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8.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

8.1 INTRODUCTION

This Environmental Report (ER) was prepared by AREVA Enrichment Services (AES) to assess the potential environmental impacts of licensing the construction and operation of a uranium enrichment facility to be located in Bonneville County, approximately 32 km (20 mi) west northwest of the city of Idaho Falls (the proposed action). The proposed facility will use the centrifuge enrichment process, which is an energy-efficient, proven advanced technology. The Eagle Rock Enrichment Facility (EREF) will be owned and operated by AES, as described in Safety Analysis Report (SAR) Chapter 1, General Information, which is a Delaware limited partnership company. AES prepared this ER in accordance with 10 CFR 51 (CFR, 2008a), which implements the requirements of the National Environmental Policy Act of 1969 (NEPA), as amended (USC, 2008a). This ER also reflects the applicable elements of the Nuclear Regulatory Commission (NRC) guidance, including format, in NUREG-1748, Environmental Review Guidelines for Licensing Actions Associated with NMSS Programs, Final Report (NRC, 2003a). This ER analyzes the potential environmental impacts of the proposed action and eventual Decontamination and Decommissioning (D&D) of the facility, and discusses the effluent and environmental monitoring programs proposed to assess the potential environmental impacts of facility construction and operation. The ER also considers a no-action alternative.

8.2 PROPOSED ACTION

The proposed action is to license the construction and operation of the Eagle Rock Enrichment Facility (EREF) in Bonneville County, Idaho. The EREF will use the gas centrifuge enrichment process to separate natural uranium hexafluoride, UF_6, feed material containing 0.71 $^{w}/_{o}$ ^{235}U into a product stream enriched up to 5.0 $^{w}/_{o}$ ^{235}U and a depleted UF_6 stream containing approximately 0.15 to 0.30 $^{w}/_{o}$ ^{235}U. Production capacity at design throughput is nominally six million separative work units (SWU) per year. Construction for the proposed EREF is scheduled for the beginning of 2011, with heavy construction continuing for seven years over eight calendar years (2011-2018). This will be followed by four years of testing and assemblage (2018-2022). Operation would commence after the completion of the first cascade. The facility is licensed for 30 years. Decontamination and Decommissioning (D&D) is projected to take nine years. AES estimates the cost of the plant to be approximately $4.1 billion (in 2007 dollars) excluding escalation, contingency, interest, tails disposition, decommissioning, and any replacement equipment required during the operational life of the facility.

8.3 NEED FOR THE PROPOSED ACTION

The proposed action will serve the clear and well-substantiated need for additional reliable and economical uranium enrichment capacity in the United States (U.S.). This underlying need for the proposed Eagle Rock Enrichment Facility (EREF) stems directly from important U.S. energy and national security concerns and the continuing demand for reliable and economical uranium enrichment services. As the Department of Energy (DOE) has noted (DOE, 2002a), these energy and national security concerns "...are due, in large part, to the lack of available replacement for the inefficient and non-competitive gaseous diffusion enrichment plants. These concerns highlight the importance of identifying and deploying an economically competitive replacement domestic enrichment capacity in the near term." By providing this needed additional domestic enrichment capacity, the EREF would also serve important commercial objectives related to the security of supply of enriched uranium in the U.S. At present, the enrichment services needs of U.S. utilities are susceptible to "a supply disruption from either the Paducah plant production or the highly-enriched uranium (HEU) Agreement deliveries."

8.4 NO-ACTION ALTERNATIVE

Under the no-action alternative, the NRC would not approve the license application to construct and operate the proposed Eagle Rock Enrichment Facility (EREF). As a result, the additional domestic source and supply of enrichment services that would result from the issuance of the license to Areva Enrichment Services (AES) would not become available to utility customers. The only domestic suppliers would be the National Enrichment Facility and the American Centrifuge Plant (an unproven commercially demonstrated technology), which are currently under construction. The latter is assumed to replace the aging, electric power intensive and high cost Paducah Gaseous Diffusion Plant, which is expected to shutdown in June 2012, the only currently operating source of domestic enrichment services. As described in ER Section 1.1, this situation would result in a deficit between the available supply of low-enriched uranium and domestic requirements. In addition, these potential enrichment services alone would be inconsistent with the clear federal policy of fostering the development of additional, secure, reliable, and economical domestic enrichment capacity to promote both U.S. energy security and national security.

Section 2.4, Comparison of the Predicted Environmental Impacts, describes the environmental impacts of the no-action alternative scenarios and compares them to the proposed action. ER Table 2.4-1, Comparison of Potential Impacts for the Proposed Action and the No-Action Alternative Scenarios and Table 2.4-2, Comparison of Environmental Impacts for the Proposed Action and the No-Action Alternative Scenarios, summarizes that comparison in tabular form for the thirteen environmental categories that are described in detail in ER Chapter 4, Environmental Impacts. In Summary, AES anticipates that the effects to the environment of all alternative no-action scenarios would either have about the same or greater environmental impact than the proposed action in both the short and long term. The no-action alternative would also result in an increased uranium supply deficit and increased dependence on foreign suppliers. In addition, the important objective of security of supply is delayed.

The following types of impacts would be avoided in Bonneville County, Idaho and the surrounding area by the no-action alternative (see ER Table 2.4-2). During construction, the potential short-term impacts are soil erosion and fugitive emissions from dust and construction equipment; minor disruption to ecological habitats and cultural resources, noise from equipment; and traffic from worker transportation and supply deliveries. These impacts, as discussed in Chapter 4, are temporary and limited in scope due to the use of construction best management practices (BMPs). During operation, the no-action alternative would avoid increased traffic due to feed/product deliveries and shipments, and worker transportation; increased demand on utility and waste services; and public and occupational exposure from effluent releases. The impacts of traffic volume increases associated with construction of the EREF would be moderate to large, while the impacts of traffic volume increases associated with operation of the EREF would be small. The moderate to large impact of traffic volume increases associated with construction of the EREF may be mitigated by constructing the two highway entrances (designed to minimize the disruption of traffic flow) early in the construction process, encouraging car pooling, setting shift change times and shipment times to and from the facility to occur at times when the traffic flow on U.S. Highway 20 is low. See Section 4.2.4, Traffic Impacts.

There is sufficient capacity of utility and waste services in the region; and effluent releases will be strictly controlled, monitored, and maintained below regulatory limits (CFR, 2008x; CFR, 2008n).

While the no-action alternative would have no impact on the socioeconomic structure of the Bonneville County, Idaho area, the proposed action would have moderate to significant beneficial effects on the entire eleven-county region surrounding the plant including Bonneville county as well as the contiguous counties falling within an 80 km (50 mi) radius (see Table 7.1-2, Annual Impact of Construction Payroll in the 11-County Area, Table 7.1-3, Total Impact of Local Spending for Construction Goods and Services in the 11-County Area, Table 7.1-4, Annual Impact of Operations Payroll in the 11-County Area, and Table 7.1-5, Total Annual Impact of EREF Purchases During Operations in the 11-County Area). The results of the economic analysis show that the greatest fiscal impacts will derive from the seven-year period of heavy construction associated with the proposed facility.

