UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

NOV - 6 2008

Chief
Rulemaking, Directives and Editing Branch
U.S. Nuclear Regulatory Commission
Mail Stop T-6D59
Washington, DC 20555-0001

Dear Sir/Madam:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA) has reviewed the Nuclear Regulatory Commission's (NRC) Draft Generic Environmental Impact Statement (GEIS) for In-Situ Leach (ISL) Uranium Milling Facilities (CEQ # 20080281).

Because there has been an increased demand for uranium from developing nations and growing interest in low and zero greenhouse gas-emitting fuels, there has been a renewed interest in uranium mining and extraction. As a result, the NRC has been approached by commercial uranium recovery companies regarding plans to pursue as many as 21 license applications for new uranium recovery sites. In addition, there are potentially 10 applications for the restart or expansion of existing facilities in the next several years. All of the activities under NRC's authority for uranium recovery facilities will be focused in the states of Wyoming, Nebraska, South Dakota, and New Mexico. Accordingly, NRC has prepared a draft GEIS to identify and evaluate the potential environmental impacts associated with the construction, operation, aquifer restoration, and decommissioning of uranium recovery facilities in these states. Specifically, the draft GEIS analyzes potential impacts associated with transportation, geology and soils, water resources, air quality, environmental justice socioeconomic, and land use issues. It also addresses various consultation efforts that will be required for future site-specific NEPA analyses.

EPA recognizes the complexity of the proposed licensing process to support a commercial uranium-mining program for the development of domestic energy fuels. We

also support an energy policy that assures a long-term, sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health. However, based on our experiences with uranium ISL facilities, we have a number of concerns about the proposal described in the draft GEIS, and offer the following comments/recommendations for you to consider addressing in the final GEIS.

Surface Water and Groundwater Resources

While many ISL facilities were licensed in the 1970s and 1980s, not many have been decommissioned. We understand that several were mothballed, but have re-started operations. Regardless, ISL facilities are still required to report/notify the Commission or Agreement States of any excursions and/or contamination of the site under 10 CFR 40, Appendix A, Technical Criterion 5 and 7. The information in these reports would be useful in projecting the potential impacts associated with contamination at future ISL facilities. For this reason, it would be beneficial if the final GEIS provided additional information in the following areas: (1) geographic extent of known excursions and contamination from both ongoing operations as well as ISL decommissioning operations, (2) concentration levels of radiological and other hazardous components of plumes, as well as (3) impacts on affected aquifers, drinking water wells, communities and the environment as a reference point for potential impacts on groundwater. In addition, even though the GEIS's scope is limited to states where NRC will be licensing new facilities, EPA believes that the analysis can be improved/enhanced by referencing, as appropriate, performance data from areas where there has been significant development and performance history such as ISL projects located in Texas, Wyoming, and Nebraska.

The draft GEIS presented minimal information about how often ISL licensees have been allowed under 10 CFR 40, Appendix A, Criterion 5 to use Alternate Concentration Limits (ACLs), and what limits were granted for hazardous constituents of groundwater for specific licenses. This information can greatly assist the evaluation of how the ISL process will alter and impact natural groundwater aquifers. Information for ACLs can only be obtained from decommissioning operations. As indicated above, because of the abundance of information and performance data from ISL decommissioning projects in Texas and Wyoming, it may be relevant to these questions. For example, greater inclusion of data and tables from documents cited in the draft GEIS such as NUREG CR/6870 (Davis and Curtis, 207) and NUREG/CR-3967 would be very advantageous. In addition, although it has not been peer reviewed, results cited in a recently released study, "Report on Findings Related to the Restoration of In Situ Uranium Mines in South Texas, submitted to Blackburn and Carter, Houston, Texas" by Southwest Groundwater Consulting and dated September 29, 2008, may also be useful.

The discussion of lixiviant chemistry and groundwater impacts throughout the draft GEIS was predicated on use of alkaline solutions (Section 2.4.1.1) and does not consider the future application of acid based solvents. Given the proposed use of acid lixiviants in a license expected to be submitted on the Dewey Burdock site in South Dakota, the use and impacts of acid leaching solutions on groundwater aquifers and restoration should be considered and addressed in the final GEIS.

