Office Utilities	Generation of Waste
	Office Supplies	Materials Consumption
		Generation of Solid Waste
Office Electronics	Generation of Solid Waste	
	Materials Consumption	



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Past Method

Advantages

- Documented most interactions with the environment
- Organizational ownership of significant aspects

Disadvantages

- Time consuming
- Activities could be missed
- Confusing ranking system
- Poor communication tool
- Significant aspects difficult to communicate



CHPRC Methods of Ranking Aspects

Current Method

- Develop list of potential aspects
- Matrix aspects list across all departments
- Is aspect applicable? – Yes or No
- Rank aspects by company
- One set of significant aspects



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CHPRC Methods of Ranking Aspects

Current Method

Environmental Aspects	ORGANIZATION				
	Director 1		Director 2		Director 3
	Manager 1	Manager 2	Manager 3	Manager 4	
Aspect 1	X	X	X		X
Aspect 2	X		X	X	X
Aspect 3			X	X	X
	X	X	X	X	X
Aspect 20	X		X	X	X



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CHPRC Methods of Ranking Aspects

Current Method

ENVIRONMENTAL ASPECTS 2019	ADMINISTRATION								
	Deputy	Director 1		Director 2				Director 3	Director 4
		Manager 1	Manager 2	Manager 3	Manager 4	Manager 5	Manager 6		
Aspect 1	X	X	X	X	X	X	X	X	X
Aspect 2	X	X	X	X	X	X	X	X	X
Aspect 3	X	X	X	X	X	X	X	X	X
Aspect 4	X	X	X	X	X	X	X	X	X
Aspect 5									
Aspect 6				X	X	X	X		
Aspect 7									
Aspect 8									
Aspect 9	X	X	X	X	X	X	X	X	X
Aspect 10									
Aspect 11									
Aspect 12									
Aspect 13									
Aspect 14									
Aspect 15	X	X	X	X	X	X	X	X	X
Aspect 16	X	X	X	X	X	X	X	X	X
Aspect 17	X	X	X	X	X	X	X	X	X
Aspect 18									
Aspect 19									
Aspect 20	X	X	X	X	X	X	X	X	X
Aspect 21									



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Current Method

Advantages

- Easily understood and less time consuming
- Simplified ranking
- Easy annual maintenance
- Good communication tool
- Easier to communicate significant aspects

Disadvantages

- Yes/No is at a higher level than activity-based
- Lessened organizational ownership of significant aspects



Aspects Documentation

ENVIRONMENTAL ASPECTS 10/31/2019		VICE PRESIDENT									
		VICE PRESIDENT	Director 1	Director 2		Director 3		Director 4			
				Manager 1		Manager 2	Manager 3	Manager 4			Manager 5
				Manager 1	Manager 2			Manager 3		Manager 4	
								Supervisor 1	Supervisor 2		
ENERGY AND WATER											
Petroleum Use	1	X	X	X		X	X	X	X	X	X
Energy Use	2	X	X	X		X	X	X	X	X	X
Water Use	3	X	X	X		X	X	X	X	X	X
ENVIRONMENTAL MEDIA											
Greenhouse Gas Emissions to Air	4	X	X	X		X	X	X	X	X	X
Other Emissions to Air	5	X						X		X	
Releases to Soil	6										
Releases to Groundwater	7										
Discharge to Surface Water	8										
Discharge to Wastewater System	9	X	X	X		X	X	X	X	X	X
Cultural, Historical and Ecological Resource Disturbance	10										
Noise, Dust or Odor Creation	11	X								X	
Physical Interaction with the Environment	12										
Potential for Wildland Fires	13										
Environmental Remediation	14										
WASTE GENERATION AND MANAGEMENT											
Pollution Prevention	15	X	X	X		X	X	X	X	X	X
Solid Waste Generation and Management	16	X	X	X		X	X	X	X	X	X
Regulated Waste Generation and Management	17	X	X	X		X	X	X	X	X	X
Radioactive/Mixed Waste Generation and Management	18	X						X		X	
Biological Waste Generation and Management	19	X								X	
MATERIAL USE AND STORAGE											
Toxic and Hazardous Material Use and Storage	20	X	X	X		X	X	X	X	X	X
Radioactive Material Use and Storage	21	X								X	