The largest impact on local business revenues stems from local construction expenditures, while the most significant impact on household earnings and jobs is associated with construction payroll and employment projected during the seven-year period of heavy construction. Operation of the facility will also have a net positive impact on the eleven-county area and will help diversify the regional economy.

AES has estimated the economic impacts to the local economy during the seven-year heavy construction period to occur over eight calendar years (2011-2018), the four years of testing and assemblage, and the remaining period of the 30-year license of the EREF. This includes an eight-year period when both construction and operation are ongoing simultaneously. The analysis traces the economic impact of the proposed EREF, identifying the direct and indirect impacts of the plant on revenues of local businesses, on incomes accruing to households, on employment, and on the revenues of state and local government. The analysis also explores the indirect impacts of the EREF within an 80 km (50 mi) radius of the EREF. Details of the analysis are provided in Section 7.1, Economic Cost-Benefits, Facility Construction and Operation, and are summarized below.

AES estimates that it would spend [*] locally on construction expenditures over the seven-year heavy construction period beginning in early 2011 and ending in early 2018 and followed by four years of assemblage and testing. The local payroll would include approximately [*] for craft workers, with an additional [*] for management. This amount would be augmented with the inclusion of the [*] in benefits paid to construction craft employees and [*] for management (based on the assumption of 35% of the average salary).

A portion of the total expenditures would be spent locally on construction goods and services, benefiting local businesses. This would amount to approximately [*] per year during the seven years of heavy construction.

AES anticipates annual payroll to be $36.3 million with additional $12.7 million expenditure in employee benefits once the plant is operational. Approximately $23.8 million will be spent annually on local goods and services required for operation of the EREF.

The tax revenue to the State of Idaho and Bonneville and Bingham Counties resulting from the construction and operation of the EREF is estimated to be approximately $323.6 million over the life of the facility. Refer to Table 4.10-3, Estimated Annual Tax Payments, for further details.

Based on the cost-benefit analyses in Sections 7.1 and 7.2, and the minimal impacts to the affected environment demonstrated in Chapter 4, AES has concluded that the preferred alternative is the proposed action, construction and operation of the EREF.

* Proprietary Commercial Information withheld in accordance with 10 CFR 2.390

8.5 ENVIRONMENTAL IMPACTS OF CONSTRUCTION

The construction of the Eagle Rock Enrichment Facility (EREF) involves the clearing of approximately 240 ha (592 ac) of previously undisturbed area within a 1700-ha (4200-acre) site. Most of this area will be graded and will form the Controlled Area that includes all support buildings and the Cylinder Storage Pads. Numerous environmental protection measures will be taken to mitigate potential construction impacts. The measures will include controls for noise, oil and hazardous material spills, and dust. Potential impacts associated with the construction phase of the EREF are primarily limited to increased dust (degraded air quality) and noise from vehicular traffic, and potential soil erosion during excavations. It is unlikely that EREF construction activities will impact water resources since the site does not have any surface water and no discharges shall be made to groundwater. Up to two wells will be used to obtain groundwater for construction activities.

During the construction phase of the EREF, standard clearing methods (i.e., the use of heavy equipment) in combination with excavation will be used. Only about 14% of the total site area will be disturbed, affording the biota of the site an opportunity to move to undisturbed areas within the EREF site as well as to additional areas of suitable habitat bordering the EREF site. Trenching associated with plant construction will be in accordance with all applicable regulations so as to minimize any direct or indirect impacts on the environment.

The anticipated effects on the soil during construction activities are limited to a potential short-term increase in soil erosion. However, this will be mitigated by proper construction best management practices (BMPs). These practices include minimizing the construction footprint to the extent possible, mitigating discharge, including stormwater runoff (i.e., the use of detention and retention ponds), the protection of all unused naturalized areas, and site stabilization practices to reduce the potential for erosion and sedimentation. Other temporary stormwater detention basins will be constructed and used as sedimentation collection basins during construction and stabilized afterwards. After construction is complete, the site will be stabilized with natural, low-water consumption landscaping, pavement, and crushed stone to control erosion.

Water quality impacts will be controlled during construction by compliance with the requirements of a National Pollutant Discharge Elimination System (NPDES) Construction General Permit and BMPs detailed in the site Stormwater Pollution Prevention Plan (SWPPP). In addition, a Spill Prevention, Control and Countermeasure (SPCC) plan will be implemented to minimize the possibility of spills of hazardous substances, minimize environmental impact of any spills, and ensure prompt and appropriate remediation. Spills during construction are more likely to occur around vehicle maintenance and fueling operations, storage tanks, painting operations and warehouses. The SPCC plan will identify sources, locations and quantities of potential spills, as well as response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notifications of state and local authorities.

The construction phase impacts on air quality, land use, and socioeconomics are localized, temporary, and small. The temporary influx of labor is not expected to overload community services and facilities. The impacts of traffic volume increases associated with construction of the EREF would be moderate to large. This impact can be mitigated by constructing the two highway entrances (designed to minimize the disruption of traffic flow) early in the construction process, encouraging car pooling, setting shift change times and shipment times to and from the facility to occur at times when traffic flow on U.S. Highway 20 is low.

Dust will be generated to some degree during the various stages of construction activity. The amount of dust emissions will vary according to the types of activity. The first five months of

earthwork will likely be the period of highest emissions with the greatest number of construction vehicles operating on an unprepared surface. However, no more than 14% of the site, or about 240 ha (592 ac), will be involved in this type of work. Airborne dust will be controlled through the use of BMPs such as surface water sprays by ensuring trucks' loads and soil piles are covered, and by promptly removing construction wastes from the site. The application of water sprays for dust suppression will be applied at least twice daily (when needed). Other dust control BMPs will also be implemented.

Increased visual modifications to the landscape would be expected due to the addition of transmission poles (resulting in more contrast of form, line color, and texture). A number of existing transmission lines and telephone lines and the resulting visual impacts are present within the region and in the immediate vicinity of the eastern and western extents of the site. The proposed transmission line would not dominate the landscape and would meet the Bureau of Land Management Visual Resource Management objectives.

Construction of the EREF is expected to have generally positive socioeconomic impacts on the region. No radioactive releases (other than natural radioactive materials, for example, in soil) will result from site development and facility construction activities.

Pre-construction activities are those that are not considered construction activities under the definition of construction currently provided in 10 CFR 51.4. AES considers the following activities and facilities as pre-construction:

- Clearing the site
- Site grading and erosion control
- Excavating the site including rock blasting and removal
- Installing parking areas
- Constructing the storm water detention pond
- Constructing highway access roadways and site roads
- Installing utilities (e.g., temporary and permanent power) and storage tanks
- Installing fences for investment protection (not used to implement the Physical Security Plan)
- Installing construction buildings, offices (including construction trailers), warehouses and guardhouses.