Leakage from evaporation ponds can contribute to pollution of shallow groundwater aquifers and soils at ISL facilities. However, the draft GEIS provides minimal information on the range of past performance of licensed operations and reported concentrations of radionuclides and hazardous constituents that had to be cleaned up as a result of leakage from these surface facilities. In addition, while the draft GEIS indicates that leak detection systems are used for evaporation pond liners, no information is provided on the history of their effectiveness or sensitivity. Given the significance of these devices in mitigating pollution events from ISL operations, EPA requests that the GEIS include this information.

Estimates of contaminated soils and other wastes anticipated to be removed from sites during decontamination of a pollution event or at decommissioning of facilities were not provided. The data included in Table 2.6-1 from decommissioning of a single site does not provide a range of values to assess the likely differences to be found with contamination or decommissioning of licensed areas that can range in size from a few thousand to as much as 16,000 acres. Furthermore, disposal options for contaminated soil, liquids, equipment and materials in the event of accidents or plume excursions were not discussed. This could be a critical issue for impacted and affected communities and states and should be addressed in the final GEIS.

As previously indicated, many of the ISL facilities that were licensed in the 1970s and 1980s may still be active. NUREG 1569 (Standard Review Plan for In Situ Leach Uranium Extraction License Applications) requires semi-annual radon monitoring and reporting for these facilities. The draft GEIS has very little discussion of radon emissions from ISL facilities. It is not clear as to what radon measurements have been taken and how the dose estimates were developed. Instead, the GEIS only provides estimated radiation doses of offsite receptors in Section 4.2.11 which combines <u>all</u> sources of radiological sources and pathways (groundwater, radioactive dusts, radon, etc). We believe this radon data should be readily available to NRC from its licensees as required by 10 CFR 40, Appendix A, Criterion 8, and semi-annual radon monitoring and reporting required in NUREG 1569. EPA requests that the final GEIS provide or incorporate by reference radon emissions data from ISL facilities to enable the evaluation of the impacts of this hazardous air pollutant on the local populations and the environment.

<u>EPA Regulations</u>

The following discussions on EPA regulations would benefit from further elaboration or correction in the final GEIS:

> EPA's 40 CFR 192 regulations implementing the Uranium Mill Tailings Radiation Control Act (UMTRCA) require protection and restoration of groundwater <u>during</u> operations, not solely during the closure phase of operations, and apply without regard to the "exempted aquifer" approved by the Agency under Underground Injection Control (UIC) regulations implementing the Safe Drinking Water Act (SDWA).

EPA has determined that Clean Air Act radon monitoring and reporting requirements of the National Emission Standards for Hazardous Air Pollutants, 40 CFR 61 Subpart W, as well as the preconstruction permitting requirements in 40 CFR 61 Subpart A, are applicable to evaporation ponds at ISL facilities. This should be discussed in the final GEIS.

It is relevant to include in the final GEIS that EPA is currently reviewing both its 40 CFR 192, and 40 CFR 61 Subpart W regulations for possible revision which would include coverage for ISL facilities.

EPA strongly encourages the deletion of any mention of dual regulation and delegation to EPA's UIC program as stated in Volume 2, Appendix B. Deferral of authority as a means of reducing dual regulation is complex and not universally possible. Regulatory rewording might be needed to facilitate deferral. In addition, EPA or a state with primary enforcement authority under EPA's UIC Program (a "UIC Primacy State"), may regulate the same facilities under its own authorities, such as section 1422 of the SDWA, which NRC or its Agreement States regulate under UMTRCA. Conversely, NRC or its Agreement States could possibly regulate, through UMTRCA, the same activities at an ISL that EPA or its Primacy States are regulating under SDWA. The GEIS sees "deferral" as a solution to the dual regulation "problem". However, deferral could only occur in a state that is both an NRC Agreement State and a UIC Primacy State. As the intention of the draft document is the evaluation of the environmental impacts of ISL facilities, any discussion of the regulatory impacts of "deferral" and "dual regulation" should be addressed in a regulatory review instead.

Air Quality

The draft GEIS identifies conventional fugitive source controls for project construction, such as water application on roads and stockpiles and revegetation of disturbed areas. Additional measures exist that could be used to control particulate matter (PM10) emissions, as well as diesel particulate matter (DPM) and other criteria pollutants. For this reason, we recommend NRC develop and implement a generic fugitive dust mitigation plan that incorporates these measures. Detailed recommendations for the plan are located in the specific comments attached.