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Aspects Documentation

Guidance for FY2020 CHPRC Environmental Aspects					9/19/2019	Ranking								
#	Environmental Aspects	Description	Guidance	Evaluated Scenario	Influenced by CHPRC?	Scale of Impact	Severity of Impact	Regulatory Exposure	Public Relations	Cost Impact	Operational Delays	Customer	Likelihood/Frequency	SCORE
1	Energy Use	Impacts associated with the use of energy will be considered.	Energy use includes non-vehicle energy use including electricity, natural gas, fuel oil and diesel fuel for generators.	Facility electricity use	YES	4	2	1	1	5	3	4	5	100
2	Water Use	Impacts associated with the use of potable and non-potable water will be considered.	Water use includes CHPRC's activities involving the use of Hanford and City of Richland water.	Facility water use	YES	3	2	1	1	4	1	3	5	75
3	Greenhouse Gas Emissions to Air	Impacts from Scope 3 greenhouse gas emissions to air will be considered.	Scope 3 GHG emissions include employee commuting, business travel, transportation of waste and production and transportation of purchased materials.	Employee commute	YES	5	3	1	1	2	1	4	4	68
4	Environmental Remediation	Impacts from environmental remediation will be considered.	Environmental Remediation may include D4 activities (Deactivation, Decontamination, Decommissioning & Demolition) as well as groundwater remediation, etc.	324 REC/300-296 Remediation and D4 (release/accident)	YES	4	5	4	5	5	5	5	2	66
5	Cultural, Historical and Ecological Resource Disturbance	Impacts from the disturbance of cultural or historical resources or the removal of vegetation or wildlife will be considered.	Potential for a disturbance to native american and cold war era artifacts, and fauna and flora from CHPRC Operations. Disturbance of wildlife will be considered.	Archeological/cultural/historical artifact destruction	YES	4	4	4	5	4	5	4	2	60
6	Other Emissions to Air	Impacts from stack emissions to air and other emissions to air including accidental releases from CHPRC operations will be considered.	Routine or common releases from stacks, disturbing contaminated soils, as well as non-standard and accidental releases will be considered.	Central Plateau D4 activities	YES	3	4	4	5	5	5	4	2	60
7	Petroleum Use	Impacts associated with the use of petroleum will be considered.	Petroleum use includes the use and storage of petroleum-based fuels (gas & diesel) as well as alternative fuels (ethanol) for vehicles and other non-stationary equipment. Air emissions associated with petroleum use would be considered under "Greenhouse Gas Emissions to Air."	Employee commute	YES	5	2	1	1	2	1	3	4	60
8	Releases to Surface Water	Impacts from releases to surface water will be considered.	Surface water includes the Columbia River and other navigable waters of the US but not engineered ponds.	Not a viable scenario	YES	3	3	4	5	4	5	4	2	56
9	Solid Waste Generation and Management	Impacts from the generation and management of solid (sanitary) wastes will be considered.	Solid wastes are wastes suitable for disposal in a municipal (sanitary waste) landfill.	Rad waste sent to landfill	YES	3	4	4	5	4	4	4	2	56
10	Potential for Wildland Fires	Impacts from the potential to start wildland fires across the Hanford site will be considered.	Driving vehicles off-road on the Hanford Site has the potential to start a wildland fire.	Driving off road creates wildland fire	YES	3	5	1	5	5	5	3	2	54