Table 8.5-1 provides estimates of the percentage of impacts attributable to pre-construction and construction activities as well as a summary of the basis for the estimates and a qualitative impact significance level.

The estimated pre-construction and construction related impacts presented in the table were based on the following factors:

- Construction Area – the area that will be impacted for pre-construction and construction activities is estimated to be approximately 240 ha (592 ac) which includes 53.6 ha (132.5 ac) used for temporary construction activities. It is assumed that pre-construction activities of clearing, grubbing, and site preparation will impact 95% of the land area to be occupied by both pre-construction and construction structures and activities.

- Construction Duration – pre-construction activities (i.e., work that can be performed without any prior NRC approval) is estimated to occur during the first eight (8) months or approximately 10% of the 84 month construction schedule.
- Construction Workforce – the pre-construction workforce is approximately 60%, which the percentage of pre-construction workers compared to the peak number of workers estimated on-site related to all phases of EREF site development.
- Water Usage – the quantity of water to be used for pre-construction is estimated to be 10% of the total construction water requirements based on ER Table 3.4-15 and additional information. Pre-construction activities were assumed to use eight (8) months of Year 1 (2011) water usage to align with the assumption that pre-construction activities comprise 10% of the construction duration.

The qualitative significance levels in Table 8.5-1, denoted as SMALL, MODERATE, or LARGE, were assigned based on deployment and effective implementation of mitigation measures and controls required by local, state and federal regulations. The significance levels are defined in 10 CFR 51, Subpart A, Appendix B, Table B-1, Footnote 3:

- SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.
- MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize, any important attribute of the resource.
- LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

TABLES

Table 8.5-1 Summary of Pre-Construction and Construction Related Impacts

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Potential Impact (ER Section Reference)	Significance[a]	Estimated Impacts (%)		Basis of Estimate
		Pre-Construction[b]	Construction	
Land Use (Sections 4.1 and 5.1.1)	SMALL	95	5	Based on the proposed EREF site area of 240 ha (592 ac), including the temporary area of 53.6 ha (132.5 ac), being disturbed during pre-construction and construction activities. Greater than 80% of the property would remain undeveloped and current activities on nearby properties would not change.
Transportation (Sections 4.2 and 5.1.2)	MODERATE	60	40	Based on the percentage of pre-construction workers compared to the peak number of workers estimated on-site related to all phases of development for EREF, as listed in ER Tables 3.4-15 and 3.4-16, and the approximate number of truck deliveries and waste shipments per day as listed in ER Tables 4.2-3 and 4.2-4. Impact due to increased highway traffic associated with construction duration.
Geology and Soils (Sections 4.3 and 5.1.3)	SMALL	95	5	Geology impacts based on pre-construction land use, during which the majority of blasting may occur to develop foundations. Greater than 80% of the property would remain undeveloped and current activities on nearby properties would not change. Soils impacts based on the pre-construction area impacted as described previously in Land Use.

Table 8.5-1 Summary of Pre-Construction and Construction Related Impacts

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Potential Impact (ER Section Reference)	Significance[a]	Estimated Impacts (%)		Basis of Estimate
		Pre-Construction[b]	Construction	
				Potential short-term erosion during pre-construction, but enhanced afterward due to soil stabilization.
Water Resources (Sections 4.4 and 5.1.4)	SMALL	10	90	Based on the quantity of water to be used during pre-construction being 10% of the total water requirement, as shown in ER Table 3.4-15.
Ecological Resources (Sections 4.5 and 5.1.5)	SMALL	95	5	Based on the pre-construction area impacted, as described previously in Land Use, and the effects of noise and fugitive emissions occurring principally during pre-construction. Impact is to both local community and migratory species.
Air Quality (Sections 4.6 and 5.1.6)	SMALL	20	80	Based on fugitive dust emissions, of which approximately 20% are expected during pre-construction, with the remainder occurring evenly for the remainder of the planned construction duration.
Noise (Sections 4.7 and 5.1.7)	SMALL	20	80	Based on approximately 20% of noise, due to earth-moving equipment and blasting, occurring during pre-construction, with the remainder occurring evenly over the planned construction duration.
Historic and Cultural Resources (Sections 4.8 and 5.1.8)	SMALL	95	5	Based on the percentage of the pre-construction area impacted during pre-construction estimated to be 95%, as described previously in Land Use, with

Table 8.5-1 Summary of Pre-Construction and Construction Related Impacts

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Potential Impact (ER Section Reference)	Significance[a]	Estimated Impacts (%)		Basis of Estimate
		Pre-Construction[b]	Construction	
				potential historic properties being identified and mitigation plans established prior to land clearing and other pre-construction activities.
Visual/Scenic Resources (Sections 4.9 and 5.1.9)	SMALL	10	90	Based on the assumption that aesthetic and scenic quality impacts will be small during pre-construction.
Socioeconomic (Sections 4.10 and 5.1.10)	SMALL	60	40	Based on the percentage of pre-construction workers compared to the peak number of workers estimated on-site related to all phases of development for EREF. Impact due to increased number of people associated with construction duration.
Environmental Justice (Sections 4.11 and 5.1.11)	SMALL	10	90	Based on the planned 84 months of construction, of which approximately 10% is for pre-construction.
Public and Occupational Health (Sections 4.12 and 5.1.12)	SMALL	60	40	Based on the percentage of pre-construction workers compared to the peak number of workers estimated on-site related to all phases of development for EREF.
Waste Management (Rad/Nonrad) (Sections 4.13 and 5.1.13)	SMALL	10	90	Based on the estimated waste type and volume, as described in ER Section 3.12.2.2, during the planned 84 months of construction, of which approximately 10% occurs during pre-construction.

Table 8.5-1 Summary of Pre-Construction and Construction Related Impacts

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Potential Impact (ER Section Reference)	Significance[a]	Estimated Impacts (%)		Basis of Estimate
		Pre-Construction[b]	Construction	

Notes:

(a) The qualitative significance levels of SMALL, MODERATE, or LARGE have been assigned based on 10 CFR 51, Subpart A, Appendix B, Table B-1, Footnote 3:

- SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.
- MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize, any important attribute of the resource.
- LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

(b) "Construction," as defined in 10 CFR 50.2 "Definitions" refers to the construction of "safety-related structures, systems, or components (SSCs) of a facility." For the EREF, construction is defined as work that can only be performed with the issuance of the NRC Materials License.