The annual limit to the public of 100 mrem/yr in 10 CFR Part 20 is referenced in various places in the GEIS (e.g., p. 4.2-52). In addition to this dose limit, compliance with the limits in 40 CFR Part 190 is required pursuant to 10 CFR §20.1301(e) at ISL facilities and should be addressed in the final GEIS. These limits are 25 mrem/yr to the whole body, 75 mrem/yr to the thyroid, and 25 mrem/yr to any other organ.

Financial Assurance

EPA recommends that the final GEIS include information to analyze the potential costs of site clean ups and to demonstrate that bonding requirements are adequate to pay for entire site restoration if the company defaults. Section 2.11.5 of the draft GEIS provides several examples of uranium mining facilities where the number of pore volumes needed for aquifer restoration were significantly underestimated during the planning or operations phases. Aquifer restoration efforts commonly take much more time and many more pore volumes than initially estimated. Accordingly, consideration should be given to including contingencies for conducting aquifer restoration activities over a longer period of time as well as for providing alternate sources of water to affected residents during and after mining.

We recommend that the final GEIS indicate that all project-specific NEPA documents tiered from this GEIS will identify the estimated bond amounts for each closure, reclamation, and aquifer restoration activity at each facility. These documents should also discuss how NRC can modify the bond or establish trust funds during the course of operations if temporary, long-term, or perpetual treatment, remediation, and/or mitigation needs are discovered during operations. We also recommend that these documents identify who would be responsible for any post-closure cleanup actions should they be necessary.

Transportation Routes

According to the draft GEIS, the environmental impacts of national transportation of yellowcake were not studied in detail because they were analyzed in 1977 and 1980 at to the uranium hexafluoride conversion facility in Metropolis, Illinois. EPA is concerned that those documents may no longer reliably evaluate the impacts associated with transportation of yellowcake from new projects as routes, demographics, truck emissions, fuel efficiencies, and other conditions may have changed over the last three decades. The final GEIS should include a map depicting the proposed and alternative routes for transport from the four milling regions to Metropolis, Illinois, and describe these routes, including demographics, truck emissions, fuel efficiencies and other conditions. The final GEIS should also discuss how proposed and alternative routes would maximize safety and reduce the chance of accidents, and evaluate all potential impacts and risks from yellowcake transportation from future ISL projects.

Qualitative Assessments of impacts used in the GEIS

It is difficult for the reader to understand the standards of significance that have been established by NRC for assessing environmental impact using the terms "Small", "Moderate", and "Large". While Section 4 of the document refers to NUREG 1748 for a description of these classifications, this document refers to NUREG 1437 (GEIS for License Renewal of Nuclear Power Plants). The reader would have to read the entire NURG 1437 for a complete understanding of these classifications. It would be beneficial

if the final GEIS included a brief summary and/or a specific location of the references for these classifications of impacts.

Government-to-Government Consultation

As a result of their geographic location, uranium production facilities have had very specific environmental, health, and cultural impacts to various Native American Tribes. According to the Health and Environmental Impacts of Uranium Contamination in the Navajo Nation's Five-Year Plan dated June 9, 2008, NRC is working closely with the Navajo Nation and will conduct a comprehensive safety and environmental review of any new applications for uranium recovery sites. In addition to the Navajo tribe, other affected tribes include: the Sioux, the Hopi, the Yavapai-Apache, the Shoshone, the Northern Arapaho, the Ute, and potentially a number of Pueblo Tribes. Efforts similar to those done with the Navajo would be very beneficial to the other potentially affected Tribes. Information on the government-to-government consultations that are underway for the other affected Tribes should be presented in the final GEIS.

The Environmental Justice section of the draft GEIS discusses the proximity of the abovementioned Tribes to the potential ISL milling sites. In accordance with NRC's Environmental Review Guidance for Licensing Actions Associated with Nuclear Material Safety and Safeguards Programs (NUREG-1748), EPA recommends that the final GEIS include more information specifically on water supply, cultural, health (radiation), and other related impacts to Native Americans. Further, each project-specific NEPA document tiered to this GEIS should specifically describe the process and outcome of government-to-government consultations between NRC and each of the tribal governments within individual project areas, issues that were raised, and how those issues will be addressed.