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CHPRC ENVIRONMENTAL ASPECTS RANKING TABLE

SUSTAINABILITY	IMPACT	1	2	3	4	5
ENVIRONMENTAL	Scale of Impact	No Impact	Site Impact	Community Impact	Regional Impact	Global Impact
	Severity of Impact	No Impact	Insignificant / Irritant	Minor / Impairment	Major / Permanent	Significant / Lethal
SOCIAL	Regulatory Exposure	No Exposure	Notice to Correct	Minor Fine	Significant Fine	Criminal
	Public Relations	0 Complaints No Media Coverage	0 Complaints Insignificant Media Coverage	1-2 Complaints/Yr Insignificant Media Coverage	3-5 Complaints/Yr Medium Media Coverage	>5 Complaints/Yr Major Media Coverage
ECONOMIC	Cost Impact	No Cost	<\$10,000	\$10,000 - \$99,999	\$100,000 - \$1,000,000	>\$1,000,000
	Operation Delays	No Delay	< 1 Hour	< 10 Hours	1 Day – 1 Week	> 1 Week
	Customer	No Request	Individual Customer Desire	Highly Desired	Contractual Requirement	Performance Incentive
		Above Sum Multiplied by Frequency	Above Sum Multiplied by Frequency	Above Sum Multiplied by Frequency	Above Sum Multiplied by Frequency	Above Sum Multiplied by Frequency
FREQUENCY	Likelihood / Frequency	Never	< 1/Year	1/Year - 1/Month	> 1/Month	Continuous



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Aspects Documentation

OPERATIONAL CONTROLS AND IMPACTS FOR CHPRC ENVIRONMENTAL ASPECTS										
#	ENVIRONMENTAL ASPECTS PICK LIST	Regulated?	OPERATIONAL CONTROL	ENVIRONMENTAL IMPACT PICK LIST						
				Water Quality	Air Quality	Land Quality	Cultural Historical Ecological	Natural Resource Depletion	Landfill Space	Physical Nuisance
1	Petroleum Use	No	4x10 schedule					X		
2	Energy Use	No	4x10 schedule					X		
3	Water Use	No	4x10 schedule					X		
4	Greenhouse Gas Emissions to Air	Yes	4x10 schedule		X					
5	Other Emissions to Air	Yes	Procedure		X					
6	Releases to Soil	Yes	Procedure			X				
7	Releases to Groundwater	Yes	Procedure	X						
8	Releases to Surface Water	Yes	Procedure	X						
9	Discharge to Wastewater System	Yes	Procedure	X						
10	Cultural, Historical and Ecological Resource Disturbance	Yes	Procedure				X			
11	Noise, Dust or Odor Creation	Yes	Procedure							X
12	Physical Interaction with the Environment	Yes	Procedure			X				
13	Potential for Wildland Fires	Yes	Site Fire Plan		X	X		X		X
14	Environmental Remediation	Yes	Management Plan	X	X	X	X	X	X	X
15	Pollution Prevention	Yes	Site Sustainability Plan	X	X	X	X	X	X	X
16	Solid Waste Generation and Management	Yes	Environmental Procedure	X	X	X			X	
17	Regulated Waste Generation and Management	Yes	Procedure	X	X	X			X	
18	Radioactive/Mixed Waste Generation and Management	Yes	Procedure	X	X	X			X	
19	Biological Waste Generation and Management	Yes	Procedure	X	X	X			X	
20	Toxic and Hazardous Material Use and Storage	Yes	Procedure	X	X	X				X
21	Radioactive Material Use and Storage	Yes	Procedure	X	X	X				X



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Aspects Documentation

Aspects that apply to all CHPRC workers

- Petroleum Use
- Energy Use
- Water Use
- Greenhouse Gas Emissions to Air
- Discharge to Wastewater System
- Pollution Prevention
- Solid Waste Generation and Management
- Toxic and Hazardous Material Use and Storage
- Regulated Waste Generation and Management



Aspects Documentation

Aspects considered, but not applicable

- Engineered Nanomaterials Use and Storage
- Fleet Management
- Personnel Moves
- Releases to Surface Water



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Discussion

Questions

- What aspects didn't CHPRC consider?
- What aspects only apply to your work?



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Environmental Aspects: How and How Many

Thank you!



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