8.6 ENVIRONMENTAL IMPACTS OF OPERATION

Operation of the Eagle Rock Enrichment Facility (EREF) would result in the production of gaseous effluent, liquid effluent, and solid waste streams. Each stream could contain small amounts of hazardous and radioactive compounds, either alone or in a mixed form. Based on the experience gained from operation of European plants, the aggregate routine airborne uranium gaseous releases to the atmosphere are estimated to be less than 20 g (0.71 ounces) annually. Extremely minute amounts of uranium and hydrogen fluoride (all well below regulatory limits) could potentially be released at the roof-top through the gaseous effluent exhaust vents. The eight exhaust vents for the eight separate and independent Separations Building (SB) Gaseous Effluent Vent Systems (GEVS) (i.e., two GEVS in each Separations Building Module); the single exhaust vent for the Technical Support Building (TSB) GEVS; and the single exhaust vent for Centrifuge Test and Post Mortem Facilities GEVS are located atop the SBMs, TSB and Centrifuge Assembly Building (CAB), respectively. Three additional exhaust vents that discharge any gaseous effluent from the Centrifuge Test and Post Mortem Facilities Exhaust Filtration System; the Technical Support Building (TSB) Contaminated Area HVAC System; and the Ventilated Room HVAC System, are located atop the CAB, TSB, and Blending, Sampling, and Preparation Building (BSPB), respectively. Gaseous effluent discharges from each of the thirteen exhaust vents are filtered for particulates and hydrogen fluoride (HF), and are continuously monitored prior to release.

Liquid effluents consist of stormwater runoff and treated domestic sanitary wastewater. All liquid effluents are discharged to one of three onsite basins.

The Site Stormwater Detention Basin is designed with an outlet structure for drainage. Local terrain serves as the receiving area for this basin. During a rainfall event larger than the design basis, the potential exists to overflow the basin if the outfall capacity is insufficient to pass beyond design basis inflows to the basin. Overflow of the basin is an unlikely event. The additional impact to the surrounding land, over that which would occur during such a flood alone, is assumed to be small. Therefore, potential overflow of the Site Stormwater Detention Basin during an event beyond its design basis is expected to have a minimal impact to surrounding land.

The two Cylinder Storage Pad Stormwater Retention Basins collect stormwater runoff from the Cylinder Storage Pads and treated domestic sanitary water discharges. They are lined to prevent infiltration and designed to retain a volume slightly more than twice that for the 24-hour, 100-year frequency storm and an allowance for maximum treated domestic sanitary effluent discharges. These lined basins have no flow outlet and all effluents are dispositioned through evaporation.

The EREF design precludes operational process discharges from the facility and treated domestic sanitary effluents flow to the lined Cylinder Storage Pad basins. There are, therefore, no anticipated impacts on natural water systems quality due to facility water use. Control of surface water runoff will be required for EREF activities covered by the NPDES General Permit. As a result, no significant impacts are expected for either surface water bodies or groundwater.

Solid waste that would be generated at EREF is grouped into nonhazardous, radioactive, hazardous, and mixed waste categories. All these wastes will be collected and transferred to authorized offsite treatment or disposal facilities. All solid radioactive waste generated will be Class A low-level waste as defined in 10 CFR 61 (CFR, 2008oo). This waste consists of industrial waste, filters and filter material, resins, gloves, shoe covers, and laboratory waste. Approximately 146,500 kg (323,000 lbs) of low-level waste would be generated annually. In addition, annual hazardous and mixed wastes generated at EREF are expected to be about

5,062 kg (11,160 lbs) and 100 kg (220 lbs), respectively. These wastes will be collected, inspected, volume-reduced, and transferred to treatment facilities or disposed of at authorized waste disposal facilities. Non-hazardous waste, including miscellaneous trash, filters, resins, and paper will be shipped offsite for compaction and then sent to a licensed landfill. The EREF is expected to produce approximately 70,307 kg (155,000 lbs) of this waste annually. Local landfill capacity is more than adequate to accept this mass of nonhazardous waste.

Operation of the EREF would also result in the annual nominal production of approximately 15,270 metric tons (16,832 tons) of depleted UF_6 at full production. The depleted UF_6 would be stored temporarily onsite in cylinders that will have little or no impact while in storage. AES will utilize the DOE deconversion facilities that are currently under construction for the final disposition and removal of the depleted UF_6 from the site.

8.7 RADIOLOGICAL IMPACTS

The assessment of potential impacts considers the entire population surrounding the proposed EREF within a distance of 80 km (50 mi).

Radiological impacts are regulated under 10 CFR 20 (CFR, 2008x), which specifies a total effective dose equivalent (TEDE) limit for members of the public of 1 mSv/yr (100 mrem/yr) from all sources and pathways from the EREF, excluding natural background sources. In addition, 10 CFR 20.1101(d) (CFR, 2008x) requires that constraints on atmospheric releases be established for the EREF such that no member of the public would be expected to receive a total effective dose equivalent in excess of 0.1 mSv/yr (10 mrem/yr) from these releases. Further, the EREF would be subject to the Environmental Protection Agency's (EPA) standards, including: standards contained in 40 CFR 190 (CFR, 2008f) that require that dose equivalents under routine operations not exceed 0.25 mSv (25 mrem) to the whole body, 0.75 mSv (75 mrem) to the thyroid, and 0.25 mSv (25 mrem) to any other organ from all pathways.

The general public and the environment may be impacted by radiation and radioactive material from the EREF as the result of discharges of gaseous and liquid effluent discharges, including controlled releases from the uranium enrichment process lines during decontamination and maintenance of equipment. In addition, radiation exposure to the public may result from the transportation and storage of uranium hexaflouride (UF_6) feed cylinders, UF_6 product cylinders, low-level radioactive waste, and depleted UF_6 cylinders.

Potential radiological impacts from operation of the EREF would result from controlled releases of small quantities of UF_6 during normal operations and releases of UF_6 under hypothetical accident conditions. Normal operational release rates to the atmosphere from both gaseous and liquid effluent streams are expected to be less than 19.5 MBq/yr (528 µCi/yr) and 9.0E-04 MBq/yr (0.243 µCi/yr), respectively. The estimated maximum annual effective dose equivalent and maximum annual organ (lung) committed dose equivalents to transient individuals at the maximum site boundary for the ground plane (in the north-northeast (NNE)) sector at 1.1 km (0.67 mi), cloud immersion (in the north (N)) sector at 1.1 km (0.67 mi) and inhalation exposure (in the north (N)) sector at 1.1 km (0.67 m) pathways are 1.5E-04 mSv/yr (1.5E-02 mrem/yr) and 1.2E-03 mSv/yr ((1.2E-01 mrem/yr), respectively. The estimated maximum annual effective dose equivalent and maximum annual organ (lung) committed dose equivalents from discharged atmospheric effluent (gaseous and liquid waste streams combined and released as airborne effluent) to a hypothetical resident (teen) located at the plant site North Northeast (NNE) boundary are 8.8E-04 mSv (8.8E-02 mrem) and 6.4E-03 mSv (6.4E-01 mrem), respectively. The maximum effective dose equivalent and maximum annual organ (lung) dose equivalent from gaseous effluent to the nearest resident (teenager) located at least 8 km (5 mi) in any sector are expected to be less than 3.5E-05 mSv (3.5E-03 mrem) and 2.6E-04 mSv (2.6E-02 mrem), respectively.

The dose equivalent due to external radiation (skyshine and direct) from the Full Tails, Full Feed, and Empty Cylinder Storage Pads and direct dose from product cylinders on the Full Product Cylinder Storage Pad is estimated to be less than 1.5E-02 mSv (1.5 mrem) to the maximally exposed person at the nearest point on the site boundary (2,000 hrs/yr), and less than 1E-12 mSv (less than 1E-10 mrem) to the maximally exposed resident (8,766 hrs/yr) located at least 8 km (5 mi) in any direction from EREF.