Tiered NEPA Documents

The draft GEIS indicates project-specific NEPA documents, which may be either environmental assessments (EAs) or EISs, will be tiered from this GEIS. Based on EPA's experience with the environmental impacts associated with mining projects, we do not believe that EA's will be sufficient in most cases. In a related matter, EPA recommends that NRC consider employing an expanded public outreach/involvement process for both EAs and EISs tiered to this GEIS, including scoping and public meetings. Further, EPA requests (1) to be notified when scoping is initiated for each tiered project, and (2) copies of all NRC EAs tiered to this GEIS during the public review period.

Based on the above issues we have rated the draft GEIS Environmental Concerns/Insufficient Information (EC-2), (see enclosed "Summary of EPA Rating System"). The EC rating is based on the potential for adverse impacts to surface and groundwater resources and air quality. The "2" indicates the draft EIS does not contain sufficient information to fully assess the environmental impacts from the proposed action.

We appreciate the opportunity to review and comment on this document. If you have any further questions you may contact me at (202) 564-5400. You may also call my staff point of contact, Marthea Rountree. She can be reached at (202) 564-7141.

Sincerely,

Susan E. Bromm

Susan E. Bromm
Director
Office of Federal Activities

Enclosures (2): Detailed Comments
Summary of EPA Rating System

Enclosure

EPA's Detailed Comments on the Draft GEIS for ISL Uranium Milling Facilities

Surface and Groundwater Resources

Waters of the U.S./Wetlands

Clean Water Act Section 404

EPA suggests that the final GEIS provide additional information on the possible discharge of dredged or fill materials into waters of the United States because of proposed uranium development and the resulting permitting requirements.

Recommendations:

- The final GEIS should explicitly state that any discharges of dredged or fill materials associated with individual license applications may require a CWA 404 permit, which would include an additional full alternatives and impacts analysis;
- The final GEIS should contain information identifying the types of dredge and fill activities that will be associated with commercial-scale facilities, e.g., road crossings, transmission lines, pipelines and their potential impacts to waters of the U.S.; and
- The final GEIS should discuss how the Wetlands Protection Executive Order 11990 (EO 11990) applies to commercial-scale licensing and how NRC will address this EO in its NEPA analyses.

Underground Injection Control Program

- The draft GEIS states that potential impacts to groundwater are identified as SMALL to LARGE, depending on site-specific conditions. The draft GEIS states that alterations of the ore body aquifer chemistry would be SMALL because the aquifer would be confined, would not be a potential drinking water source, and would be restored within a statistical range of preoperational baseline quality. However, many uranium ore zones occur in aquifers that are presently used by local populations for domestic use, livestock watering and agricultural uses. The impact of ISL operations could permanently and significantly alter such use patterns. The final GEIS should address these possibilities as well.

- The general intent of the analysis contained in the draft GEIS appears to be that the aquifer zone would be restored as close to baseline groundwater standards as possible but it is unclear if it would be restored sufficiently to permit its use as a drinking water source. This presumption of the draft GEIS should not be relied upon for setting the ground water restoration standards and should more

appropriately describe the actual results of following the separate requirements under UMTRCA and the SDWA as practiced in NRC and Agreement State licensed operations. EPA recommends that discussion of restoration standards also be included during the site specific analysis that includes public notice, public review, and opportunity for public comment.

- The draft GEIS does not address the other naturally-occurring ground water constituents such as metals (selenium, arsenic, molybdenum) and salts that may be mobilized by the mining activity and remain mobile in ground water even after restoration – with the potential to move into and contaminate the underground source of drinking water (USDW) portion of the aquifer adjacent to the ore zone. EPA recommends that the final GEIS address this issue.

- EPA recommends that the final GEIS sufficiently examine consumptive use of the water, which could be significant in some water basins and is merely mentioned in the draft GEIS.

EPA recommends that the final GEIS clarify the regulatory structure for protecting groundwater, by describing the role of the Nebraska, New Mexico, South Dakota, and Wyoming State Engineers or other appropriate agencies in protecting beneficial uses, human health, and the environment as it relates to underground sources of drinking water. This would include, for example, describing the water right permits and whether they include special conditions, discussing measures to mitigate direct, indirect, and cumulative impacts, and establishing provisions for monitoring and adaptive management.

EPA also recommends that the final GEIS clearly describe the groundwater monitoring program, and define the responsibility for monitoring in the commercial licensing program for uranium milling facilities. Given the potential for adverse impacts from pumping groundwater, it is important that detailed monitoring and mitigation information from the proposed project be provided to the public and decision-makers.

National Pollutant Discharge Elimination System (NPDES) Program

- **Section 1.7.2, Page 1-19.** The last full paragraph on this page talks about permits for stormwater (industrial and construction). This paragraph should also describe the need for an NPDES permit for any process water discharges including dewatering, produced water, and treated wastewater.

- **Section 2.7.2, Page 2-37, lines 28-31.** This paragraph should more accurately describe the NPDES permitting requirements. EPA suggests that the final GEIS include the following language: "The discharge of pollutants to surface water requires an NPDES permit. The permit will specify limits that are calculated to ensure that the discharge does not cause a violation of water quality standards. A permit will not be issued to a new source or a new discharger if the discharge will cause or contribute to the violation of water quality standards. Specific

requirements for uranium ISL facilities are provided for in EPA's 40 CFR 440 Part C regulations."

- **Section 3.2.4.1, Page 3.2-13**. The figure on this page and the related discussion describe State of Wyoming water quality standards in the Wyoming West Uranium Milling Region. This milling region includes the Wind River Reservation that is under federal jurisdiction for implementation of Clean Water Act programs. EPA requests that language be added to this section specifying that State water quality standards approved by EPA under the Clean Water Act do not apply in Indian Country and all NPDES permits in these areas will be issued by the EPA.

- **Section 3.4.4.1.** EPA requests that language be added to this section specifying that State water quality standards approved by EPA under the Clean Water Act do not apply in Indian Country and all NPDES permits will issued by the EPA.

- **Section 4.2.4.1.** The uranium milling regions include Indian Country where EPA maintains jurisdiction for issuing NPDES permits including stormwater permits. We recommend that this section acknowledge that EPA will be the permit issuing authority for any activities in Indian Country.

- **Section 4.2.4.1.2.** The first paragraph of this section describes scenarios in which operations resulting in spills will impact surface waters. EPA recommends that this paragraph address the fact that spills may enter surface water directly in addition to being carried to surface water via contaminated stormwater. Spills that enter surface water are generally unauthorized discharges and would be in violation of the Clean Water Act. The impact on surface water may be low to high depending on the substance spilled, the quantity that reaches surface water, and the effectiveness of the clean-up. The final GEIS should address measures to be taken if groundwater resources become contaminated.

- **Section 4.4.4.1.1 and 4.4.4.1.2.** EPA requests that these sections acknowledge the federal jurisdiction in Indian country for issuance of NPDES, including permits for stormwater discharges.

- **Table 7.4-1, page 7-4.** The table should reference EPA and state requirements for construction permitting, Storm Water Pollution Plan requirements, and best management practices.

Air Quality Impacts

National Emission Standards for Hazardous Air Pollutants (Radionuclide NESHAPs)

The NRC Generic EIS does not sufficiently reference 40 CFR Part 61, Radionuclide NESHAPs (40 CFR Part 61 is only mentioned in Appendix B (p. B-2)). The following

are specific examples where it is recommended that edits be made and/or 40 CFR Part 61 be referenced:

- **Section 1.6.1.2, Page 1-14.** This section should acknowledge that the programs administered by EPA, States and Tribes granted primacy, or by joint programs between EPA and the state may require approvals prior to construction and/or operations (e.g., Radionuclide NESHAPs);

- **Page 1-17.** EPA suggests changing the title of section 1.7.2 to "EPA Permitting/Approval" because 40 CFR Part 61, (Radionuclide NESHAPs) does not require permits but does require approval prior to construction of evaporation ponds. In addition, the construction approval required for evaporation ponds, by Radionuclide NESHAPs, should be mentioned as an example of EPA approval required for management of uranium byproduct waste;

- **Section 1.7.2.2, Page 1-20.** This section has an incorrect regulatory reference for the National Emission Standards for Hazardous Air Pollutants. It reads 40 CFR Part 40 and should instead be 40 CFR Part 61;

- **Page 1-21.** EPA recommends that the final GEIS include a paragraph summarizing the requirements of 40 CFR Part 61 (NESHAPs) for approval prior to the construction of evaporation ponds at ISL facilities;

- **Page 2-34.** The paragraph which consist of lines 3-12 should include that Radon emissions from evaporation ponds and are regulated by 40 CFR Part 61; and

- **Page 4.2-60.** EPA recommends that the paragraph consisting of lines 35-47, acknowledge the 40 CFR Part 61 requirements for construction approval and annual monitoring of Radon from evaporation ponds.