With respect to the impact from the transportation of UF_6 as feed, product, or depleted material and solid low level waste, the cumulative dose impact has been found to be small. The cumulative dose equivalent to the general public (persons living near a highway route) from the combination of all transport material categories combined equaled 1.5E-01 person-Sv/year (15

person-rem/year). Similarly, the dose equivalent to the onlooker (persons driving the highway routes, plus rest-stops and inspections) and transport workers totaled 3.48 and 1.05 person-Sv/year (3.48E+02 and 1.05E+02 person-rem/year), respectively.

The dose equivalents due to normal operations are small fractions of the normal background range of 2.0 to 3.0 mSv (200 to 300 mrem) that an average individual receives in the US, and well within regulatory limits. Given the conservative assumptions used in estimating these values, these concentrations and resulting dose equivalents are insignificant and their potential impacts on the environment and health are inconsequential.

Since the EREF will operate with only natural and low enriched uranium in the form of uranium hexafluoride (UF_6), it is unlikely that an accident could result in any significant offsite radiation doses. The only chemical exposures that could impact safety are those associated with the potential release of hydrogen fluoride (HF) to the atmosphere. The possibility of a nuclear criticality occurring at the EREF is highly unlikely. The facility has been designed with operational safeguards common to the most up-to-date chemical plants. All systems are highly instrumented and abnormal conditions are alarmed in the facility Control Room.

Postulated accidents are those accidents described in the Integrated Safety Analysis (ISA) that have, for the uncontrolled case, been categorized as having the potential to exceed the performance criteria specified in 10 CFR 70.61(b) (CFR, 2008oo). No significant exposure to offsite individuals is expected from any of the accidents, since many barriers are in place to prevent or mitigate such events.

Evaluation of potential accidents at the EREF included identification and selection of a set of candidate accidents and analysis of impacts for the selected accidents. The ISA team identified UF_6 as the primary hazard at the facility. An example of an uncontrolled accident sequence is a seismic event which produces loads on the UF_6 piping and components beyond their capacity. This accident is assumed to lead to release of gaseous UF_6, with additional sublimation of solid UF_6 to gas. The UF_6 gas, when in contact with moisture in the air, will produce HF gas.

For the controlled fire accident sequence, the mitigating measures include automatic trip off for the ventilation system servicing the Chemical Trap Workshop during a fire event. This mitigating measure is designed to contain the gaseous UF_6 and HF within the room and attenuate the release of effluent to the environment. This mitigating measure will reduce the consequences of a fire event to a low consequence category as specified in 10 CFR 70.61(b) (CFR, 2008d).

For the controlled seismic accident sequence, the preventive measures include (1) seismically designed buildings (Separations Building Modules; Blending, Sampling and Preparation Building; Cylinder Receipt and Shipping Building; and the Technical Support Building) designed to withstand a Design Basis Earthquake (DBE) and (2) design features in the Separations Building Modules to preclude the release of UF_6 from the process piping and components that would exceed a low consequence category as specified in 10 CFR 70.61(b) (CFR, 2008oo).

Exposures to workers would most likely be higher than those to offsite individuals and highly dependent on the workers proximity to the incident location. All workers at the EREF are trained in the physical characteristics and potential hazards associated with facility processes and materials. Therefore, facility workers know and understand how to lessen their exposures to chemical and radiological substances in the event of an incident at the facility.

Liquefied UF_6 is present only in the Product Liquid Sampling System, where safety process control systems are backed up by redundant safety protection circuits to preclude the occurrence of cylinder overheating. Fire protection systems, administrative controls, and limits on cylinder transporter fuel inventory limit the likelihood of cylinder-overheating in a fire. Thus,

this accident scenario is highly unlikely. AES concludes that through the combined result of plant and process design, protective controls, and administrative controls, operation of the EREF does not pose a significant threat to public health and safety.

8.8 NONRADIOLOGICAL IMPACTS

Numerous design features and administrative procedures are employed to minimize gaseous and liquid effluent releases and keep them within regulatory limits. Potential nonradiological impacts of operation of the EREF include releases of inorganic and organic chemicals to the atmosphere and surface water impoundments during normal operations. Other potential impacts involve land use, transportation, soils, water resources, ecological resources, air quality, historic and cultural resources, socioeconomic and public health. Impacts from hazardous, radiological, and mixed wastes and radiological effluents have been discussed earlier.

The other potential nonradiological impacts from the construction and operation of EREF are discussed below:

Land-Use Impacts

The anticipated effects on the soil during construction activities are limited to a potential short-term increase in soil erosion. However, this will be mitigated by proper construction best management practices (BMPs). These practices include minimizing the construction footprint to the extent possible, limiting site slopes, using a sedimentation detention basin, protecting undisturbed areas with silt fencing and straw bales as appropriate, and employing site stabilization practices such as placing crushed stone on top of disturbed soil in areas of concentrated runoff. In addition, onsite construction roads will be periodically watered (at least twice daily, when needed) to control fugitive dust emissions. After construction is complete, the site will be stabilized with natural, low-water maintenance landscaping, and pavement.

A Spill Prevention, Control, and Countermeasures (SPCC) plan will also be implemented during construction to minimize environmental impacts from potential spills and ensure prompt and appropriate remediation. Spills during construction are likely to occur around vehicle maintenance and fueling locations, storage tanks, and painting operations. The SPCC plan will identify sources, locations and quantities of potential spills, and response measures. The plan will also identify individuals and their responsibilities for implementation of the plan and provide for prompt notification of state and local authorities, as required.

Waste management BMPs will be used to minimize solid waste and hazardous materials. These practices include the placement of waste receptacles and trash dumpsters at convenient locations and the designation of vehicle and equipment maintenance areas for the collection of oil, grease and hydraulic fluids. Where practicable, materials suitable for recycling will be collected. If external washing of construction vehicles is necessary, no detergents will be used, and the runoff will be diverted to onsite retention basins. Adequately maintained sanitary facilities will be provided for construction crews.

The EREF facility will require the installation of water well(s) and an electrical utility line. In lieu of connecting to a public sewer system, an on-site domestic sanitary sewage treatment plant will be installed for the treatment of sanitary and non contaminated wastes.

Potable water will be provided from one or more site wells. Since there are no bodies of surface water on the site, no waterways will be disturbed. No natural gas will be used at the EREF.

An electrical transmission line that will provide the source of electrical feed to the EREF will be constructed entirely along privately-owned lands. The transmission will originate at an existing substation and replace an existing line, and then continues a short distance to the EREF property. To the extent possible, the new structures will be placed in the same locations as the existing structures along the existing line. In locations where the transmission structures cross agricultural and grazing land, title for the land within the right-of-way will normally remain with

the landowner and activities such as farming and grazing could be continued on the property by the landowner. Transmission line structures will not interfere with existing center-pivot agricultural systems on the agricultural lands. In this way, land use impacts will be minimized.

Overall land use impacts to the site and vicinity will be changing the use from agriculture to industrial. However, a majority of the site (approximately 86%) will remain undeveloped, and the placement of most utility installations will be along highway easements. Therefore, the impacts to land use would be small.

Transportation Impacts

Impacts from construction and operation on transportation will include the generation of fugitive dust, changes in scenic quality, added environmental noise and small radiation dose to the public from the transport of UF_6 feed and product cylinders, as well as low-level radioactive waste.

Dust will be generated to some degree during the various stages of construction activity. The amount of dust emissions will vary according to the types of activity. AES estimated that fugitive dust emissions are expected to be below the National Ambient Air Quality Standards (CFR, 2008nn).

Impacts to visual and scenic resources from construction of the highway entrances and access roads would include the presence of construction equipment and dust. Although construction equipment would be out of character with the current uses and features of the site and the surrounding properties, road and road access construction would be relatively short-term. Additionally, construction equipment would not be tall, thereby minimizing the potential for the equipment to obstruct views, and dust suppression mitigations would be used to minimize visual impacts. Therefore, impacts to visual resources from construction of the highway entrances and access roads would be small.

Noise levels from construction of the highway entrances would be louder and of longer duration during the day than existing noise generated by traffic along U.S. Highway 20. However, these elevated noise levels would occur only during the construction of the highway entrances and a short portion of the access roads. Noise levels would be heard on adjacent properties as well, including on portions of the WSA. These areas, in general, are used for grazing and few visitors or users would likely be present on a regular basis along the WSA. Overall impacts from noise generated by construction of the highway entrances and access roads, therefore, would be small.

Water Resources

The EREF water supply will be obtained from on-site wells. The anticipated normal water usage rate for the EREF is 68.2 m^3/d (18,000 gal/d) and the peak water usage rate is 42 L/S (664 gpm). The average annual water usage rate is 2.49 E+04 m^3/yr (6.57 E+06 gal/yr), which is below the water appropriation value of 6.25 E+05 m^3/yr (1.65 E+08 gal/yr).

Liquid effluents consists of Stormwater runoff and treated domestic sanitary sewage. The EREF design precludes operational process discharges from the plant to surface or groundwater at the site. All liquid effluents are discharged to either the Stormwater Detention Basin or the Cylinder Storage Pad Retention basins.

The Site Stormwater Detention Basin will collect stormwater runoff from areas of the facility that do not involve cylinder storage activities. These areas include parking lots, roofs, roads, and diversions from unaltered areas around the facilities. The detention basin will be unlined and designed to contain runoff for a volume equal to a 24-hour, 100-year return frequency rain storm of 5.7 cm (2.24 inch) rainfall. The design capacity of the basin, maintaining a freeboard of 0.6 m

(2 ft), is approximately 32,835 m^3 (26.6 acre-ft). The basin will have approximately 49,600 m^3 (40.2 acre-ft) of storage capacity available with 0.3 m (1 ft) of freeboard for unlikely extreme events. It will also be designed to discharge post-construction peak flow runoff rates from the outfall that are equal to or less than the pre-construction runoff rates from the site area.

Discharge of treated domestic sewage water and stormwater from the Cylinder Storage Pads will be discharged onsite to the two single-lined Cylinder Storage Pad Retention Basins. The ultimate disposal of the liquid effluent will be through evaporation of water and impoundment of the residual dry solids, if any, after evaporation. It is designed to contain runoff from a volume equal to two times the 24-hour, 100-year return frequency rain storm plus an allowance for daily treated domestic sanitary effluent.

In summary, the runoff control and water treatment systems incorporated into the facility design are expected to prevent impacts to the qualities of surface water and groundwater.

Ecological Resources

No communities or habitats that have been defined as rare or unique, or that support threatened or endangered species have been identified as occurring on the 1700-ha (4200-acre) EREF site. Thus, no proposed activities are expected to impact communities or habitats defined as rare or unique or that support threatened and endangered species within the site area.

Several practices and procedures have been designed to minimize adverse impacts to the ecological resources of the EREF site. These practices and procedures include the use of BMPs, i.e., minimizing the construction footprint to the extent possible, channeling site stormwater to temporary detention basins during construction, the protection of all unused naturalized areas, and site stabilization practices to reduce the potential for erosion and sedimentation. No special maintenance practices would be required to construct or operate the proposed EREF.

Historic and Cultural Resources

A pedestrian cultural resource survey of the 381-ha (941-acre) EREF site identified 11 sites and 17 isolated occurrences (finds); there are three prehistoric, four historic, and four multi-component sites. Further investigation was conducted to determine the National Register of Historic Places (NRHP) eligibility for the prehistoric components of three sites (MW002, MW012, and MW015). Subsequent testing of these sites resulted in a recommendation of not eligible. The historic component of one site (MW004) is recommended as eligible. Seven sites (MW003, MW006, MW007, MW009, MW011, MW013, and MW014) are recommended not eligible for inclusion in the NRHP. The potentially eligible site is within the proposed plant footprint. A treatment/mitigation plan for MW004 will be developed by AES in consultation with the Idaho State Historic Preservation Officer (SHPO) to recover significant information.

Given the small number of archaeological sites located in the study area, and no other projects within 16 km (10 mi) of the proposed EREF site, there would be no significant impact on historic and cultural resources.

Environmental Noise

Noise generated during construction of the proposed EREF footprint would be audible on adjacent properties, primarily north, east, southeast, and southwest of the proposed EREF footprint. (Section 4.7.1.1, Construction Impacts) While heavy construction would continue for about seven years, the impacts would be small since nearby land use is limited to grazing and few regular users or visitors on the WSA; the nearest residence is approximately 7.7 km (4.8 mi) east of the proposed site; and noise levels would be within the sound levels identified by HUD as “clearly acceptable” or “normally acceptable.”

Noise generated during operation of EREF would be primarily limited to truck movements on the road. Potential impacts to local schools, churches, hospitals, and residences are expected to be insignificant because of the large distance to the nearest sensitive receptors. The nearest home, for example, is located approximately 7.7 km (4.8 mi) from the proposed site. The nearest school, hospital, church, and other sensitive noise receptors are beyond this distance. Although the noise from the plant and the additional traffic would generally be noticeable, the operational noise from the plant is not expected to have a significant impact on adjacent properties.

Socioeconomics

The economic impacts of the construction and operation of the EREF have been estimated for the 30-year license period of the EREF. Construction of the EREF site is scheduled to begin in 2011, with heavy construction continuing for seven years over a duration of eight calendar years. This will be followed by four years of assemblage and testing. This includes an eight-year period when both construction and operation are ongoing simultaneously. The analysis traces the economic impact of the proposed EREF, identifying the direct impacts of the facility on revenues of local businesses, on incomes accruing to households, on employment, and on the revenues of the state and local government. The analysis also explores the indirect impacts of the EREF within an 80-km (50-mi) radius of the EREF. Details of the analysis are provided in ER Sections 4.10, Socioeconomic Impacts, and 7.1, Economic Cost-Benefits, Plant Construction and Operation, and are summarized below.

AES estimates that it would spend [*] locally on construction expenditures over the seven-year heavy construction period beginning in early 2011 and ending in early 2018 and followed by four years of assemblage and testing. The local payroll would include approximately [*] for craft workers, with an additional [*] for management. This amount would be augmented with the inclusion of the [*] in benefits paid to construction craft employees and [*] for management (based on the assumption of 35% of the average salary).

A portion of the total expenditures would be spent locally on construction goods and services, benefiting local businesses. This would amount to approximately [*] per year during the seven years of heavy construction. See ER Section 7.1, Economic Cost-Benefits, Plant Construction and Operation.

AES anticipates the EREF annual payroll to be $36.3 million with additional $12.7 million expenditure in employee benefits once the plant is operational. Approximately $23.8 million will be spent annually on local goods and services required for operation of the EREF.

The tax revenue to the State of Idaho and Bonneville and Bingham Counties resulting from the construction and operation of the EREF is estimated to be approximately $323.6 million over the life of the facility. Refer to Table 4.10-3, Estimated Annual Tax Payments, for further details.

The Regional Input-Output Modeling System (RIMS) II allows estimation of various indirect impacts associated with each of the expenditures listed above. According to the RIMS II analysis, the region's residents can anticipate a total impact of [*] in increased economic activity, [*] in increased earnings by households, and [*] new jobs during the heavy seven-year construction period and 4-year assemblage and testing period. See 7.1.5.2, Construction Impacts. Over the anticipated 30-year license period of the EREF, residents can anticipate an annual total of $35.6 million in increased economic activity for local businesses, $128.0 million in increased earnings by households, and 3,537 new jobs directly or indirectly relating to EREF. Table 8.8-1, Estimated Annual Economic Impacts from the Eagle Rock Enrichment Facility, summarizes the impact economic by the facility on Bonneville County and the surrounding area.

A more detailed discussion of the RIMS II methodology and results is found in ER Section 7.1.5, Total Economic Impact Using RIMS II.

The major impact of facility construction on human activities is expected to be a result of the influx of labor into the area on a daily or semi-permanent basis. AES estimates that approximately 15% of the 590-person peak construction work force (89 workers), including management is expected to move into the Idaho Falls vicinity as new residents. Previous experience regarding construction for the nuclear industry projects suggests that of those who move, approximately 65% (58 of the 89 workers) will bring their families, which on average consist of the worker, a spouse, and one school-aged child. The likely increase in area population during peak construction, therefore, will total 205 (31 workers without their families plus 58 workers with their families). This is less than 0.25% of the Bonneville County's population of 82,522 in 2000, and less than 0.15% of the three-county region of influence (ROI) population of 143,412 in 2000. This minimal increase and impact would be manageable and the overall change in population density and characteristics in Bonneville County due to construction of the EREF would be small. Refer to Section 4.10.1.2, Community Characteristic Impacts.

The increase in jobs and population would lead to a need for additional housing and an increased level of community services, such as schools, fire and police protection, and medical services. However, because the growth in jobs and population would occur over a period of several years, providers of these services should be able to accommodate the projected population growth and demand for services. For example, the estimated peak increase in school-age children due to EREF construction worker families is 58, or less than 1% of Bonneville County's public enrollment of 14,254 students and the three-county ROI enrollment of 29,896. Based on the local area teacher-student ratio of approximately 1:18, the midpoint of traditional schools in the counties, and assuming an even distribution of students among all grade levels, the increase in students represents four classrooms. Because the growth in jobs and population would occur over a period of several years, providers of the above services should be able to accommodate the projected population growth and demand for services. (Refer to Section 4.10.1.2)

Similarly, an estimated 89 housing units would be needed to accommodate the new EREF construction workforce. In 2006, Bonneville County had 2,603 vacant housing units (7.2%) (estimates were not available for Bingham County and Jefferson County for 2006). In 2000, Bonneville County had 1,731 vacant units, Bingham County had 986 vacant units, and Jefferson County had 386 vacant units for a total of 3,103 in the ROI. Even if all of the in-migrating construction workforce were to reside in Bonneville County, it would only represent a 3.4% reduction in the number of vacant houses available in 2006. If they were to reside throughout the three-county region of influence, it would only represent a 2.9% reduction in the number of vacant houses available in 2000. Accordingly, there should be no measurable impact related to the need for EREF construction worker housing. (ER 4.10.1.2)

While additional investment in staff, facilities, and equipment may be necessary, local government revenues would also increase (Section 7.1 and discussion above concerning AES' anticipated payments to the State of Idaho and Bonneville County). For example, AES would pay an estimated [*] in annual property taxes to Bonneville County during the last three years of the seven-year heavy construction period for the EREF, representing a [*] increase in annual county property tax revenues and a [*] increase in total annual county revenues. AES would also pay an estimated [*] to the State of Idaho in annual sales and use taxes during the seven-year heavy construction period for the EREF. These payments would provide the source for additional government investment in facilities and equipment. That revenue increase may lag somewhat behind the need for new investment, but the incremental nature of the growth

should allow local governments to more easily accommodate the increase. Consequently, minor and temporary negative impacts on community services would be expected. Refer to ER 4.10.1.2, Community Characteristic Impacts.

* Proprietary Commercial Information withheld in accordance with 10 CFR 2.390

Public Health Impacts

Trace quantities of hydrogen fluoride (HF) are released to the atmosphere during normal separation operations. The annual HF release rate is estimated as less than 2 kg (< 4.4 lb). The HF emissions from the plant will not exceed the strictest of regulatory limits at the point of release. Standard dispersion modeling techniques estimated the HF concentration at the nearest site boundary to be 2.7×10^{-4} µg/m^3 and 3.2×10^{-5} µg/m^3 at the nearest business, located 4.7 km (2.9 mi) southwest (Reference 4.1-1). At 8 km (5 mi), the concentration is calculated to be 1.3×10^{-5} µg/m^3. The nearest resident to the site, or other sensitive receptor (e.g., schools and hospitals) is located beyond 8 km (5 mi). These concentrations are well below the strictest HF exposure standards in use today (Refer to Section 4.12.1.1, Routine Gaseous Effluent).

Radiological public health impacts were summarized previously in ER Section 8.7, Radiological Impacts.

Methylene chloride is used in small bench-top quantities to clean certain components. All chemicals at EREF will be used in accordance with the manufacturer's recommendations. All chemicals are used in quantities that are considered deminimus with respect to air emissions outside the EREF. Its use and the resulting emissions have been evaluated and determined to pose minimal or no public risk. All regulated gaseous effluents will be below regulatory limits as specified in permits issued by the Idaho DEQ, Air Quality Division.

AES has concluded that the public health impacts from radiological and nonradiological constituents used within EREF are minimal and well below regulatory limits at the point of discharge. All hazardous materials and waste streams will be managed and disposed of in accordance with the permit requirements issued by the EPA Region 10 and the Idaho DEQ.

TABLES

Table 8.8-1 Estimated Annual Economic Impacts from the Eagle Rock Enrichment Facility (Bonneville County and Nearby)

(Page 1 of 1)

Impact	Construction	Operations
Local Businesses Additional Revenues	[ ]	$35.6 Million
Household Additional Income	[ ]	$128.0 Million
State & Local Government Additional Tax Revenue	[ ]*	$273.0 Million**
Employment	[ ]	3,537 Jobs

*Total during period 2011-2022 (Construction of the EREF is scheduled to begin in 2011, with heavy construction continuing for seven years followed by four years of assemblage and testing. Construction is complete in February 2022. The total eleven year construction period includes an eight-year period when both construction and operation are ongoing simultaneously.)

**Total during period 2023-2040

Information in "[ ]" is Proprietary Commercial Information withheld in accordance with 10 CFR 2.390

8.9 DECONTAMINATION AND DECOMMISSIONING

Decontamination and decommissioning of the facility will be staged during facility operations and is projected to take approximately nine years. Releases will be maintained such that associated impacts are the same order of magnitude or less than normal operational impacts. Decommissioning would also result in release of the facilities and land for unrestricted use, discontinuation of water and electrical power usage, and reduction in vehicular traffic.

As European plant experience has demonstrated, conventional decontamination techniques are entirely effective for all plant items. All recoverable items will be decontaminated except for a relatively small amount of intractably contaminated material. The majority of materials requiring disposal will include centrifuge rotor fragments, trash, and residue from the effluent treatment systems. No problems are anticipated which will prevent the site from being released for unrestricted use. Additional details concerning decommissioning are provided in SAR Chapter 10, Decommissioning.

8.10 DEPLETED URANIUM DISPOSITION

Enrichment operations at the Eagle Rock Enrichment Facility (EREF) will generate an average 15,270 metric tons 16,832 tons) of depleted UF_6 (DUF_6) per year at full production. After temporary storage onsite, AES will utilize the DOE deconversion facilities that are currently under construction at the sites of the Paducah Gaseous Diffusion Plant (GDP) and the former Portsmouth GDP for final disposition of DUF_6. As discussed in Section 4.13, Waste Management Impacts, the DOE has determined that any of the disposal options that would be considered for the products of the deconversion process would adequately protect human health and the environment. On this basis, AES estimates that the environmental impacts associated with such a strategy will be small.

AES is committed to ensuring that there will be no long-term disposal or long-term storage (beyond the life of the plant) of DUF_6 onsite. As described in SAR Section 10.2, Financial Assurance Mechanism, AES will put in place as part of the NRC license a financial assurance mechanism that assures funding will be available to safely dispose of the DUF_6 generated by the EREF.

8.11 ENVIRONMENTAL JUSTICE

An analysis of census block groups (CBGs) within a 6.4-km (4-mi) radius of the site was conducted to assess whether any disproportionately large minority or low-income populations were present that warranted further analysis of the potential for disproportionately high and adverse environmental impacts upon those populations. The analysis is more fully described in ER Section 4.11.1, Census Block Group Procedure and Evaluation Criteria. As stated in Section 4.11, the evaluation was performed using the 2000 population and economic data available from the U.S. Census Bureau for that area, and was done in accordance with the procedures contained in NUREG-1748 (NRC, 2003a). This guidance was endorsed by the NRC Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (FR, 2004).

The nearest residence is approximately 7.7 km (4.8 mi) from the proposed site (see Section 3.1, Land Use). Because this is outside of the 6.4-km (4-mi) radius (130-km^2 [50-mi^2] area) required by the NRC to be examined (NRC, 2003a), no environmental justice disproportionate adverse impacts would occur to minority or low-income populations. However, the proposed site does extend across four census block groups and to show additional compliance with the NRC requirements, a census block group analysis was conducted to determine whether the remainder of those census block groups (i.e., the portions lying outside of the 6.4-km [4-mi] radius) had potential minority or low-income populations. The analysis demonstrates that none of these four CBGs are comprised of more than 50% of any individual or aggregate minority population. The percentages for the Hispanic or Latino population, the largest minority population in the four census block groups, are as follows:

- Census Tract 9715, CBG Bonneville 1 – 23.4%
- Census Tract 9715, CBG Bonneville 2 – 8.2%
- Census Tract 9503, CBG Bingham 1 – 18.2%
- Census Tract 9601, CBG Jefferson 3 – 23.1%

Moreover, none of these percentages exceeds the State of Idaho or applicable county percentages for this minority population by more than 20 percentage points.

In addition, the AREVA analysis demonstrates that no individual CBG is comprised of more than 50% of low-income households. The percentages of low-income households are as follows:

- Census Tract 9715, CBG Bonneville 1 – 15.8%
- Census Tract 9715, CBG Bonneville 2 – 6.6%
- Census Tract 9503 CBG Bingham 1 – 11.7%
- Census Tract 9601, CBG Jefferson 3 – 23.3%.

None of these populations exceeds the percentage of low-income households in the State of Idaho or applicable county by more than 20%.

In addition to the percentage of minority and low-income populations within the census tracts contained in Bonneville, Bingham, and Jefferson Counties, the presence of subsistence activities also can be used to assess whether any disproportionately large minority or low-income populations are located within a specified radius of the site.

As noted in Section 4.11.3, Recreational/Subsistence Harvest, subsistence is the use of natural resources as food for consumption and for ceremonial and traditional cultural purposes. Often these types of activities are discussed for minority populations and at times for low-income populations. Common classifications of subsistence activities include gathering plants for consumption; for medicinal purposes and use in ceremonial activities; fishing; and hunting. These activities are in addition to or to replace portions of the foods that might be bought from businesses, and thus can represent reduced costs of living. They also often represent an important part of the cultural identity or lifestyle of the participants.

The proposed EREF site is to be located on privately-owned land and, thus, collection of subsistence resources do not occur on the site. Any recreational activities involving subsistence activities would be limited to those conducted by the property owner. Consequently, these types of activities do not seem very likely for the 6.4 km (4 mi) study area, because it is private land.

Based on this analysis, AREVA has concluded that no disproportionately high minority or low income populations exist that would warrant further examination of disproportionately high and adverse environmental impacts upon such populations.

8.12 CONCLUSION

In conclusion, analysis of the potential environmental impacts associated with construction and operation of the EREF indicates that adverse impacts are small and are outweighed by the socioeconomic benefits associated with plant construction and operation. Additionally, the EREF will meet the underlying need for additional reliable and economical uranium enrichment capacity in the United States, thereby serving important energy and national security policy objectives. Accordingly, because the impacts of the proposed EREF are minimal and acceptable, and the benefits are desirable, the no-action alternative may be rejected in favor of the proposed action. AES has also completed a safety analysis of the proposed facility which demonstrates that EREF operation will be conducted in a safe and acceptable manner.