EPA recommends that the final GEIS address the range of emission control technologies for use at uranium production and upgrading facilities to obtain a level of pollutant emission control sufficient to protect air quality standards and levels of concern, and discuss the factors and processes used to select the appropriate technology.

Additional Recommendations:

- the final GEIS should clarify that subsequent NEPA analyses give additional consideration to Class I areas when proposed project-specific evaluations are conducted;
- the final GEIS should include discussions about what the action level would be for decontamination of land application areas after disposal of treated effluent. It should require license applications to survey and decontaminate as necessary areas for land application of treated water to ensure that the water is sufficiently treated prior to land application. (p. 2-31, Lines 22 and 23);

- the final GEIS should clarify what type of monitoring of process or wastewater ponds will be required in the license conditions (i.e., leak monitoring, Radon, etc.) [40 CFR Part 61 requires the ponds to be monitored for Radon flux.] (p. 2-45, Line 4); and
- the final GEIS should describe the requirements for radon-222 monitoring, specifically the type of monitors that are allowed for Rn-222 monitoring. (p. 8-2).

Construction Emissions Mitigation

The draft GEIS does not contain information regarding opportunities to reduce air emissions associated with construction. EPA recommends an evaluation of the following measures to reduce construction emissions of criteria air pollutants and national emissions standards for hazardous air pollutants (NESHAPs). In addition, we recommend that the final GEIS include a generic *Construction Emissions Mitigation Plan* to reduce construction emissions and commit to the use of these measures during construction, as appropriate for the site specific actions. At a minimum, the plan should focus on efforts to:

- reduce emissions of diesel particulate matter (DPM) and other air pollutants by using particle traps and other technological or operational methods. (Control technologies such as traps control approximately 80 percent of DPM. Specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions.);
- ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use;
- prohibit engine tampering to increase horsepower;
- locate diesel engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals);
- require ultra-low sulfur diesel fuel (<15 parts per million);
- reduce construction-related trips of workers and equipment, including trucks and heavy equipment;
- ensure that the license applicant works with the local air pollution control district(s) to implement the strongest mitigation for reducing construction emissions;
- lease or buy newer, cleaner equipment (1996 or newer model); and
- employ periodic, unscheduled inspections to ensure that construction equipment is properly maintained at all times and does not unnecessarily idle, is tuned to manufacturer's specifications, and is not modified to increase horsepower except in accordance with established specifications.

As indicated in the general comments, EPA also recommends the development of a generic fugitive dust mitigation plan. The plan should be addressed in both the final GEIS and project-specific tiered documents. It should include the following measures:

- water active construction sites as needed or apply a non-toxic soil stabilizer;
- cover vehicles hauling soil or other loose materials with a tarp or by other means;
- cover or apply soil stabilizers to exposed stock piles;
- sweep adjacent paved streets with water sweepers in the event soil materials are carried onto them;
- limit traffic speeds in the construction area and along access roads;
- cover or apply soil stabilizers to disturbed areas within five days of completion of the activity at each site; and
- reclaim and revegetate disturbed areas as soon as practicable after completion of activity at each site.

SUMMARY OF EPA RATING SYSTEM

Rating the Environmental Impact of the Action

- **LO (Lack of Objections)** The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.
- **EC (Environmental Concerns)** The review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.
- **EO (Environmental Objections)** The review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). The basis for environmental objections can include situations:
    1. *Where an action might violate or be inconsistent with achievement or maintenance of a national environmental standard;*
    2. *Where the Federal agency violates its own substantive environmental requirements that relate to EPA's areas of jurisdiction or expertise;*
    3. *Where there is a violation of an EPA policy declaration;*
    4. *Where there are no applicable standards or where applicable standards will not be violated but there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives; or*
    5. *Where proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.*
- **EU (Environmentally Unsatisfactory)** The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions:
    1. *The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis;*
    2. *There are no applicable standards but the severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention; or*
    3. *The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.*

Adequacy of the Impact Statement

- **Category 1 (Adequate)** The draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.
- **Category 2 (Insufficient Information)** The draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the final EIS.
- **Category 3 (Inadequate)** The draft EIS does not adequately assess the potentially significant environmental impacts of the proposal, or the reviewer has identified new, reasonably available, alternatives, that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. The identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. This rating indicates EPA's belief that the draft EIS does not meet the purposes of NEPA and/or the Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS.